

Ostracism: Empirical studies inspired by real-world experiences of silence and exclusion

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Publication Date:

2004

DOI:

<https://doi.org/10.26190/unsworks/4211>

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Abbreviation for degree as given in the University calendar: PhD

School: Psychology

Faculty: Science

Title: Ostracism: Empirical studies inspired by real-world experiences of silence and exclusion

Abstract 350 words maximum: (PLEASE TYPE)

Ostracism—the act of being excluded or ignored (Williams, 1997)—permeates our society, such that we will all be, at one time or another, a victim (i.e., a target), and a perpetrator (i.e., a source) of some form of ostracism whether with strangers, colleagues or loved ones. The current project first examined ostracism from the perspective of real-life targets and sources through structured interviews in order to determine areas of ostracism that have real-world relevance, but that have not yet received extensive empirical attention. Three aspects of ostracism that arose from the interviews were then explored in laboratory-based studies. First, the project examined whether specific personality traits (i.e., need for affiliation, desire for control, locus of control, death anxiety, stubbornness, and attachment style) act as antecedents of being a target or source of ostracism. The findings suggested that individual differences are a significant predictor of the propensity to be a source of ostracism (i.e., low need for affiliation and insecure attachment style), or a target of ostracism (i.e., preoccupied attachment style). Second, a new paradigm—the train ride—was devised to investigate whether ostracism is unique from argument in affecting the four primary needs identified by Williams's (1997/2001) model (i.e., belonging, control, self-esteem, and meaningful existence) for both targets and sources. Overall, the study demonstrated the ostracism is more adverse to the needs of targets, and more fortifying to the needs of sources, than argument. Finally, the current project explored whether two factors—the identity of the source and causal attributions—act as moderators of the psychological and physiological (i.e., cardiovascular) effects of ostracism during a minimal ostracism paradigm (i.e., being ostracised by a computer or a human during a virtual ball-tossing game). Targets reported that being ignored during the game adversely affected their primary needs compared to being included in the game, regardless of both moderating factors. Although the physiological findings were less conclusive, the study demonstrated that the power of ostracism supersedes moderating factors. The project concluded by presenting a new model of ostracism that examines ostracism from the perspective of targets and sources.

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Ostracism:
Empirical Studies Inspired by
Real-World Experiences of
Silence and Exclusion

Volume I

Lisa Zadro

B. Sc. (Psychology) Hons.

January 2004

In fulfilment of the requirements for the degree of Doctor of
Philosophy at the
University of New South Wales

Acknowledgements

There is a certain feeling that accompanies doing a PhD. For some, it is a sense of pride, for others, a sense of wonderment. For me, it was somewhere between bewilderment and heartburn. There were times where I felt that I was capable of anything ("Cardiovascular measurement? Sure! How hard could it be? –see Chapter 5), whereas at others, even the simplest task was impossibly difficult ("You think I should do a t-test? How do you spell that?"). Thus, it was a good thing that I had professionals on hand to guide me through my dark and troubled times. My infinite thanks then to my two supervisors, Kip Williams and Rick Richardson. I am ever so grateful for their patience, their insight, their humour, and their friendship over these long (oh so long) years. Between them both, they have for better or worse (they would probably argue worse) shaped the psychologist that I am today.

In addition to good supervisors, it seems that surviving a PhD requires excellent friends and co-workers to distract you from the task at hand. I was lucky to have many such people who did their job so well that they no doubt helped extend my PhD by a number of years. My fervent thanks to: Marianne Weber (whom I highly recommend as an office mate— she is a Powerpoint goddess, she laughs, she jokes, she slices, she dices), Stephanie Moylan, Sue Morris, Anna Powell, Jane Dyson, Carla Walton, Joel Harvey, Daniel Tynan, Peter Walker, Trevor Case, Keith Lim, Lara Dolnik, Chris Cheung, Wilma Choi, Helen Lawson Williams, Kylie Oliver, Helen Paterson, Rachel Guthrie, Simon Laham, Norman Chan, Rebekah East, Brad Hill, Karen Gonsalkorale, and Cassie Govan. I'd also like to thank Joe Forgas (for the afternoon coffees and the odd bit of mentoring), Ladd Wheeler, Sally Andrews, Bill Von Hippel and Kevin Bird for their statistical genius, and Rex Wright and Wendy Berry Mendes for helping me to interpret my cardiovascular findings (such that they were).

My thanks also to the guys in the workshop— John Fowler, Paul Nolan, and Gordon Muir— who fixed everything I broke during the course of my PhD, which, at last count was 2 computers, a telephone, a data projector, another computer, the impedance cardiograph cart (after it caught fire), and the Internet (or so John would have me believe, but in retrospect, I think the server was down).

I'd also like to extend a big thank you to all the participants over the years who allowed me to exclude and ignore them in various ways, all in the name of science.

Finally, I'd like to thank my loved ones. My big Italian family, particularly my parents and my brothers and sister, who are a constant source of love and amusement. They kept me hopeful and entertained even when I felt like burning my computer and running off to Uzbekistan to herd goats and for that, I am truly grateful. To Peter, who was ever so helpful, what with all the back adjustments, love and encouragement, and his knowledge of the inner workings of an impedance cardiograph. And finally, to my Nonno and Nonna— thank you for always thinking that I was successful and smart, even when all evidence was to the contrary. I only wish you were here to help me celebrate.

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Williams, K. D., & Zadro, L. (1999, April). Forty years of solitude: *Effects of long-term use of the silent treatment*. Presented at the 71st Annual Meeting of the Midwestern Psychological Association, Chicago, IL.

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Zadro, L., & Williams, K. D., & Richardson (2003, April). *Ostracism in the real world: Interviews with targets and sources of long-term ostracism*. Presented at the Society for Australasian Social Psychology. Sydney, Aus.

Zadro, L., Williams, K. D., Govan, C., & Warburton, W. (2003, January). *Social Ostracism: Threats to four motives can lead to either pro- or anti-social reactions*. To be presented at the Group and Intergroup Processes Preconference for the Society for Social and Personality Psychology, Austin, TX.

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[Note: This chapter forms the basis of Chapter 1 in the current research project. The Williams and Zadro chapter is cited in Myers, D. (2001) *Psychology* (6th edition). The "train ride paradigm" (Chapter 4 in the current research project) appears as a recommended teaching exercise in the *Instructor's Resources* (Bolt, 2001) manual that accompanies the Myers textbook]

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[Note: This article forms of the basis of Chapter 5 in the current research project]

Zadro, L., Williams, K. D., & Richardson, R. (submitted). Riding the "O" Train: Comparing the Effects of Ostracism and Argument on Targets and Sources. *Group Processes and Intergroup Relations*.

[Note: This article forms of the basis of Chapter 4 in the current research project]

Abstract

Ostracism—the act of being excluded or ignored (Williams, 1997)—permeates our day-to-day lives, such that we will all be, at one time or another, both a victim (i.e., a target), and a perpetrator (i.e., a source) of some form of ostracism, whether with strangers, colleagues, or loved ones. The present research project investigated this complex phenomenon by first examining ostracism from the perspective of real-life targets and sources through structured interviews in order to determine areas of ostracism that have real-world relevance, but that have not yet received extensive empirical attention. Three aspects of ostracism that arose from the interviews were then systematically explored in laboratory-based studies using a multi-method approach. First, the project examined whether specific personality traits (i.e., need for affiliation, desire for control, locus of control, death anxiety, stubbornness, and attachment style) act as antecedents of being a target or source of ostracism. The findings suggested that individual differences are a significant predictor of the propensity to be a source of ostracism (i.e., low need for affiliation and insecure attachment style), or a target of ostracism (i.e., preoccupied attachment style), however they accounted for only a small proportion of the variance. Second, a new role-play paradigm—the train ride—was created to investigate whether ostracism is unique from other forms of interpersonal conflict (i.e., argument) in affecting the four primary needs identified by Williams's (1997/2001) model of ostracism (i.e., belonging, control, self-esteem, and meaningful existence). Overall, the train ride study provided evidence that ostracism was unique from argument as a form of social conflict for both targets and sources—specifically, targets of ostracism typically reported lower levels of the four primary needs than targets of argument (i.e., lower levels of all four needs in Experiment 3.1; self-esteem and meaningful existence in Experiment 3.2; and belonging

and meaningful existence in Experiment 3.3), and targets of social inclusion (Experiment 3.3); whereas sources of ostracism typically reported higher levels of primary needs than sources of argument (i.e., control in Experiment 3.1; and belonging, control, and self-esteem in Experiment 3.3), and social inclusion (i.e., belonging, control, and self-esteem in Experiment 3.3). Moreover, when targets and sources were compared within each form of social conflict, targets of ostracism reported significantly lower levels of all four needs compared to sources of ostracism, whereas targets of argument reported significantly lower levels of selected needs (i.e., self-esteem in Experiment 3.1, and belonging and control in Experiments 3.2 and 3.3) compared to sources of argument. Finally, the current research project explored the influence of two factors—the identity of the source and causal attributions—as moderators of the psychological and physiological (i.e., cardiovascular) effects of ostracism. This was accomplished by devising a minimal ostracism paradigm that compared the effects of being ostracised during Cyberball (a virtual ball-tossing game) by human players to being ostracised by computer players. In terms of self-reported effects, being ostracised during Cyberball aversively affected participants' four primary needs compared to being included in the game; there was generally no moderating effect of source identity or causal attributions on the self-report measures. Although the physiological findings were less conclusive, the study suggests that the power of ostracism supersedes moderating factors. Overall, the findings of the current project not only shed light on aspects of ostracism that have been ignored in prior research, but also provided evidence for the development of a new model of ostracism that examines the ostracism experience from the perspective of both targets and sources.

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CHAPTER 1

Introduction

"Silence has no end; speech is but the beginning of it"
H.D. Thoreau, Journal 9, Feb. 1841.

We are essentially social creatures. Our day-to-day lives place us almost continuously in the presence of loved ones, colleagues, acquaintances, and countless strangers. This constant contact with others provides us not only with opportunities for positive interactions (hugs, praise, the odd polka) but also leaves us vulnerable to being ignored, excluded, and rejected. We may sit for an entire train ride without speaking to the person next to us; individuals standing beside us in the elevator may not acknowledge us; at work, a superior may ignore our greeting; at home, our partner may refuse to answer our questions during an argument. Such acts of being ignored or excluded come under the broad domain of ostracism. Ostracism refers to the act of individuals or groups excluding or ignoring other groups or individuals (Williams, 1997). Ostracism has many manifestations ranging from the complete removal of an individual or group from the community (e.g., solitary confinement, exile, banishment) to exceedingly subtle signals that one is not being attended to (e.g., the removal of eye contact, no verbal response to a greeting or request).

Within our own culture, the ubiquity of ostracism is reflected in the many terms used to describe the phenomenon: for instance, "the cold shoulder," "being sent to Coventry," "the silent treatment," "exile," "banishment," "expulsion," "time-out," and "silencing." The term "ostracism" comes from the Greek "ostrakismos," a practice originating in Athens 488-487BC to remove those with dictatorial ambitions from the democratic state (Zippelius, 1986). The term derived from the shards of pottery, or "ostrakon," on which the voters ascribed the name of the person they wished to

remove from the community (Bury, 1951)¹. Regardless of the term used to describe the practice, the very core of ostracism— ignoring, rejection, and exclusion— have remained the hallmarks of this phenomenon throughout time.

THE NATURE OF OSTRACISM

Throughout the centuries, poets, writers, philosophers, and social commentators have often debated the nature of ostracism. To some, ostracism is a noble act (e.g., “speech is silver, silence is golden,” [Swiss Inscription]; “nothing is more useful than silence,” [Menander]; “well-timed silence has more eloquence than speech” [Martin Farquhar Tupper]), whereas others view ostracism as petty or malicious (e.g., “silence is the virtue of fools” [Sir Francis Bacon]; “in the end, we will remember not the words of our enemies, but the silence of our friends,” [Martin Luther King Jr.]). Ostracism has been conceived as an act of kindness toward others (e.g., “if you have nothing nice to say, say nothing at all,” [Anonymous]; “a good word is an easy obligation; but to not speak ill requires only our silence which costs nothing,” [John Tillston]), or as a deliberate and effective act of cruelty (e.g., “silence is the most perfect expression of scorn,” [George Bernard Shaw]; “the cruellest lies are often told in silence,” [Robert Louis Stevenson]).

Whether presented as an act of good or evil, virtue or sin, ostracism is a complex phenomenon that, in its many guises, has transcended time, and has a place in our day-to-day lives from the cradle to the grave. Our experiences with ostracism begin early in life. Young children have been observed to use complex forms of ostracism during unsupervised play. For instance, Sheldon (1996) describes one particular incident of ostracism between three preschool girls during a role-play game whereby one girl tried to exclude another, who in turn attempted to resist the ostracism and find a role to play

¹ Intriguingly, when the practice of ostracism was introduced in Syracuse after 454 BC, voters wrote the name of the potential target of ostracism on olive leaves, and was thus called “petalism” (Abbott, 1911).

during the game. Eventually, the dominant girl gave the other girl a role, albeit one that would ensure she could not actively participate (“you can be the baby brother, but you aren’t born yet”). According to Sheldon, such forms of “verbally engineered social ostracism” (p.57) are common between preschool children during such games.

Children also use ostracism as a disciplinary tactic. For example, Barner-Barry (1986) documents a case in which a pre-school class systematically ostracised a bully (i.e., ignored and excluded him from games and conversation) without adult prompting. The effective use of ostracism by young children might indicate that exclusion, as a means of controlling the behaviour of others, is both innate and adaptive (Barner-Barry, 1986). Ostracism is also evident during adolescence, with research suggesting that it is more favoured as a tactic by adolescent girls than boys (Cairns, Cairns, Neckerman, & Ferguson, 1989).

As we grow older, the prevalence of ostracism is such that all individuals will be both a victim (i.e., a target) and a perpetrator (i.e., a source) of some form of ostracism within almost all of their relationships, whether with loved ones, colleagues, or strangers. In our day to day lives, apparently innocuous episodes of ostracism in which we ignore and are ignored by strangers on the street or fellow passengers on elevators, buses, and trains are interwoven with more emotionally gruelling episodes in which we choose to ignore or are ignored by those we love. In fact, 67% of a representative U.S. sample admitted using the silent treatment (deliberately not speaking to a person in their presence) on a loved one, and 75% indicated that they had been a target of the silent treatment by a loved one (Faulkner, Williams, Sherman, & Williams, 1997).

Within romantic partnerships, the silent treatment has been noted as a behavioural symptom of deteriorating marriages (Gottman & Krokoff, 1992), and as a tactic that is more likely to be used by couples who are less similar and well-matched (Buss, Gomes, Higgins & Lauterbach, 1987). Ultimately, couples may choose to formalise the

ostracism by separating or divorcing, which often forces members of their social network to remain loyal to one partner, thereby shunning and ostracising the other (particularly if the separation was due to infidelity; Pam & Pearson, 1997).

Even if our experience with ostracism in our personal life is minimal, we are bound to encounter other forms of ostracism in societal institutions, such as schools (e.g., time-outs, expulsion), the workplace (e.g., in the ostracism of “whistleblowers” by co-workers; Faulkner, 1998), the legal system (e.g., placing those guilty of a crime in prison; Lynn & Armstrong, 1996), and the church, where almost all religions punish non-compliance to ecclesiastical law with some form of excommunication (thereby removing the deviate member from the congregation and from any privileges that membership renders, such as the forgiveness of sins and a bountiful afterlife; Zippelius, 1986).

Such forms of institutionalised ostracism are not restricted to our own culture, but are evident in a diverse array of civilizations and cultures where they take on many forms, for instance, ignoring members of the community as a form of discipline (e.g., the Amish practice of “meidung,” Gruter, 1986), exiling deviate individuals with the aim of protecting the remaining members of the group (e.g., tribal civilizations such as the Pathan tribes located in the Northwestern Frontier Province of Pakistan, and the Slavic tribes of Montenegro; Boehm, 1986; Mahdi, 1986), or used in conjunction with other forms of social control such as gossip to either resolve or generate conflict (e.g., native communities on Margarita Island, Venezuela; Cook, 1997).

Old age brings no immunity to ostracism. As we grow older, we may be steadily excluded from various areas of life. In the workforce, we may be encouraged (or coerced) into retiring from our jobs, and our families may reduce the number of times they visit or phone us as they pursue their own lives. Furthermore, entering a nursing home or other institution that cares for the elderly will exclude us from interacting with

the greater part of society, thereby eroding our prior bonds with other people and greatly reducing our potential to replace these bonds with others. Further, there is evidence that degenerating these life-long social bonds has a psychological cost. For instance, in a survey of older adults, Madey and Williams (1999) found that those elderly persons who reported experiencing higher levels of ostracism from their work, family, and society expressed lower levels of life satisfaction than those who reported experiencing lower levels of ostracism.

Finally, ostracism may occur during the process of dying. Researchers have documented the conceptual difference between biological death and social death (Sudnow, 1967; Sweeting & Gilhooly, 1992). Whereas biological death refers to clinical death (i.e., brain functioning has ceased), social death refers to the point in which other people no longer socially interact with the dying person. Social death may be perpetrated by health care workers or by dying persons' loved ones. Sudnow (1967) reported several indicators of social death evident in the behaviour of hospital staff. These included preparing terminally ill patients for the morgue before they were clinically dead (e.g., pushing their eyelids shut), talking about the patient in the third person while in the patient's presence, and socially ignoring the presence of patients who they believed showed no hope of recovery. One pertinent example cited by Sudnow is of two physicians who spoke at the bedside of a terminally ill patient about the patient's forthcoming autopsy. Family and friends are also likely to contribute to the social death of the dying person by decreasing the frequency or duration of their visits, or not visiting at all. For family members and friends, social death allows the opportunity to distance themselves from a dying person in order to minimise the emotional turmoil of seeing a loved one in considerable pain. However, for the dying individual, social death represents ostracism, not only from loved ones, but also from the roles they once occupied in society.

Ostracism is evident not only in human interactions, but also in several animal species as well. Many different forms of ostracism have been documented amongst primates including exclusion of a group member (generally male) after unsuccessful attempts to take leadership, forced immigration due to insufficient resources, and ostracism of a member due to abnormal behaviour or illness (Goodall, 1986; Lancaster, 1986). One interesting case of ostracism occurred when a chimpanzee was apparently attacked and then rejected from the group because he did not show the necessary signs of respect (pant-grunting) to the alpha male (or the other males) and had bullied the adult females of the group, though this "ill-mannered member" was allowed to rejoin the group after three months (Nishida, Hosaka, Nakamura, & Hamai, 1996). Ultimately, regardless of the reason for ostracism, rejection from the group and thus from the protection of other members, is often the first step toward starvation and death for the ostracised party (Goodall, 1986).

SOCIAL AND PSYCHOLOGICAL CONSEQUENCES OF OSTRACISM

The prevalence of ostracism throughout various cultures and species has led to a body of research that explores ostracism from various perspectives. Anthropologists, sociologists, biologists, physiologists, ethnologists, zoologists, and legal experts among others (see Gruters & Masters, 1986), have all examined the phenomenon. From this multiplicity of perspectives, ostracism has been defined in many ways; for instance, as the exclusion from vital resources necessary for life and reproduction (Alexander, 1986; Goodall, 1986; Lancaster, 1986); voluntary or coerced exit (Masters, 1986); or to behaviours ranging from mild forms of disapproval to the termination of life (Mahdi, 1986).

Despite the fact that ostracism has been examined from a multitude of perspectives, it is surprising that there has been little *psychological* investigation into the

nature, causes, or consequences of ostracism. Indeed, until recently, there were only a handful of studies that explicitly examined the consequences of being ignored, excluded or rejected, and most of these were “one off” studies that were generally atheoretical, and varied in their conceptual and operational definitions of ostracism. Further, these early ostracism studies typically focused on *physical isolation* to understand the psychological effects of exclusion. In what is probably the most radical of the studies examining the potential consequences of ostracism, Schachter (1959) isolated five volunteers in a windowless room for as long as they could possibly endure being separated from others and found considerable individual differences in the amount of time participants tolerated the isolation. One participant requested to be removed after only two hours (“...almost hammering down the door to get out...” p. 9). Of the four remaining participants who remained isolated for two days, two were apparently unaffected by the experience, one expressed uneasiness about repeating the experience, and the fifth participant remained isolated for eight days without suffering any notable adverse reactions. Vokart et al., (1983; cited in McGuire & Raleigh, 1986) also investigated the ramifications of physical isolation by examining case studies of prisoners in solitary confinement. In accordance with the findings of Schachter, Vokart et al. also found considerable individual differences in the tolerance for isolation, such that some prisoners attempted to commit suicide during their period in solitary confinement, whereas others were apparently unconcerned about their isolation.

Subsequent studies have tended to study *psychological* rather than physical isolation. The underlying notion in these studies was that individuals could feel isolated even when in the presence of other people. These studies achieved psychological isolation through rejection, exclusion, or being ignored by others. In general, researchers tended to manipulate these forms of ostracism using a triadic social

interaction, consisting of one participant (the target of ostracism) and two confederates (the sources of ostracism).

These studies of psychological isolation varied in the way in which ostracism was conceptualised. Some of these studies focused on examining the effects of being explicitly *rejected* from participation in a group activity. For instance, Dittes (1959) examined rejection by presenting participants with bogus ratings ostensibly made by members of their group concerning the participant's desirability as group member. Participants were either given ratings that signalled acceptance or rejection as a member of the group. In a more recent variation of this paradigm, Nezlek, Kowalski, Leary, Blevins, and Holgate (1997) examined rejection by informing participants whether they had been chosen to work in a group (the inclusion condition) or alone (the rejection condition). Rather than having participants be completely rejected by the group, Bourgeois and Leary (2001) manipulated the order in which participants were chosen for inclusion in a group, such that participants were either chosen first (inclusion condition) or last (exclusion condition) by two team captains to take part in a competitive team task. In contrast to studies such as those conducted by Bourgeois and Leary (2001) that compare rejection to inclusion in a group, Snoek (1962) varied the strength of rejection by explicitly telling targets that they were either not accepted into the group (strong rejection) or that the group did not mind whether they stayed or not (mild rejection).

Rather than focus on rejection and the loss of group membership, other researchers conceptualised psychological isolation as being *ignored*. For instance, Geller, Goodstein, Silver, and Sternberg (1974) operationally defined being ignored as minimal attention to the target. Confederates in this study were trained to respond only briefly to direct questions by the target, and maintain minimal eye contact. In contrast to receiving minimal attention from confederates, targets in other studies received no

attention from confederates. For instance, Pepitone and Wilpizeski (1960) examined (what they termed) explicit and implicit forms of rejection. During a brief recess, targets in the explicit condition were ignored by two confederates as they engaged in conversation. The confederates were instructed to "...present an unfriendly demeanour..." (p.360) when glancing at the target. In the implicit rejection condition, the confederates did not speak to each other or to the target for the duration of the recess. Other studies combined forms of ostracism with other types of interpersonal rejection (e.g., argument or abuse). For instance, Mettee, Taylor, and Fisher (1971) examined "being shunned" in terms of physical avoidance and verbal abuse. Targets experienced two potential incidents of ostracism. In the "implicit negative evaluation" condition, one of the confederates moved away from the target to sit closer to the other confederate, whom they engaged in conversation. In the "explicit negative evaluation" condition, one of the confederates openly derogated the target's stance on a recent media issue.

In contrast to early research that used paradigms to directly ignore or reject participants, several recent studies have examined how the *threat* of social exclusion can adversely affect targets. For example, Twenge and her colleagues (e.g., Baumeister, Twenge, and Nuss, 2002; Twenge, Baumeister, Tice, and Stuke, 2001; Twenge, Cantanese, and Baumeister, 2002) induced ostracism through bogus personality feedback that informed participants that they will spend their future alone ("You're the type who will end up alone later in life. You may have relationships now, but by your mid-20s most of these will have drifted away..."). Twenge et al. then compared the effects of anticipated social exclusion to either an inclusion condition, where participants were told that their future would be rich in social contacts and relationships ("You're the type who has rewarding relationships throughout life. You're likely to have a long and stable marriage and have friendships that will last you in later years..."), and

to a second control group, a misfortune condition, whereby participants were told that their future would be unpleasant due to a number of physical accidents rather than social exclusion (“You’re likely to be accident prone later in life— you might break an arm or a leg a few times, or maybe be injured in car accidents...”).

Regardless of the nature of the paradigm used to induce ostracism, these studies have typically found that being rejected and excluded has several detrimental effects on the thoughts, feelings, and behaviours of targets. For instance, some of the early studies of ostracism provided evidence that being ignored or rejected has a negative effect on target’s self-evaluations (e.g., Pepitone & Wilpizeski, 1960). For instance, Geller et al. (1974) found that participants who were ignored by two confederates during a conversation rated themselves less favourably than those who were not ignored. Specifically, Geller et al. found that more than half of the participants who were ignored described themselves as “withdrawn,” “shy” and “alone,” whereas those who were included described themselves as “relaxed,” “friendly” and “comfortable.” In a recent study, Bourgeois and Leary (2001) found that participants who were selected last to join a team for a competitive task reported more negative affect (e.g., hostility) and less positive affect (e.g., less jovial, self-assured, attentive) relative to those who had been chosen first to join a team. However, it seems that negative self-evaluations do not only arise as a result of being the target of an actual ostracism episode. Craighead, Kimball, and Rehak (1979) found that participants who simply imagined that they were ignored in a conversation produced fewer positive self-relevant statements than those individuals who imagined that they were included in a conversation. They also reported that they would feel lonely, sad, frustrated, puzzled, rejected, and unworthy.

In addition to negative self-evaluations, it has also been found that being ignored or excluded can lead to impairments in cognitive functioning. For instance, Baumeister et al. (2002) found that participants who anticipated a future spent alone

exhibited significantly greater deficits in intelligence (i.e., made more errors and attempted fewer questions in an IQ test and tasks of logic and reasoning), and memory (i.e., showed impairments on a difficult recall task) than those who anticipated a future in the presence of others or one filled with physical misfortune. These cognitive deficits as a result of social exclusion, however, were only apparent in complex tasks that required reasoning and analytic skill—the threat of social exclusion did not impair simple information processing tasks that are more automatic in nature (i.e., memorising and recalling nonsense syllables).

Ostracism does not only affect the cognitive functioning of targets but may also lead to detrimental behaviours. For example, in a series of studies, Twenge et al. (2002) found that participants who were told that they would have a future devoid of social bonds were more likely to engage in various forms of self-defeating behaviour, such as risk taking (e.g., betting on a long shot rather than a safer option), engaging in fewer health-enhancing behaviours (e.g., choosing to eat a candy bar rather than a muesli bar), and procrastinating rather than practice for an important test, than participants who were informed that they would have a future filled with social bonds or one filled with physical misfortune. Thus, the threat of social exclusion led to the pursuit of activities that have pleasurable short-term effects, but ultimately, aversive long-term consequences. Twenge et al. concluded that: “a strong feeling of social inclusion is important for enabling the individual to use the human capacity for self-regulation in ways that will preserve and protect the self and promote the self’s best long-term wishes for health and wellbeing” (p.614).

Although Twenge et al. acknowledge the important role that social inclusion may play in promoting health and well being, most ostracism research (both the early and the most recent studies) has typically focused on examining the psychological effects of ostracism. To date, there has only been one study that examined whether

being rejected or ignored in the presence of others leads to detrimental physiological responses. In this study, Stroud, Tanofsky-Kraff, Wilfley, and Salovey (2000) used a paradigm (the YIPS—the Yale Interpersonal Stressor) to examine the effects of interpersonal stress on blood pressure and cortisol levels. They found that participants who were socially excluded and rejected reported higher levels of tension, and demonstrated increased blood pressure (both systolic and diastolic) from baseline. However the YIPS combines ostracism (e.g., ignoring and excluding the participant) with other forms of rejection (e.g., verbal altercations) and hence the study does not give a clear picture of the physiological effects of pure ostracism.

Although much of the early ostracism research focused on examining the consequences of ostracism on targets (whether psychological or health-related), some researchers have investigated how individual differences moderate responses to ostracism. For instance, Nezlek et al. (1997) examined personality moderators (depression and self-esteem) to rejection. They found that participants who had scored low on a trait self-esteem measure and high in a depression measure tended to be more accurate in perceiving rejection. Specifically, when their exclusion or inclusion in the group was based on their personal characteristics, participants tended to report feeling less accepted when they believed they were rejected by the group, and more accepted when included by the group. Their ratings of acceptance were not affected when their inclusion or exclusion was based on random selection. Non-depressed, and high self-esteem individuals however, tended to feel more accepted regardless of whether inclusion or exclusion was based on personality characteristics or random selection. Nezlek et al. concluded that depressed and low self-esteem individuals were more sensitive to interpersonal cues that are suggestive of rejection, and tend to have a more accurate perception of interpersonal feedback in general than those who have high self-esteem or are not depressed.

In addition to examining the psychological effects of ostracism on targets (and the influence of moderating factors such as individual differences; Nezlek et al., 1997), several of the early studies also investigated targets' thoughts and feeling toward their ostracisers. In some studies, participants who had been rejected rated the sources as less likeable (Pepitone & Wilpizeski, 1960), or less favourably (Geller et al., 1974) than those who were not ignored. Moreover, Geller et al. (1974) found that when participants were given the opportunity to reward the least liked confederate (as indicated by the participant's ratings) in an "altruistic performance task," those who had been ignored by the confederate during a conversation tended to reward confederates significantly less than those who were not ignored.

In addition to examining how targets felt about the sources of ostracism, many of the early studies also examined whether ostracism affected the desire of targets to affiliate with their ostracisers. However, the findings on this point are somewhat contradictory. In some studies, targets preferred to avoid, or not work with, the ostracisers in the future (e.g., Mettee et al., 1971; Pepitone & Wilpizeski, 1960) whereas in other studies, targets expressed a desire to be with, or work with, those who had ostracised them. Snoek (1962) found that when males were rejected for impersonal reasons (i.e., because the group was too large), their desire to remain with the group decreased. However, when the target was rejected for personal reasons (i.e., they were deemed unworthy of group membership) their desire to continue their membership in the group remained.

Rather than examine whether ostracism leads to a pro-social response toward ostracisers (i.e., the desire to affiliate), recent studies have instead focused on examining whether being ostracised leads to anti-social responses toward ostracisers. For instance, Bourgeois and Leary (2001) found that participants who were rejected tended to derogate their ostracisers. Specifically, participants who were chosen last to join a team

by two team captains tended to derogate the captains' leadership abilities and their personal qualities (i.e., rating them less likeable, less pleasant), relative to participants who had been chosen first to join a team. According to Bourgeois and Leary, derogation of ostracisers can serve an adaptive function because it diminishes the desire to be accepted by the source, and hence reduces the potential impact of ostracism on the target's psychological wellbeing.

In addition to derogation, social exclusion may also lead to other forms of aversive interpersonal behaviour. In a series of studies, Twenge et al. (2001) examined whether social exclusion leads to forms of aggressive behaviour. They found that participants who had been rejected in one form or another (i.e., either by being informed that their future would be devoid of social relationships, or by being rejected by potential partners for a subsequent group task), acted aggressively toward another participant who had insulted or provoked them (i.e., they hindered the other participant's chances of getting a job by giving them a poor job evaluation, or blasted the other participant with white noise during a competitive video game, respectively). Moreover, targets also acted aggressively toward a new participant who had not provoked or insulted them. However, targets of social exclusion were not more aggressive to participants who praised them. Twenge et al. concluded:

"If intelligent, well-adjusted, successful university students can turn aggressive in response to a small laboratory experience of social exclusion, it is disturbing to imagine the aggressive tendencies that might arise from a series of important rejections or chronic exclusion from desired groups in actual social life." (p.1068)

Overall, these studies provide invaluable information about the nature of ostracism. However, because many of these studies were preliminary in nature (particularly the early studies), they present several limitations. The primary limitation is that the majority of these studies did not adequately acknowledge the complexity of ostracism. Hence, many of the early studies employed forms of ostracism that may be

phenomenologically different, yet treated them as equivalent. Take, for example, the difference between being ignored during a conversation (Geller et al., 1974) and having a member of the group physically move away from you (Mettee et al., 1971). Being ignored in a conversation consists of many indicators of ostracism: the target's attempts to contribute to the conversation are repeatedly ignored, eye contact with the target will be avoided or not maintained, and other non-verbal gestures (such as body orientation) will be withheld from the target. In contrast to the multiple, minute instances of being ostracised during a conversation, physically moving away from a target consists of a single gesture of rejection. Although the early studies appear to classify both of these forms of ostracism as types of rejection, it is unclear whether they are actually equivalent. Early studies of ostracism did not acknowledge that there may be different types of ostracism, nor did they ascertain whether different types of ostracism have different effects on the target. Moreover, some studies combined aspects of ostracism (such as ignoring) with verbal abuse (e.g., Mettee et al., 1971), yet did not address whether ostracism prompted different thoughts, feelings, or physiological responses in the target than did verbal abuse. Because the definitions and conceptualisations of ostracism differed, it is not surprising that few findings could be generalised across the early studies. Instead, the conclusions are fairly limited, and sometimes contradictory (e.g., the target's desire for future affiliation with ostracisers).

Thus, it seems that many of the contradictions and inconsistencies of early ostracism research stem from the lack of a common framework upon which to base predictions about the nature of ostracism. Recently, Williams (1997, 2001) has developed such a framework that attempts to unify the many conceptualisations of ostracism, and thereby allow systematic investigation of this phenomenon.

WILLIAMS'S TAXONOMIC MODEL OF OSTRACISM

Williams (1997) broadly defines ostracism as the act of being excluded and/or ignored. Based on this definition, Williams developed a taxonomic model that elucidates several aspects of ostracism (Figure 1.1). Specifically, it outlines: a) types of ostracism in terms of several taxonomic dimensions; b) antecedents of ostracism; c) potential moderators of ostracism; and d) both short and long-term reactions to ostracism.

The model acknowledges the complexity of ostracism by classifying the phenomenon into four *taxonomic dimensions*: visibility, motive, quantity, and causal clarity. The *visibility* dimension is subdivided into three sub-dimensions: social ostracism, physical ostracism and cyberostracism. *Social ostracism* involves ostracism that occurs in the presence of the target. It may include withholding any form of verbal or non-verbal acknowledgment (e.g., removal of eye contact, no talking, not listening). Social ostracism is a time of contradiction—when one is truly alone in the midst of a crowd. *Physical ostracism* includes withdrawing from or leaving the situation. Physical ostracism ranges in severity from leaving a room during an argument, to solitary confinement or exile. *Cyberostracism* encompasses all forms of being ignored or left out in the cyber realm, such as not receiving mail (whether e-mail or posted letters), phone calls, or other forms of communication (e.g., memos). Cyberostracism also occurs when one is not included in a electronic link with others, such as being left out of a chat room conversation, not being acknowledged during a conference call, or being left on call waiting.

The model also postulates five potential *motives* that ostracism may (or is perceived to) serve. According to Williams and Sommer (1997) “...each type of ostracism can have a different impact on the thoughts, feelings, and behaviours of its victims and thus may offer a different strategic value for its user...” (p. 695). Ostracism

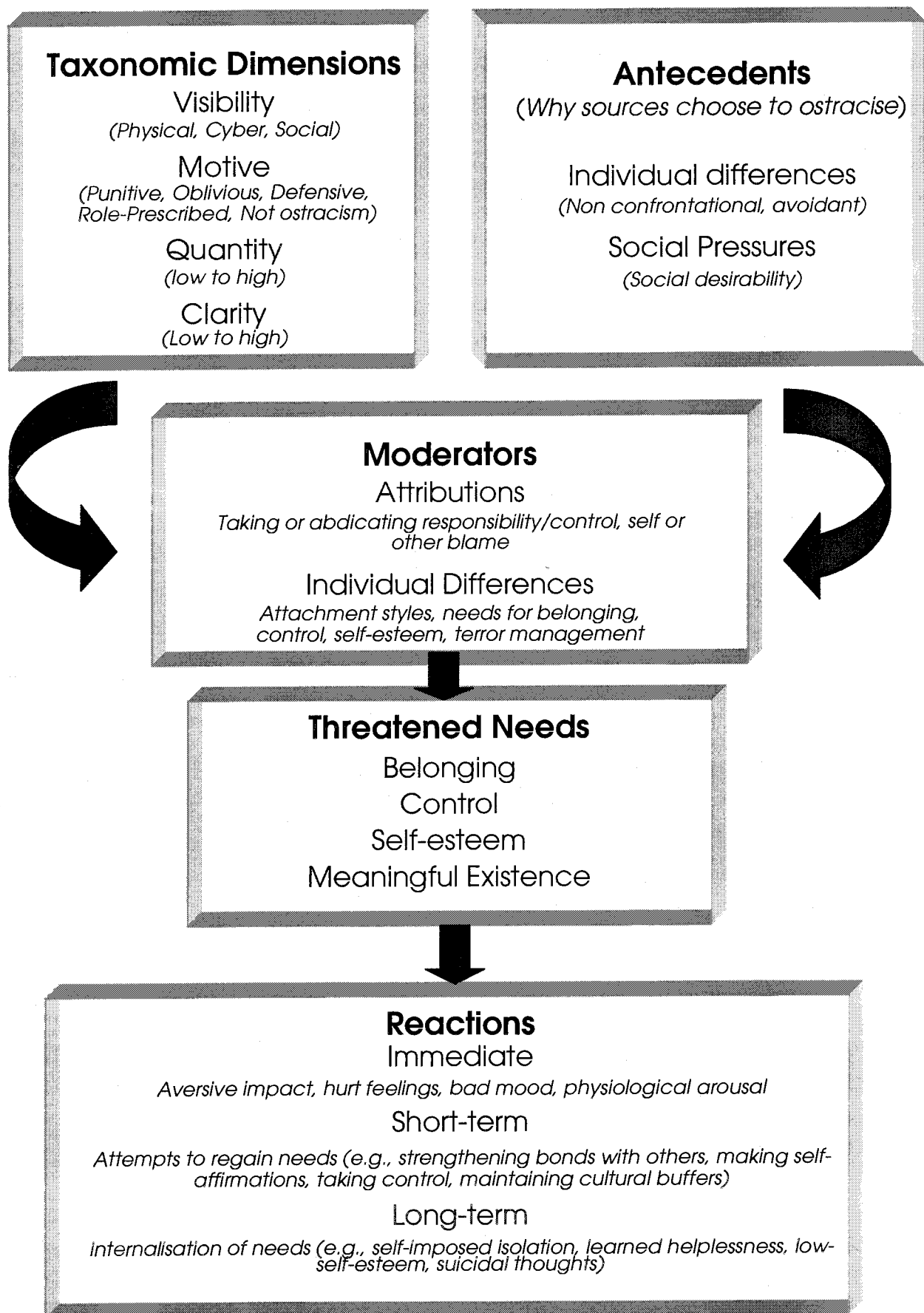


Figure 1.1: Williams's (1997/2001) Model of Ostracism

may be *punitive* in nature, that is, used as a form of punishment for perceived or actual wrongdoing on the part of the target. In this situation, it is a deliberate act by a source designed to punish the target for their previous behaviour, or personal characteristic (such as their ethnicity or beliefs). As such, punitive ostracism is generally the least ambiguous form of ostracism because it allows the target to construct a possible explanation as to why they are being ignored. Conversely, *oblivious* ostracism is not designed as a punishment. Instead, it occurs when the source does not even deign to recognise the target's existence. Unlike punitive ostracism, where ostracism is a form of punishment, oblivious ostracism carries with it the connotation that the target is not even worth the effort of punishing. *Defensive* ostracism is a protective response that occurs when we anticipate some form of negative interpersonal event, such as negative feedback, or possibly being ostracised by others. It is also used as a preventative response whereby we ostracise others to protect them or the relationship from further harm by our own hands (e.g., leaving the room rather than staying and saying something we may regret). *Role-prescribed* ostracism is a "socially sanctioned" form of ostracism, occurring in situations in which we are not expected to acknowledge the presence of others. It occurs when we do not speak to those sitting beside us in public transport, or standing next to us in a full elevator. Finally, *not ostracism* occurs when behaviours indicative of ostracism (such as little eye contact, no speaking) are present, yet there is no motive to ostracise—the act of ostracism is purely unintentional on the part of the ostraciser. This form of ostracism fuels the ambiguity of any ostracism situation, because there is always the possibility that the target is not intentionally being ignored.

According to Williams, ostracism also varies in terms of the quantity of behaviours used to signal the ostracism, varying from partial or low ostracism (e.g., answering only direct questions, making partial eye contact), to complete or high

ostracism (e.g., offering no replies nor initiating conversation, removing oneself totally from the situation, avoiding all eye-contact).

Ostracism may also vary in terms of the degree of *causal clarity*. In some situations, ostracism may be clear in that the source announces their intention to ostracise the target for a specific reason. *High* causal clarity would be apparent in situations where ostracism is imposed by law (e.g., jail sentences) or in the classroom where the teacher tells the pupil why they are being punished (e.g., "You talked in class, you are to sit in the corner for ten minutes"). *Low* causal clarity would occur in situations where the reason for ostracism is unclear or may stem from multiple motives (e.g., you determine that your partner's silence could be because you are late in getting home, or because you forgot their birthday, or because of your comments about the ample curves of your attractive female colleague). Williams (1997) asserts that the degree of causal clarity may be important in determining the consequences of ostracism. If causal clarity is high, we know why we are being ostracised. We can then act to remedy the situation (e.g., by apologising) and thus perhaps stop the source from ostracising us further. If causal clarity is low, we do not know why we are being ostracised, and hence it is less clear how we might remedy our position. In situations where there is low causal clarity, we might generate plausible reasons for our ostracism that may in turn influence our behaviour (e.g., upon reflection, we may come to believe that the source is to blame in the situation, and thus not try to reconcile. Or we may come to believe that it is all our fault and try to make amends). According to Lieberman, Cathro, Nichol, and Watson (1997) individuals in uncertain situations prefer to hear bad news that reduces the ambiguity of the situation rather than no news at all. This suggests that when the cause of ostracism is unclear, targets may prefer to know why they are being ostracised, even if the reason may reflect badly on them. Uncertainty only adds to the adverse nature of ostracism.

In addition to examining the nature of ostracism in terms of specific dimensions, other aspects of the phenomenon are also elucidated in the model of ostracism. One such aspect is the *antecedents* to ostracism— that is, reasons why sources may choose to use ostracism. The model asserts two possible antecedents to ostracism. The first is *individual differences*. Some people may be more inclined to use ostracism tactics as opposed to violence, or verbally expressing their emotions. Interviews with long-term targets and sources of the silent treatment in the United States have indicated that there are several reasons why people give the silent treatment as opposed to other means of showing displeasure (Faulkner & Williams, 1995). For instance, some sources used ostracism (specifically the silent treatment) to maintain control over the interaction (“It [the silent treatment] creates a degree of autonomy, and it feels good to be in control of the situation. Any other alternative would decrease my level of control,” p. 160, Williams, 1997). This is particularly the case if the target perceives that they are less adept at other forms of interpersonal conflict (“I’m not quick-witted and I can’t debate, nor do I have snappy, sassy, comebacks, so when people want to argue, ostracism is my defence” (p.160, Williams, 1997). Whereas some sources use ostracism to maintain their control over the target or the situation, others use ostracism to prevent the escalation of the situation, thereby preventing physical or verbal abuse (“As far as my kids, I would rather ‘put them on ice’ than give them corporal punishment, because I am afraid of child abuse,” p. 160, Williams, 1997).

The second antecedent presented in the model are the *social/situational forces* that may act to facilitate or inhibit the use of ostracism. For instance, an individual may choose to give their partner the silent treatment at a party, for not only is it a socially acceptable means of “fighting” with their partner in public, but it also can be denied if confronted (“Oh no, I’m not angry with John, I’m just tired”). The “unobservable” and deniable nature of ostracism would also allow it to be used quite easily in the workplace

by employees without fear of the recriminations that would likely accompany verbal abuse or violence.

Williams proposes several *moderators* of ostracism. One such moderator is the *attributions for ostracism* by the target. Specifically, a target may view ostracism to be the fault of others or as arising from the situation, thus attributing the blame externally. Conversely, other individuals may believe that they caused the ostracism to occur (i.e., that it is their fault) thus attributing the blame to internal causes. Self-blame may actually increase the negative impact on the target, because by acknowledging that ostracism is caused by their actions or characteristics, they generate their own self-derogating list of undesirable traits and behaviours. Blaming others would allow the individual to take less responsibility, because they would be attributing the ostracism to the situation, or to the personal characteristics or actions of the sources (Williams, 1997). The way in which people attribute the cause of ostracism may also affect how they resolve the ostracism incident. For instance, those who attribute the cause of ostracism externally may not make any efforts toward reconciliation, instead rationalising that such overtures should come from the source. In contrast, those who believe they are personally responsible may try to apologise or make amends in order to cease being ostracised.

Although the general response to ostracism tends to be universally negative (Williams, 1997), there seems to be considerable *individual differences* in the effects of real or perceived ostracism (Schachter, 1959). One potentially important individual difference that may moderate the effect of ostracism is attachment style. Bowlby (1977) examined “attachment behaviour” by examining the way in which infants forged emotional bonds with caregivers. Using the work of Bowlby, Ainsworth (e.g., Ainsworth, 1989) created a paradigm (the “strange situation”) to examine attachment patterns based on responses to the child’s separation from their mother. Three

attachment patterns were identified: *secure*, where the child showed distress when their mother left, became calm, and then were pleased at her return; *avoidant*, where the infant snubbed and ignored the mother on her return; and *anxious/ambivalent* (or resistant) where the child would often show anxiety at the mother's absence, coupled with angry and often resistant behaviour at her return or conversely, demonstrate excessively clingy behaviour toward their mother on her return. Such infant attachment patterns have been hypothesised to generalise to adult attachment patterns including romantic attachments (Hazan & Shaver, 1987). Williams (1997) speculates that individuals who are securely attached should be less affected by ostracism because they are secure enough within themselves to withstand outside rejection.

Anxious/Ambivalent individuals should show the greatest negative affect because of their general anxiety and anticipation of rejection. Finally, avoidant persons may actually respond to ostracism by ostracising others in return or in anticipation of being rejected.

Although Williams's model identifies several factors that may moderate ostracism or act as antecedents, the core of the model is that ostracism (compared to other forms of interpersonal conflict) has the potential to threaten four fundamental human needs: belonging, control, self-esteem, and meaningful existence (threatened needs). Although there is considerable debate amongst researchers as to whether one particular need subsumes all others, the model treats each need as equally important to the individual. The need to *belong* has been established as a primary, adaptive motivation that leads us to seek meaningful interactions with a few important others (e.g., Baumeister & Leary, 1995). Successfully establishing or maintaining bonds with others allows us to feel positive emotions, such as joy, bliss, or love (Baumeister & Leary, 1995; Sternberg, 1986). However, the absence of such interactions with others has negative psychological and physical manifestations such as depression, stress, and

physical illness (Baumeister & Leary, 1995). Ostracism directly threatens belongingness as it severs the individual from others, leaving them without social contact and support.

Ostracism is also hypothesised to affect an individual's *self-esteem* (positive self image). According to researchers such as Brown and Mankowski (1993), the maintenance of self-esteem is a "potent motivational force". Specifically, the motivation to maintain high self-esteem tends to be viewed as both adaptive and an important aspect in determining our mental health and wellbeing (Steele, 1988). Several researchers (for review, see Brown & Mankowski, 1993) have indicated that problems with self-esteem tend to underlie psychological maladjustments and neurosis. Research also suggests that individuals with high self-esteem tend to show greater self-certainty (e.g., Campbell, 1990), less susceptibility to negative mood (Brown & Mankowski, 1993), and higher self-efficacy (e.g., Bandura, 1995), than those with low self-esteem. Ostracism may directly affect self-esteem because it indicates to targets that their personal characteristics or actions are unattractive to others (see Leary, Tambor, Terdal, & Downs, 1995). Exclusion may then lead individuals to alter the positivity of their self-image.

A sense of *control* over ones' social interactions with others, the environment, and ultimately the outcome of events, is also hypothesised to be threatened by ostracism (Williams, 1997). Theorists such as Seligman (e.g., Seligman, 1975), and Bandura (e.g., Bandura, 1995) maintain that actual or perceived control over situations and interactions is necessary to one's psychological wellbeing. The act of being ostracised by an individual or a group is an action that greatly reduces the control of the target. Unlike a physical fight, where the target can hit back, or a verbal argument where the target is free to abuse and respond to the abuse of the other individual, ostracism is entirely controlled by the source. As a unilateral tactic, the choice as to whether to continue or terminate the ostracism is made by the source alone.

Finally, ostracism, through the removal of attention, may affect the target's sense of *meaningful existence*—our conception of our own life as worthwhile. Left without social support and the attention of others, there is the possibility that we will begin to realise that our existence is both exquisitely fragile, and utterly futile, without the response and presence of others (Williams, 1997). The need to maintain a sense that life is meaningful has been viewed by some theorists (such as Greenberg, & Pyszczynski, & Solomon, 1986) as a means of avoiding contemplation of death. Ostracism is in many ways a premature taste of death—an insight into how the world would be should we suddenly be suddenly struck dead. To be given the silent treatment renders us a virtual ghost in the presence of others who cannot (or will not) acknowledge our existence (Williams, 1997).

The effects of ostracism on targets' four primary needs are outlined in the *reactions* section of the model. The reactions to ostracism are classified according to three temporal dimensions: immediately; in the short-term; and in the long term. *Immediate* reactions to ostracism include a general ill feeling, possibly bad mood, and physiological arousal. Because ostracism may threaten all four needs, the *short-term* effect of ostracism results in negative states that motivate individuals (behaviourally, emotionally, and cognitively) to regain these lost or threatened needs. For instance, threats to belonging can be remedied by establishing new bonds with others. Self-esteem may be regained by increasing ones' self-importance, or by remembering past achievements. Control may be re-exerted by taking a leadership role in a situation, or exerting control over the lives of others. And threats to meaningful existence may be remedied by reasserting life goals and sense of purpose.

In the *long-term*, ostracism is hypothesised to lead to detrimental psychological and health-related consequences. With long-term exposure to ostracism, Williams hypothesises that threatened needs will be internalised; a prolonged lack of

belongingness may lead to feelings that one does not belong anywhere; the constant threat to self-esteem is likely to assist in the downward spiral of self-belief and affect resulting in chronic low self-esteem (Leary et al., 1995; Nezlek et al., 1997; Williams, 1997); prolonged loss of control over the environment and others is likely to lead to learned helplessness (Seligman, 1975); and a sense of purpose, once irreparably diminished, may force people to question the worth of their existence (Williams, 1997).

RESEARCH CONDUCTED USING WILLIAMS'S MODEL OF OSTRACISM

If one examines the previous research on ostracism in light of Williams's model, it is evident that these studies examined (and confounded) different facets of the phenomenon such as physical ostracism (isolating the target—Schachter, 1959; Vokert et al., 1983), social ostracism (e.g., not speaking to the target—Geller et al., 1974; Pepitone & Wilpizeski, 1960), or a combination of both (e.g., not talking to the target, then moving away from them—Mettee et al., 1971). It is thus not surprising that this body of research has not led to a common set of findings.

In contrast to these early studies, Williams and his colleagues acknowledged the complexity of ostracism by examining the phenomenon using a multi-method approach. To examine the short-term effects of ostracism, Williams and his colleagues have used a variety of laboratory-based, *experimental paradigms*, including conversation paradigms (where the target is ignored during a conversation), a ball-tossing paradigm (where the target is excluded from a spontaneous ball game), and Internet paradigms (where the target experiences cyber ostracism in a cyber ball task and in chat rooms). In order to examine the long-term effects of ostracism, Williams and his colleagues have used a variety of *qualitative paradigms*, including self-report narrative accounts, structured interviews with targets and sources, event-contingent diaries, and simulations.

Experimental Paradigms

Conversation paradigms

Several of the early studies examined ostracism experimentally by having confederates ignore or exclude a participant during a conversation (e.g., Geller et al., 1974). A variation of this “conversation paradigm” was used by Ezrakhovich, Kerr, Cheung, Elliot, Jerrems, and Williams (1998) who examined the relation between *causal clarity* of the ostracism episode and threats to belongingness. They found that female participants who were not given a reason for being ostracised (low causal clarity) in a warm-up group decision task tended to work more productively than those participants who had been included in the warm-up task. However, participants who were given a reason for being ostracised (high causal clarity—they were told that they were late for the experiment) exhibited the opposite pattern of results: they worked less productively than those who had been included. Ezrakhovich et al. concluded that when the reason for ostracism is clear, the target is relieved of having to speculate about why they are being ostracised, and thus do not generate derogatory self-attributions. However, when the cause of ostracism is unclear, targets generate negative self-attributions, thereby increasing the aversive impact of ostracism. This negative state may then trigger coping mechanisms such as trying harder in the group context to achieve group acceptance (belonging).

Grahe and Williams (1998) also used a conversation paradigm to examine the effects of ostracism on sources as well as targets. However, rather than use confederates as sources of ostracism, the experimenters persuaded the first two participants to arrive at the study to ostracise a third participant. The experimenters appeared to give the participants a choice to include or exclude the third participant during a conversation, but stated that “most participants chose to include the participant and we could really use some excluders.” This strategy induced compliance

in 98% of participants, while giving them the illusion of choice (thus allowing the two sources to cognitively justify their ostracism behaviour, mimicking a real-life situation where they would choose to ignore another person). Once the two participants were given instructions on how to either include or exclude the third participant, all three participants were brought together to have a conversation about a topic on which they were mutually interested. The results of the study replicated previous research by Williams and his colleagues such that targets who were ostracised reported that the experience was more aversive than those who were included, and also hinted at the possibility that sources derogated the ostracised targets (thereby supporting previous research on victim derogation as a consequence of belief in a just world; Lerner, 1980).

A variation of this paradigm was used by Ciarocco, Sommer, and Baumeister (2001) to examine the consequences of being a source of ostracism. Ciarocco et al. used the same procedure as Grahe and Williams (1998) to induce a participant to either ignore or include a target (who was actually a confederate) during a conversation. They found that in subsequent tasks, participants who had ostracised the target showed less persistence in trying to solve complex anagrams, and lower levels of physical stamina (measured by squeezing a handgrip). Ciarocco et al. concluded that ostracism is not only aversive for targets; sources of ostracism also experienced negative effects, specifically cognitive and physical depletion.

Ball-tossing

The various conversation paradigms described above all demonstrate that targets can feel excluded simply by being prevented from partaking in social and verbal interaction (without being verbally derogated or physically abused). In contrast, the ball-tossing paradigm involves a form of ostracism whereby the target is excluded from an emergent group *activity* rather than a conversation. In this paradigm, two confederates either include or socially ostracise a participant during a 5-minute ball-tossing game. For

the first minute, all participants are thrown the ball in order to ensure that they actively engage in the activity (if given the opportunity). After one minute, those in the ostracism condition are excluded from the game such that the confederates no longer throw the ball to the target, instead passing the ball amongst themselves during the remaining four minutes.

Williams and his colleagues have conducted several studies using this paradigm to examine how ostracism affects the primary needs of targets. Williams and Sommer (1997), for example, examined the effect of ostracism on the need to belong. After the ball-tossing manipulation, participants were asked to generate as many uses for an object as possible within a set time limit. They performed this task in the same room either collectively (in which they were told that only the group effort would be recorded), or coactively (in which their own individual performances would be compared to that of the other group members) with the two confederates. It was hypothesised that targets would try to regain a sense of belonging by working comparatively harder on the collective task, thereby contributing to the group's success. Williams and Sommer found support for this hypothesis, but only for female participants. Males, following inclusion or exclusion, tended to socially loaf— that is, they performed less during the collective task (where they believed their individual effort could not be assessed) than during the coactive task (where their individual effort could be assessed and compared to the other group members). There was also a distinct difference in the non-verbal behaviour of males and females in this study. Females demonstrated non-verbal engagement (i.e., leaning forward, smiling) whereas males disengaged faster and tended to employ face-saving techniques such as combing their hair, looking through their wallets, and manipulating objects. It was concluded that being ostracised leads targets to try and regain their threatened needs, however there were gender differences in that ostracised females attempted to regain a sense of

belonging whereas males acted to regain self-esteem (or possibly a sense of control over their environment).

The ball-tossing paradigm was also used by Lawson Williams and Williams (1998) to examine whether targets exhibited greater need for control when ostracised by two sources who were friends with each other, as opposed to two strangers. In one study, after the ball tossing manipulation, male participants were asked take part in a "mind reading" study. Targets were instructed to ask a newly arrived participant to turn their head from side to side until the target could guess the design on the card that the new participant was holding. Social control was measured as the number of head turns that the participant requested of the new person. In a second study, female participants who had been ostracised by either two friends or two strangers in the ball-tossing paradigm were asked to fill out a questionnaire assessing their need for control (Burger, 1992). In both studies, only those targets who had been ostracised by two friends exhibited greater need for control. The researchers suggested that when ostracised by two people who were close friends with each other, a newcomer's subjective control over the situation is diminished from the onset of the interaction. Perhaps feeling less in control of the situation already because they feel like the fifth wheel (or, in this case, the third wheel), the newcomer is at an immediate social disadvantage. They are not privy to the wealth of memories and experiences that the two friends may have shared, and thus cannot partake of the private jokes, the shared reminiscences, or the mere familiarity that allows the two friends to remain at ease in each other's company. In the presence of two people who are friends, newcomers may compensate by trying to make a favourable impression because they are faced with the undeniable knowledge that they cannot control the conversation should it venture into areas where the two friends talk about shared personal experiences.

Internet paradigms

The conversation and ball-tossing paradigms both involve social ostracism—the experience of being ostracised in the presence of others. As such, these paradigms reflect real life situations such as when friends, colleagues, or loved ones ignore us. But ostracism need not occur only in face-to-face interactions. Cyber space has fast become a social medium to rival the tangible world in terms of the sheer possibility for interactions, whether they are professional, platonic, or passionate (in the case of the rapidly growing industry of internet dating). Yet ironically, as phones, faxes, and computers promote the idea of bringing people closer together, these means of communication also allow many opportunities for ostracism. We wait for the promised fax; we keep checking for the invitation that is “in the mail;” we sit by our inboxes waiting for an email from a close friend, or are kept on call waiting to the tinny strains of “The Girl from Ipanema” as our friend answers another call. How does being ostracised in the cyber realm differ to being ostracised in real-life?

Williams, Cheung, and Choi (2000) used a modified web version of the ball-tossing paradigm to examine the effects of being ostracised in cyberspace. Instead of a ball game, participants were led to believe that they were tossing a virtual flying disk with two other players (who were actually computer generated). The quantity of ostracism (the extent to which participants were thrown the disk and thus excluded from the game) was varied. With 1,486 participants from 62 countries accessing the game, Williams et al. found that participants who were thrown the disk least (and thus experienced the greatest amount of ostracism) tended to participate the least, that is, they were more likely to quit the game than those who were included or only partially ostracised. These participants also found the experience to be highly aversive, experiencing the highest threat to the primary needs (loss of control and belonging), and had the lowest mood when compared to participants who were ostracised to lesser

degrees. In a second experiment, the consequences of cyberostracism were examined using a cyber analogue of the ball-tossing paradigm (i.e., Cyberball™). The study was primarily aimed at determining whether ostracism would increase the target's likelihood to conform. Moreover, it also aimed to determine whether the identity of the sources of ostracism would influence the aversive impact of ostracism. Participants were either included or excluded during a 5-minute game of Cyberball. The identity of the sources (all computer generated confederates) was manipulated such that they were either ingroup members, outgroup members, or mixed members (i.e., one ingroup, one outgroup member), where group identity was based on their computer ownership (MACs or PCs). After being included or ignored during the Cyberball game, participants were told they would be put into a new group of six people (all five of whom were computer generated confederates) in order to perform a perceptual judgement task. Williams et al. found that ostracised individuals, especially those ostracised by ingroup members, conformed the most to the incorrect unanimous majority judgments. This finding suggests that not only will targets try to regain their sense of belonging by conforming, but also that the identity of the source(s) has an important effect on the impact of ostracism, such that being ostracised by people with whom we share some form of bond (even something as trivial as having the same type of computer) is more painful than being ostracised by others outside our social groups.

The effects of cyberostracism were further explored by Williams, Govan, Croker, Tynan, Cruikshank, and Lam (2002). In a series of studies, Williams et al. further examined the role of the identity of the sources on moderating the aversive impact of ostracism. In these studies, the identity of the sources was manipulated in two ways: either the relationship status of the two sources was varied (i.e., the sources were either friends with each other or two strangers; see Lawson William & Williams, 1998); or group membership varied such that the sources either shared group

membership with the participant (ingroup members) or only shared membership amongst themselves (outgroup members; see Williams, Cheung, & Choi, 2001). In accordance with previous ostracism research, Williams et al. found that ostracised participants reported more aversive psychological consequences than those who had been included (e.g., lower levels of the primary needs), regardless of whether participants were ignored during Cyberball or in a chatroom. However, there were no interactions between ostracism/inclusion and the identity of the source (regardless of whether sources were friends/strangers, or were members of the ingroup/outgroup), thereby contradicting previous research that had found the effects of ostracism were moderated by the identity of the source (e.g., Lawson Williams & Williams, 1998; Williams, Cheung, & Choi, 2001). In their final study, Williams et al. (2002) compared the effects of cyberostracism (being ignored or included in a chatroom discussion) and social ostracism (being ignored or included in a face-to-face discussion). Williams et al. found that regardless of the medium, participants who were ostracised reported lower levels of all four primary needs compared to those who had been included. However, targets who were ignored over the Internet reported less threat to their sense of control and self-esteem than those who were ignored face-to-face. Moreover, participants who were ignored over the Internet were more likely to be provocative— that is, they actively tried to regain their group membership by answering the questions sources were typing to each other, or making comments designed to provoke a response from the sources— than those who were ignored face-to-face. Williams et al. concluded that such acts of (what they term) “virtual courage” by those who were cyberostracised may actually help to buffer control and self-esteem while being ignored.

In a recent study, Eisenberger, Lieberman, and Williams (2003) used a variation of the cyberball paradigm to investigate whether being ignored in cyberspace results in neurological activity indicative of somatic pain. In that study, functional magnetic

resonance imaging scans were taken at several points during a Cyberball game: a) while the participant observed the game being played by the two other (computer generated) players; b) while the participant was included during the game; and c) while the participant was being ostracised. Eisenberger et al. found that the patterns of neural activation that result from ostracism parallel those present during physical pain (i.e., activation of the anterior cingulate cortex and the right ventral prefrontal cortex). According to Eisenberger et al., the findings suggest that the link between pain and ostracism may have an adaptive function. That is, as social entities, humans need strong social bonds to survive—if exclusion triggers neural activity that is equivalent to physical pain then this sensation would provide the impetus to nurture and maintain strong social contact with others.

Overall, Williams and his colleagues have conducted several experimental studies that have greatly contributed to our understanding of the nature of ostracism. However, due to ethical constraints, these studies have been restricted to examining the *short-term* effects of ostracism. In order to assess the *long-term* effects of ostracism, Williams and his colleagues have employed a number of qualitative paradigms (i.e., narratives, simulations, event-contingent diaries, and interviews).

Qualitative Paradigms

Narratives

Several studies conducted by Williams and his colleagues have used narratives in order to examine the effects of day-to-day episodes of ostracism. For instance, in one study, participants were asked to list the specific behaviours and feelings they would experience when either giving or receiving the silent treatment to a friend (Williams, Shore, & Grahe, 1998). These were then coded by both independent raters and participants according to the model of ostracism. Overall, Williams et al. found evidence that for targets, all four primary needs were threatened by the silent treatment.

Moreover, targets also reported feeling more apologetic about the incident than sources. Sources, however, tended to report need fortification, particularly a greater sense of control than targets when ostracising.

In another narrative study, Sommer, Williams, Ciarocco, and Baumeister (2001) asked participants to write about two episodes of ostracism— one where they were a target, the other where they were a source. Several findings emerged. Ostracism was found to be most destructive when used as a pre-emptive defence against anticipated rejection, whereas it was most beneficial when used to control anger or to avoid argument. The *motive* for ostracism was also found to have a different self-reported effect on the four needs, such that analyses of participants' narratives indicated that oblivious ostracism led to greater threats to target's sense of belonging, self-esteem, and meaningful existence than punitive ostracism. Oblivious ostracism also increased targets' tendencies to seek other relationships when compared to punitive ostracism.

Sommer et. al also investigated whether trait self-esteem could predict whether an individual was likely to be a target or source of ostracism. Sommer et al. found that low self-esteem individuals were more likely to use the silent treatment in general, but they appeared to use it more as a manipulation tactic, rather than as an indication of true disengagement in the situation or the relationship. In contrast, high self-esteem individuals were more likely to use ostracism in order to terminate an undesired interpersonal relationship, and were also more likely to terminate their relationship with partners who ostracised them than those with low self-esteem. It would seem that for mixed self-esteem couples, the low self-esteem individuals are in a particularly poor position. That is, they are more likely to use the silent treatment, but only as a tactic. Further, when they use it, their high self-esteem partners do not put up with it and are inclined to leave (apparently because they are more likely to believe that they will have no difficulty in meeting another person). To make matters worse, when the high self-

esteem partner uses the silent treatment on a low self-esteem partner, it means the high self-esteem person is ready to leave.

Simulations

Although experimental paradigms have been restricted to investigating one short period of ostracism, simulations can begin to explore the effects of multiple and prolonged periods of ostracism. Williams, Bernieri, Faulkner, Grahe, and Geda-Jain (2000) used a form of role-play to examine the consequences of experiencing ostracism over an entire week. In that study, four of the researchers ostracised one member of the group for an entire day, hence each researcher experienced being a target (for one whole day) and a source (for four whole days). On every day of the week, a different member of the group was randomly selected as the target, and a large, scarlet "O" was placed over their office door (hence the study was called "The Scarlet Letter" study). Each researcher was required to keep a diary for the entire week, recording thoughts, feelings, and behaviours during the ostracism experience. Examination of the diaries indicated that although the participants were aware that ostracism would be taking place and that the reasons for the ostracism were clear (i.e., for experimental purposes), they nevertheless recorded aversive feelings as a result of being ostracised, and attributional ambiguity for the motive behind the ostracism (i.e., attributing ostracism not to the experiment, but to pre-existing attitudes, conflicts, and conspiracies). Many of the researchers reported that ostracism was mentally taxing, particularly for the sources, but for targets as well. Often, when meetings had to occur, the researchers were so concerned with the act of ostracising (or being ostracised) that they had difficulty recalling what was said in the meetings, suggesting that ostracism is cognitively effortful (a similar finding was reported by Ciarocco et al., 2001). There were also individual differences apparent in responses to ostracism. Some targets tried to provoke the others into acknowledging them, whereas another target chose to ignore the ostracisers

(a form of defensive ostracism). Finally, several diary entries indicated that ostracising a higher status person was enjoyable, and that ostracising a lower status person was easier. Overall, reactions of the participants in the Scarlet Letter study underscored the power of ostracism. Despite foreknowledge about its occurrence and the reasons for it, there were numerous reports of aversive reactions. These reactions were so intense that many of the sources apologised to the targets on the following day.

Event-contingent records

The Scarlet Letter Study provided a firsthand account of being both a target and source of ostracism over a specific time period. To further study naturally occurring episodes of ostracism, Williams, Wheeler, and Harvey (2001) developed the Sydney Ostracism Record (SOR). The SOR is a version of the event-contingent self-reporting method (also called a “diary format”) that has been used by previous researchers to test hypotheses about a variety of everyday social phenomenon (for a summary of this research, see Reis & Wheeler, 1991).

In two studies (one assessing targets, the other sources), participants carried the SOR with them at all times, and recorded every instance when they experienced or perpetuated an act of ostracism. The diary was set out such that participants recorded the ostracism episode according to the parameters of Williams’s model (e.g., taxonomic structure, need-threat), as well as noting other aspects of the ostracism episode such as the nature of the relationship between the source and target (e.g., friend, stranger, colleague), the duration of the episode, and the frequency with which it occurred. It was found that participants recorded approximately one entry of ostracism per day as targets and approximately one entry as sources. This suggests that over the average lifespan, people will ostracise others over 25 000 times, and be ostracised over 25 000 times. Targets reported that they were ostracised more by acquaintances and strangers (31% and 30% of episodes recorded respectively) compared to relationship partners

(5% of episodes recorded). Similarly, sources reported that most of their ostracism episodes took place against strangers (30% of episodes) compared to relationship partners (6% of episodes). Targets reported a loss of all four needs in all cases of ostracism, though their sense of belonging and control was even lower when they felt that the ostracism was punitive or oblivious in nature. In contrast, sources reported higher levels of control and felt better about themselves, particularly when they were punitively ostracising, however they felt lower levels of belonging. This study clearly indicates that before we can predict the effects of even the simplest episode of ostracism on the target or the source, it is necessary to have a clear understanding about the complex interaction of all of the factors of the model (e.g., the relationship between the target and source, motive, clarity, visibility, etc).

Interviews

In many of the laboratory-based experimental paradigms, a single, typically short-term, episode of ostracism is examined. Yet for many individuals in the world beyond the laboratory, the reality of ostracism extends far beyond the 5-minute episode experienced by targets in the ball-tossing game, or during the single working day of exclusion as in the Scarlet Letter study (Williams et al., 1998). For many individuals, ostracism (particularly the silent treatment) by a loved one is a predictable consequence of any actual or perceived misdemeanour on their part. It is an interpersonal tactic that they are exposed to repeatedly throughout the duration of the relationship. For others, one single episode of ostracism may have stretched for years to the point where the possibility of regaining contact with a loved one is minimal and where silence holds the promise of being eternal.

The ethical constraints of creating a paradigm whereby the target is ostracised for a prolonged period of time make the laboratory the wrong place to examine the psychological consequences of long-term ostracism. Thus, Faulkner and Williams

(1995) examined the effects of prolonged exposure to ostracism by interviewing targets and sources of long-term ostracism in the United States. These unstructured interviews examined several aspects of ostracism, such as the targets' responses to sustained episodes of ostracism, and why sources choose ostracism (particularly the silent treatment) as opposed to other forms of interpersonal conflict.

The interviews supported the hypothesised long-term effects of ostracism on the four primary needs, with targets of long-term ostracism expressing thoughts, feelings, and behaviours indicative of learned helplessness, low state self-esteem, and depression. In addition to internalised need-threat, being ostracised often evoked negative emotions such as anger, frustration, and despair. Many targets of long-term ostracism also reported that being excluded and ignored had adversely affected their health. Ultimately, many of the targets interviewed described their lives as being negatively affected by ostracism ("This has ruined my life—I have no chance for happiness now," p. 159, Williams, 1997). Several targets reported negative, self-destructive behaviours in response to being ostracised (e.g., promiscuity, suicide attempts). For instance, one female interviewee developed an eating disorder after being ostracised by her mother for several years because she said she "saw it as the only way to maintain some control over my life" (p. 159, Williams, 1997).

SUMMARY AND LIMITATIONS OF OSTRACISM RESEARCH

Williams's model of ostracism has provided a useful framework for distinguishing between different types of ostracism and for making specific predictions regarding the consequences of ostracism. However, as the model, and the program of research stemming from it, is still in its infancy, there are several areas where more investigation is necessary. First, although Williams has constructed a model that elucidates several important aspects of ostracism, the majority of research conducted so far has focused almost entirely on the threatened needs section of the model—

specifically, the effects of ostracism on the four primary needs of targets. In the short term, self-report narrative accounts of ostracism (e.g., Sommer et al., 2001; Williams, Shore, & Grahe, 1998), and experimental manipulations of ostracism (e.g., the ball tossing paradigm; Williams & Sommer, 1997) have demonstrated that targets experience threats to belonging (e.g., Williams & Sommer, 1997), control (e.g., Lawson Williams & Williams, 1998), self-esteem (e.g., Sommer et al., 2001), meaningful existence (e.g., Sommer et al., 2001) or all four needs (e.g., Williams, Bernieri, et al., 1998; Williams, Shore & Grahe, 1998). Targets generally respond to need-threat by acting to regain the threatened needs (e.g., Ezrakhovich et al., 1998; Lawson Williams & Williams, 1998; Williams, Cheung, & Choi, 2000; Williams & Sommer, 1997). In the long term, targets experience dire psychological consequences indicative of prolonged need-threat (such as learned helplessness, depression) and detrimental health responses (Faulkner & Williams, 1995).

Second, Williams (1997) has asserted that ostracism may have deleterious physiological effects as well as deleterious psychological effects. However, the studies conducted by Williams and his colleagues typically focus solely on the *psychological* consequences of ostracism. Only one of the studies to date (i.e., Eisenberger et al., 2003) has specifically examined the physiological substrates of ostracism. Other studies have typically ignored the possible short or long-term physiological or health-related effects of ostracism.

Finally, although Williams's model provides a much-needed structure from which to understand and predict the effects of ostracism, the model was not designed to examine the effects of ostracism on sources. The only aspects of the model that relate directly to sources are the taxonomic dimensions that delineate the type of ostracism that the source employs, and the antecedents that lead sources to use ostracism rather than other forms of interpersonal conflict. The central assertion of the

model— that ostracism affects four primary needs— is clearly focused on the effects of ostracism on targets. It does not make any predictions on how the four needs of sources are affected immediately, in the short-term, or in the long-term as a result of ostracising the target. Consequently, there has been little investigation by Williams and his colleagues on how ostracism affects sources. The few self-report narrative studies that examined sources' responses to ostracism have suggested that (in the short term) sources tend to experience need fortification rather than threat (e.g., Williams, Shore, & Grahe, 1998). However, participants in the Scarlet Letter study (Williams et al., 1998) reported that ostracising others over a one-week period was an aversive experience. Similarly, Ciarocco et al., (2001) found that sources experienced a decrement in both physical stamina and cognitive processing abilities after ostracising a target. Thus, there needs to be further investigation of the effects of ostracism on sources for it is only by investigating the interaction between targets and sources that a true understanding of this phenomenon can be attained.

THE CURRENT PROGRAM OF RESEARCH

Although the model of ostracism has provided a unified conceptualisation of ostracism, the research guided by this model still has many of the limitations noted in the early research of ostracism. That is, the early research focused almost exclusively on examining the psychological effects of ostracism on targets, thereby ignoring not only the potential health-related effects of being ostracised, but also the psychological and health-related effects of ostracism on sources. Similarly, the research conducted by Williams and his colleagues is still primarily focused on examining the psychological effects of ostracism on targets.

Thus, it seems that although recent ostracism research has increased our understanding of the nature of ostracism in various ways, it has also been somewhat narrow in its focus. This may be due in part to the methods and paradigms used to

examine ostracism. Because the nature of ostracism is typically examined in the laboratory (e.g., the ball-tossing studies, Cyberball), ostracism researchers are forced to distil this complex phenomenon into small, manipulable components. In doing so, there is the danger that the way in which ostracism is examined in the laboratory moves further and further away from the way in which ostracism occurs in real life. As such, the findings of laboratory-based studies may have limited generalisability to the real world. Similarly, the aspects of ostracism explored in laboratory-based studies may be of personal interest to the experimenter, but to what extent are these aspects of relevance in real-life instances of ostracism?

Rather than follow the lead of previous ostracism research, the current research project aimed to take a different approach by examining aspects of ostracism that are relevant in the real-world. In order to understand ostracism in all its complexity and contradictions, it is important to delve into the phenomenological experience of being a target or source of ostracism. Thus, the first study of the current project was a series of interviews with targets and sources of long-term ostracism. Unlike the interviews conducted by Faulkner and Williams (1995) however, these interviews were structured so that the responses of targets and sources could be compared, and assumptions of Williams's model of ostracism (1997/2001) tested. Although such a qualitative approach affords less control and is more open to alternative interpretations than experimental paradigms, these interviews provided rich and vivid accounts of the phenomenology of ostracism. The insights gathered by these interviews were then used to inform subsequent empirical studies. This is particularly true of the interviews with sources as there is still little experimental research on which to base hypotheses about the effects of ostracising. Moreover, the interviews with real-life targets and source shed light on aspects of the model that have not yet been thoroughly investigated (e.g., the antecedents, the moderators, and the effects of ostracism on the four needs of sources),

and provided evidence for other aspects of ostracism that should be included in the model.

The aspects of ostracism arising from the interviews that were chosen for further investigation were examined using a multi-method approach. Williams and his colleagues have demonstrated that there are several benefits in using a multi-method approach to examine such a complex phenomenon. First, it is easy to be misled by results from a single paradigm. Often, empirical findings are idiosyncratic to a particular technique or measure and may not generalise to other seemingly similar situations. Second, different paradigms are suited to examining different aspects of the model (for instance, it would be impossible to use the same paradigm to examine the effects of both cyber and social ostracism). Thus, a variety of methods were used to attain a better understanding of ostracism, and ultimately, clarified and exposed aspects of the model that as yet have not been fully investigated (e.g., the effects of ostracism on sources).

Because the current research project is composed of studies examining aspects of ostracism that have received little or no empirical investigation, and employed the use of multiple (and often novel) paradigms, it is inevitable that there were limitations to the findings. However, the current research project aimed to avoid, wherever possible, two common limitations of past ostracism research. First, although previous ostracism studies have typically focused on examining targets of ostracism, the current program of research aimed to examine (wherever possible) the effects of ostracism on both targets and sources.

A second limitation of previous ostracism research is that it typically focused on examining only the psychological effects of ostracism (for an exception, see Stroud et al, 2000). The current research project aimed to (wherever possible) examine *both* the psychological and the health-related effects of ostracism from the perspective of targets and sources. Researchers such as McGuire and Raleigh (1986; Raleigh & McGuire,

1986) have asserted that ostracism may exact a substantial biological price, yet research examining this assumption comes primarily from observing non-human primates who have been separated from their peers. Similarly, studies examining the health-related consequences of ostracism in humans (e.g., Kiecolt-Glaser, Malarkey, Cacioppo, & Glaser, 1994) have focused on individuals who have been isolated from social contact. Thus, there has been very little investigation of the short or long-term physiological and health consequences of being ostracised when in the actual or virtual presence of the sources (i.e., *social* or *cyber* ostracism). Raleigh and McGuire (1986) speculate that “...subtle forms of ostracism such as not responding as expected or refusing to see another, may have physiological consequences upon the one ostracised...” (p. 46). By examining the health-related effects of being ignored in the presence of the sources, an understanding of the day-to-day physical cost of being ignored by strangers in buses and elevators, by colleagues at work, by educators during “time-outs,” or by loved ones at home, could begin to be ascertained.

In addition to contributing to the current ostracism literature by examining the psychological and health-related effects of ostracism on both targets and sources, the current research project had a final aim— to evaluate Williams’s model of ostracism. By examining areas of ostracism that have received little empirical investigation, the current project provided evidence to support and expand the existing parameters of the model. Moreover, as the research project examined the effects of ostracism on both targets and sources, modifications of the model were proposed, primarily so that the bias toward examining ostracism from the perspective of targets was remedied, and the effects of ostracism on sources were acknowledged.

CHAPTER 2

Interviews with Targets and Sources of Long-term Ostracism

*"Silence propagates itself, and the longer talk has been suspended,
the more difficult it is to find anything to say"*
Samuel Johnson (1709-1784)

Let us return for a moment to the central paradox that began the previous chapter—that of the “true” nature of ostracism. Throughout history, poets and philosophers have described ostracism as both a virtue (i.e., “silence is golden”) and a vice (“silence is the virtue of fools”), as an act of kindness (“if you have nothing nice to say, say nothing at all”) or an act of cruelty (“You hesitate to stab me with a word, and know not silence is the sharper sword”). Even amongst researchers, ostracism has been acknowledged as a tactic that is either potentially beneficial (e.g., the use of timeouts during family conflict; Veenstra & Scott, 1993) or irrefutably aversive (for review see Williams & Zadro, 2001).

These discrepant views of ostracism highlight the complexity of the phenomenon as an interpersonal tactic. Yet research conducted on ostracism to date does not always acknowledge this complexity. Ostracism is a dynamic interaction between target and source. No doubt the effect of ostracism on all those involved is a product of many factors, some of which are elucidated in Williams’s model of ostracism (e.g., motive, antecedents, individual differences, etc). However, in laboratory studies, researchers are often forced to minimise the complexity of ostracism and focus on individual aspects of ostracism in isolation. This approach is acceptable when examining well-established phenomena, but the fundamental nature of ostracism has not yet been adequately documented or explored. By trying to distil such a complex

phenomenon to its bare elements, are researchers removing the experience of ostracism further and further from the real world? Moreover, as researchers continue to pursue the nature of ostracism by examining the minutiae of the ostracism experience (typically from the perspective of the target of ostracism), are researchers being sidelined into examining issues that are possibly irrelevant to experiences of ostracism outside of the laboratory?

STUDY 1: INTERVIEWS WITH TARGETS AND SOURCES OF LONG-TERM OSTRACISM

To begin this research project, I resolved to take a step back from traditional methods and paradigms currently used in ostracism research and examined the phenomenological experience of ostracism from the perspective of real-life targets and sources. By systematically interviewing people who live with ostracism everyday in their relationships with colleagues, friends, and loved ones, a more comprehensive understanding of the nature of ostracism would be attained, thereby shedding light on areas of ostracism that are in need of further research or have yet to be experimentally examined.

There has been one previous study that has used a similar methodology to the present study to examine the phenomenological experience of targets and sources during ostracism. Specifically, Faulkner and Williams (1996) explored the effects of prolonged ostracism by interviewing targets and sources of long-term ostracism in the United States. Not only did these interviews provide an insight into the effects of long-term ostracism— an area ethically unsuitable for laboratory research— but they also informed the section of Williams’s model devoted to elucidating the long-term effects of being ostracised (i.e., the internalisation of lost primary needs including: a loss of

bonds; thoughts, feelings, and behaviours indicative of learned helplessness; low state self-esteem; depression; and possible suicidal ideation).

Although the present study shares a common methodology with the Faulkner and Williams study (i.e., interviews with targets and sources of long-term ostracism) the present study has a different focus. Faulkner and Williams conducted the interviews as a first, important step in examining the effects of long-term ostracism. To do so, they used an unstructured interview protocol primarily for exploratory purposes. Thus, each interview consisted of a free exchange of questions and answers between the interviewer and the interviewee without a set format. In the present study, however, *structured* interviews that comprehensively explore a wide range of ostracism issues (e.g., aspects of Williams's model, the effects of ostracism on health, etc) were used. The structured interviews not only continued the exploration of the effects of ostracism, but they also aimed to uncover aspects of ostracism that are prevalent within the general community but have been ignored in the ostracism literature. Such aspects of ostracism provided the basis of laboratory studies to be conducted as part of the current research project. The findings of the interviews, and the subsequent studies that they informed, were then viewed in the context of Williams's (1997/2001) model of ostracism.

Method

Participants

Participants were members of the general community who were long-term targets, sources, or both targets and sources of long-term ostracism. Participants contacted the researcher in response to advertisements placed in the "Woman's Day" magazine (a popular national weekly magazine), or local newspapers. These

advertisements stated; “I am conducting research on ‘the silent treatment.’ If you have either given or received the silent treatment at home, at work, or on the web for extended periods of time, please contact Dr. Williams (contact details supplied).” The silent treatment (another term for social ostracism) was used in the advertisements, as it is a more common term for ostracism, and hence made the advertisement more accessible to a wide variety of readers. In addition to the advertisements, participants also became involved in the project after hearing or reading interviews conducted by Dr. Williams about the nature of ostracism in the local media. No monetary or therapeutic support was offered—interviewees viewed the opportunity to tell of their experiences with ostracism as incentive for participating.

Overall, 112 phone calls, and over 100 faxes/emails were received from people Australia-wide willing to discuss their ostracism experiences. Of these potential participants, thirty-eight² were interviewed (aged between 23 and 68 years, $M = 42.5$, $SD = 11.5$). Twenty-eight participants identified themselves as long-term targets (males = 4, females = 24), with the remaining ten participants identifying themselves as long-term sources (males = 4, females = 6).

Materials and Procedure

The interviews were conducted either in person or over the phone. Participants who chose to be interviewed in person were shown into a small, well-ventilated room, containing two comfortable chairs facing each other and a small table close by with a jug of water, two glasses, and a tape recorder. The participant was asked to be seated in one of the chairs, and the experimenter sat in the chair opposite. The experimenter offered the participant a glass of water and explained the interview procedure.

² Participants were self-selected as they were willing to volunteer their time to be interviewed (over the phone or in person about their experiences).

The interviewer began by thanking the participant for volunteering their time to participate in the study. They were informed that the purpose of the study was to examine the long-term effects of ostracism (the silent treatment). They were also informed that the interview would be taped so that it could be transcribed and analysed at a later date. To tape the interview over the phone, a telephone pick-up microphone was used. It was placed by means of a suction cup of the handset of the phone and then attached to the tape recorder.

Participants were assured of the confidentiality of the interview, and were informed that any identifying features (such as profession, name, and age) would be changed. The experimenter was also careful to explain that there would be no monetary of therapeutic benefit from consenting to participate in the study.

Participants were presented with the consent form and an information sheet (see Appendix A) that set out the aims of the study. The information sheet also provided contact details for the interviewer and her supervisor should the participant wish to withdraw consent, add further details to their interview (e.g., by phoning, emailing, or writing a letter to the experimenter), or enquire about the results of the study. The participant was also asked to complete a "Background Questionnaire" (see Appendix B) designed to assess the interviewee's demographic information such as age and profession. Participants who completed their interview over the phone received their information sheet, Background Questionnaire, and consent form in the mail. They were asked to complete the forms and return them as quickly as possible.

After consent and demographic details were obtained, the interviewer began the structured interview. The interview for this study was based on the step-wise cognitive interview designed for the purpose of interviewing children for eyewitness testimony (see Yuille, 1988). The cognitive interview contains three main "steps" or phases:

establishing rapport, the free narrative account (whereby the interviewee recalls the relevant event in his/her own words), and questioning (consisting of questions that become progressively more specific). The cognitive interview was selected as a model for the ostracism interviews primarily as it allowed a section (the free recall section) to remain uncontaminated by questions or conversation that may occur throughout the interview.

Two versions of the interview were constructed for the present study— one for sources and one for targets (see Appendix C). The interview protocol consisted of seven sections. The first section was a free recall component that allowed the participant to discuss their ostracism experiences with minimal input from the interviewer— this section was equivalent to the free narrative account in Yuille's (1998) cognitive interview. The second section consisted of specific questions that aimed to draw out details of the ostracism experience. These questions were generally derived from dimensions of Williams's model of ostracism. Specifically, this section examined the possible *motive* for ostracism, the *quantity* of ostracism, and possible *moderators* of the ostracism experience. The third section of the interview assessed the thoughts, feelings, and actions of the participant during two stages of ostracism: when they first started receiving/giving the silent treatment, and after they had experienced/administered ostracism over a continuous period of time. The fourth section of the interview primarily addressed the *consequences* of ostracism by asking how ostracising/being ostracised affected their interpersonal relationships (including their relationship with the target/source), and their physical health. The interviewer avoided asking specific questions about the health-related effects of ostracism until the participant freely mentioned the issue, in which case the interviewer asked about the nature, severity, and duration of any physical ailment mentioned as a possible consequence of ostracism. If

the participant did not mention any somatic consequences as a result of ostracism, the interviewer asked a cursory question concerning the participant's general health and wellbeing at the end of the interview. The fifth section of the interview explored *individual differences* in the propensity to ostracise or to be ostracised throughout the participants' lives. The final section of the interview aimed to examine possible means of *terminating* the ostracism episode. Specifically, the participant was asked how they would advise someone who was receiving the silent treatment (e.g., behavioural strategies that the target should pursue). If the participant stated that they were both a target and a source, the interview was broadened to accommodate both perspectives. If the participant stated that they wished to discuss how they ostracised or were ostracised by several people, the interview was repeated so each of the ostracism episodes were discussed. Although the protocol was closely adhered to, the interviewer deviated from the structured interview to probe or clarify any vague issues or statements made by the participant. Care was taken at all times to conduct the interview as professionally and as empathetically as possible. The interviews, on average, took approximately two hours to complete.

At the end of the interview, participants were asked if they felt comfortable with the way in which the interview had been conducted and if they wished to revoke consent. They were provided with samples of previous ostracism research (this was posted to participants who completed the interview over the phone), and were informed that they could contact the interviewer if they wished to know the outcome of the study. Finally, the interviewer thanked the participant for their time and cooperation.

Coding procedure. The interviews were transcribed verbatim and analysed using Q.S.R NUD*IST Vivo®, a qualitative statistical package. Two raters independently

coded 25% of the transcripts for reliability. The average agreement between the raters was 91.5% (Cohen's kappa = .808). Any disagreements between the raters were discussed until a solution was agreed upon. One rater then completed coding the remaining transcripts. The letters/faxes/emails sent in response to the advertisement were also coded and added to the interview data to enrich the data set (see Appendix D for a sample of the letters received from targets and sources).

Results

Analytic strategy

The interviews and letters yielded an extraordinary amount of information about ostracism from the perspective of both targets and sources. There was an initial temptation to reduce this information into some quantitative form, such as presenting the percentage of targets who experienced each form of ostracism (i.e., punitive, defensive, oblivious, role-prescribed, not ostracism), or the number of ostracism episodes per participant (see Williams, Wheeler, & Harvey, 2001). However, this form of data analysis was not pursued in the current study, as it was decided that such an approach would reduce much of the impact and usefulness of the rich phenomenological data. Therefore the impressionistic interpretation of the data was supplemented only by minimal quantitative findings when the data was amenable to this form of analysis.

Thus, the interviews and letters were examined for commonalities and recurring themes that supplemented, conformed to, or refuted, current theories of ostracism. Using the model of ostracism as a framework, the findings of the interviews are presented in four sections: the nature of ostracism (information pertaining to ostracism as an interpersonal tactic), targets of ostracism, source of ostracism, and observers of

ostracism.

The Nature of Ostracism

The interviews and letters revealed much about the nature of ostracism. For instance, although many in the general population practice some form of ostracism, it was rarely referred to by this term. The most popular term for ostracism was “the silent treatment,” though participants also used terms such as the “wall of silence,” “no speaks,” “cold shoulder treatment,” “the Hawkesbury Pause,” “being sent to Coventry,” “in a sulk,” “the pout,” “freezing out,” “venomous silence,” “the big freeze,” and “das Scheigen im Walde (the silence in the forest).”

Regardless of the term used, they all referred to the same act (i.e., silence and rejection). However, acts of ostracism were rarely enacted in isolation from other forms of interpersonal conflict. For many of the participants, ostracism typically was preceded by an argument or some form of altercation. A minority of targets also stated that the silent treatment was interspersed with episodes of physical or verbal abuse. The combination of ostracism with other forms of interpersonal conflict contrasts with ostracism paradigms used in laboratory studies. In these laboratory-based paradigms, the target is often ignored by two sources (typically confederates) without prior provocation or incident to justify their behaviour. As such, these paradigms do not accurately reflect the way in which ostracism is used in the outside world.

Although empirical studies of ostracism have not compared the aversive impact of ostracism to other interpersonal tactics, many targets were quick to compare ostracism to verbal and physical abuse. The majority of targets stated that the silent treatment surpasses other weapons of conflict in terms of its deleterious effects. For example, one female target who received the silent treatment (which she referred to as “mental cruelty”) from her third husband for 10 years stated that “... My second

husband, who was an alcoholic, used to physically abuse me, but the bruises and scars healed very quickly and I believe that mental cruelty is far more damaging than a black eye." Another target who was repeatedly ostracised by her mother throughout childhood confessed that she had often asked for a beating "rather than endure another period of silence and the shocking atmosphere it created."

As the interviews provided rich, descriptive accounts of ostracism, it was necessary to use Williams's (1997/2001) model of ostracism as a framework, in order to organise and interpret the findings. In order to further explore the types of ostracism used by participants, descriptions of ostracism were classified according to the taxonomic dimensions set out in the model.

Taxonomic dimensions

There are four taxonomic dimensions presented in Williams's model: visibility (social, physical, cyber); motive (punitive, oblivious, defensive, role-prescribed, and not ostracism); quantity (low to high); and causal clarity (low to high).

In terms of *visibility*, the majority of incidents described in the letters and interviews were of social ostracism (i.e., when the source ignores the target in their presence). Social ostracism took several forms, from refusing to look or speak to the target, to not setting a place for them at the dinner table. There also were several incidents of physical ostracism (i.e., ignoring the target by physically leaving their presence). For instance, one source chose to completely sever all ties and communication with his wife and two children by living on the second storey of the marital home while his family lived downstairs.

Often, physical or social ostracism was supplemented by instances of cyberostracism (e.g., being ignored over non face-to-face media, such as the phone, letters, or the Internet). For instances, many sources stated that once they decided to

ostracise a target, they did so over all mediums— not only did they ignore the target face-to-face, they would also hang up if the target called on the phone, and would ignore or destroy any letters or email from the target. One target, who was engaged in a purely cyber relationship, was repeatedly ostracised by her cyber boyfriend while in chatrooms. Whenever her boyfriend was angry with her or upset by something she had just written, he would first start to type shorter responses to her questions (i.e., “k” instead of “ok”), then only reply every third or fourth line, until finally he would ignore her completely.

The *motive* for ostracism varied from interview to interview. In the majority of interviews, ostracism was attributed to punitive motives (i.e., to punish the target for some actual or perceived wrongdoing). For instance, one source stated: “I give the silent treatment basically as a punishment for when I feel I’m in the right or I’ve been hard done by.” Sources also used oblivious forms of ostracism (i.e., where the source acts as if the target is unworthy of their attention and ignores them accordingly). For instance, one source explained that when he ostracises a target, “(the target) does not exist any more. They could be a statue... but nothing to me. That person has no existence.” Participants also discussed instances of defensive ostracism. Some used defensive ostracism in a protective manner (i.e., to avoid unwelcome attention or dangerous individuals). For instance, one source physically ostracised her husband (i.e., locked herself in the bedroom or bathroom) when he was drunk to avoid being physically assaulted. Others used defensive ostracism to prevent an argument from developing or to prevent the escalation of an argument. For instance, some participants stated that they would refuse to answer the insults of their spouse in order to avoid conflict.

According to the Williams’s model, ostracism also differs in the level of *causal*

clarity. For the majority of targets interviewed, causal clarity was low— that is, they could not ascertain why they were being ignored or perceived that they were being ignored for no reason whatsoever. For instance, one target stated:

"I'd think 'oh s& %t, what I have I done now?' And then I'd have to go out and think about it...I'd sit in my room thinking, thinking, thinking and I'd be racking my brain and didn't have a clue what was going on."*

In contrast to the targets' perception of low causal clarity, all sources stated that the causal clarity of their ostracism episodes was very high. Despite target perceptions that they were often ignored for no reason whatsoever, sources stated that they always had a reason for ostracising the target, and were often bewildered when targets asked why they were being ignored, particularly if ostracism had been preceded by an argument. One source stated; "I think that if they do something that bad and they don't know what they've done wrong they are really stupid..."

Although the interviews provided substantial evidence for the taxonomic dimensions described in the model, they also revealed another potential dimension of the taxonomy— the *style* of ostracism used by the source. That is, it became apparent from the interviews that sources differed in the way in which they showed targets that they were being ostracised. The style of ostracism could be divided into two broad categories— noisy silence and quiet silence.

Although "noisy silence" seems like an oxymoron, it refers to situations where the source strives, by all possible means, to show the target that they are being ignored. Sources engaging in noisy silence tend to indulge in flamboyant gestures of ostracism (such as slamming doors in the target's presence, stomping about, or theatrically leaving a room when the target enters), and use a veritable arsenal of non-verbal behaviours to accompany such noisy episodes of silence (e.g., glaring, nose in the air, stiff jaw, or turning away). One target interviewed (a mother of three in her fifties) has used noisy

silence throughout her life. As soon as a target offends her in some manner, she begins a performance to rival “a Vegas drag show.” Her first gesture is to let the target explicitly know that they are in trouble.

“Usually, I will be in the same room as (the target), and if they say something to me, I will just ignore them— not even look at them. They will usually ask me again and again and after about the third or fourth time, I will turn to them and say ‘I’m not talking to you’ then turn away, usually with my nose in the air. If they are in the kitchen with me while I am getting dinner ready, I will start banging the pots and pans together, or start chopping the vegetables really loudly and throwing things around. If I have to sit near them on the couch, I will make a big show of sitting at the far edge as far away from them as possible. Or I’ll put something between us, like a cushion or the cat. If they ask me what’s wrong, I’ll say something like ‘nothing’ or ‘you know what’s wrong’ in my coldest voice. If they try to talk to me when I’m not ready to listen, I’ll put my hands over my ears and say ‘I’m not listening.’ If they are watching television, I will stomp in and out in of the room front of them, or I’ll choose that moment to vacuum the room so that they can’t watch their show. That way they are always reminded that I am still mad at them. If they enter the room, I will usually turn around and storm out, slamming the door behind me. Once, the door didn’t crash behind me, so I had to bang it open and shut repeatedly till I was satisfied that (the target) knew I was angry.”

It is obvious from this account that noisy silence takes an enormous amount of energy and a high degree of theatrical skill to constantly remind the target (in so many novel ways) that they being ignored. Hence, noisy silence tends to be a short-term tactic, probably because of the incredible amount of energy that the source must expend to keep it going. Typically, sources of noisy silence tended to be female, though there are were some men who also favoured this tactic. Noisy silence also tends to be used by those who are fairly outgoing and chatty in temperament— it is almost as if they cannot bear to be quiet, even when using the silent treatment.

For all the slamming doors and banging pots of noisy silence, it is typically quite benign. The source is still communicating with the target (albeit while they are stomping past them or vacuuming during their favourite TV program). By interacting with the target, the source is demonstrating to the target that they are still an important part of their life— otherwise why else would the source be putting on such a show to

punish them? Surely, if the source no longer cared about the target, they could save their energy and simply ignore the target's very existence. By doing so, they could show the target that their presence is meaningless, that they are as substantial as a shadow, as ephemeral as a ghost. Tactics such as these that are designed to convince the target that they are not worthy of existence are the hallmarks of *quiet* silence.

Quiet silence is what typically comes to mind when the silent treatment is mentioned. Quiet silence occurs when the source ceases to acknowledge the target's presence, and thus stops, or greatly reduces, all verbal and non-verbal interaction with the target (i.e., ignoring their questions, refusing to touch them or look at them). From the interviews with targets and sources, quiet silence can be broadly divided into four categories: 1) holding-back, 2) tuning-out, 3) shutting-down, and 4) cutting-off.

One of the most common types of quiet silence occurs when the source is *holding back*. In such instances, the source is usually incredibly angry at something the target has said or done. Rather than let their anger out, the source remains silent, bottling their rage inside. Sources may also hold back when they literally feel too angry to speak. One target (a woman in her late 20s) admitted to using this tactic on her new boyfriend when he arrived two hours late for a date.

"At first I was worried. I pictured him in an accident but when I called his mobile, he answered the phone laughing. Apparently he was catching up with friends! Even though he knew I was waiting! I got ready to leave, but just as I was about to catch a taxi home, he arrived. I was so angry with him that I froze. I literally felt frozen. I could feel all that anger just rushing around inside of me but I could not let it out. I couldn't look at him in the eye—I kept looking at the wall directly behind him or down at my shoes. I couldn't say anything—I was worried that if I said anything, all my anger would come rushing out and I would turn into this she-beast and rip his appendages off. My teeth were clenched so tight that my jaw started to ache. What made me even angrier was that he didn't seem all that apologetic. Worse still, he tried to act as though nothing had happened. He tried to joke around and act really charming. Then he came up and tried to hug me but I pulled away from him. I had this terrible feeling that if he even tried to touch me, I would knee his testicles straight up his nostrils. I just wouldn't be able to control myself. He kept asking me to speak to him, but I just couldn't say a word. Nothing. After a while, I just sat down on a bench and listened to him as he pitifully tried to explain himself. It took about two

hours on that bench before I thawed enough to say something. And even then it was just single words— “yes,” “no,” “asshole,” that kind of thing. It took another hour for me to thaw enough to really let him have it, so that he knew in no uncertain terms that if he was even 5 minutes late in future, he had better be prepared to part with his manhood.”

Another form of quiet silence is *tuning-out*. This refers to instances when the source chooses to focus on another thought or activity while the target is speaking, effectively “tuning out” the sound and sight of the target in order to concentrate on something else. Tuning-out seems to be a tactic primarily favoured by men. One target complained that her boyfriend often tuned out when they spoke on the phone so that he could perform another activity.

“I can usually pick up when he is ignoring me though he is pretty sneaky about it. For instance, he will ask me a question that he knows will take me a while to answer— like ‘tell me about your day,’ or ‘how is your family?’ because he knows that it takes me ages to bitch about my family. At first I thought it was sweet that he wanted to know about my day. But then I realised that while I was rattling on, he was watching TV! Lately, I’ve learnt to pick up the signs that he is ignoring me. When he isn’t listening to me, it takes him a while to ask the next question, or he speaks slower and I can practically hear his brain tick as he tries to think of something appropriate to say. I’ve caught him out a few times. I’ve started to hang up on him when he does it so I think he’s finally getting the message.”

Although some sources tend to completely tune out their target, there are others who selectively tune out items of information that they do not want to deal with (e.g., issues relating to responsibilities around the house, or issues that may lead to further conflict). Although tuning-out is usually a short-term tactic and not as malicious as many of the other forms of quiet ostracism, it nevertheless causes the target distress as they are repeatedly made to feel as though they are low on the source’s list of priorities.

One of the most interesting forms of quiet silence is *shutting-down*. It differs from many forms of ostracism because the source is not trying to punish the target. Rather, it occurs because the source is experiencing some form of extreme emotional stress (e.g., pressure at work, financial stress) and lacks the resources to adequately deal

with it. Thus, as a defensive mechanism, their body and mind simply shut down— they grow quiet, unresponsive, and inactive. Often, sources who are shutting-down say that they need time alone and, if they can not physically leave the situation, they mentally leave the situation by choosing to be silent with their own thoughts. Unfortunately, this action also leads them to shut out their loved ones. One target was repeatedly ostracised by her husband of fifteen years for periods lasting from a few days to a few weeks. She was particularly distraught as these periods would come and go without warning, and seemingly irrespective of what she would do or say. After years of this behaviour, she made a discovery.

"I finally realised that my husband was not angry with me during these times. He just needed time alone in his head to sort himself out. When I realised that it wasn't my fault, things changed. I started to communicate with him while he was silent. I would ask him 'Do you want eggs for breakfast?' and then I would imagine what he would usually say in that situation and give him eggs or not give him eggs. Other times I would say 'Come on, we're going out for dinner tonight,' and he would get dressed and we would go out to dinner"

The final form of quiet silence, and potentially the most destructive, is *cutting-off*. It occurs when the source deliberately and completely ignores the target, acting as if they do not exist. What makes cutting-off different from tactics such as holding-back or tuning-out, is that the source is not punishing the target— they simply want nothing more to do with the target. As far as the source is concerned, the target just does not exist— and they act accordingly. For instance, one source interviewed (a woman in her late thirties) typically uses noisy, short-term silent treatment on those she loves. But when it comes to people who truly "disgust" her, or who have acted unforgivably, she "...wipe(s) them completely off the face of the earth. That means that I don't acknowledge them, I don't speak to them. Ever." Another source (a female in her forties) "cut off" a shopkeeper for over thirty years because he lectured her when she went to a rival shop to buy an ice-cream.

"After that, I would walk out of my way to go to another shop to buy the fruit or the milk or whatever. After two weeks, he must have realised what I was doing and when I walked past, he came out of his shop to apologise. I ignored him and kept walking. After that, every time I walked by, he would wave to me, but I would ignore him. And kept ignoring him until I grew up and he moved to another area. Fifteen years later, I drove past a shop and stopped to buy some vegetables. And who should come out to serve me but him. As soon as I saw that it was him, I turned on my heel and walked out. I never went back. I was thinking about him lately. He would be in his sixties now, and I feel that if I saw him again, I would do exactly the same thing."

In the interviews, there were instances of cutting-off between relatives that lasted for several years, even decades. According to these sources, such episodes of silence were easy to maintain because they rarely saw the target and had no need to communicate with them— years of ostracism would pass with the source barely noticing. More surprising were the years of cutting-off that existed between spouses who still shared the same house. There were several targets interviewed whose husbands had refused to speak to them for periods ranging from one year to five years. Although some ostracising husbands still helped to run the household while giving the silent treatment (e.g., provided financial support, cared for the children), some cut all emotional and financial ties to their family. One target described how she was forced to rely on welfare and the charity of relatives to feed herself and her two children while her husband gave her the silent treatment. She stated: "He dressed in all the latest fashions and ate at all the trendy restaurants, while we were dressing in op shop clothing and eating 2 minute noodles... How could you treat your family that way when you live under the same roof?" The effects of being cut off are typically psychologically and physiologically devastating, as it suggests to the target that the source holds them in such contempt, that they would rather erase the target from their lives than acknowledge their existence.

Targets of Ostracism

For many targets, the interview was an extremely emotional experience. Typically, this was the first opportunity many targets had to discuss their experiences with the silent treatment. Many interviewees expressed considerable surprise and relief when told that they are not alone in experiencing the silent treatment. One participant exclaimed, "I thought I was the only one... I thought I had made up the term (the silent treatment)."

Although all targets had been ignored and rejected by others, the phenomenological experience of being ostracised differed for each target on a number of dimensions. One such dimension was whether the target was ostracised by one source (e.g., their partner or a work colleague), or by multiple sources simultaneously (e.g., several members of their family or all of their work colleagues). Most of the targets interviewed stated that they were ostracised by a single source. In the majority of interviews, targets stated that they were ignored by their partner or spouse (60% of cases), with mothers (17% of cases), and mother-in-laws (11% of cases) also reported as common sources.

Although targets who were ignored by a single source in their home or workplace could potentially find solace in their relationships with other members of their family or colleagues respectively, this is a luxury that may not be available to those who are ignored by multiple sources in the home or workplace. The devastation of being ignored by so many is clearly evident in the letter below sent by a young woman in her 20s who was ignored by her school peers:

"In high school, the other students thought me weird and never spoke to me. I tell you in all honesty that at one stage they refused to speak to me for 153 days, not one word at all... That was a very low point for me in my life and on the 153rd day, I swallowed 29 Valium pills. My brother found me and called an ambulance. When I returned to school, the kids had heard the whole story and for a few days they were falling over themselves to be my friend. Sadly, it didn't last. They stopped talking to

me again and I was devastated. I stopped talking myself then. I figured that it was useless to have a voice if no-one listened."

Another dimension that distinguished between targets was the duration of their ostracism experience—that is, whether ostracism was prolonged or episodic. For *prolonged* targets, one single episode of ostracism from a friend, colleague, or loved one may have stretched anywhere from a couple of months to several years. The personal experiences described by interviewees left no doubt as to the devastating effects that prolonged ostracism may have on an individual. For instance, one target was ostracised by her husband for two years. The effect of his continual ostracism on her psychological and physical wellbeing was devastating:

"I went in six monthly cycles where I couldn't stand it anymore, and I would plead with him to get some help, to talk to me... I'd been depressed for about eight years and I had felt suicidal for two years and one day I felt something snap..."

For some prolonged targets, the ostracism episode had stretched to the point where the possibility of regaining contact with a loved one was minimal and where silence held the threat of being infinite. One such prolonged target stated:

"My father has given me the silent treatment whenever he's been upset with me ever since I was 12 years old. Now I'm 40 years old and my father hasn't talked to me for the last 6 months. Recently, he was in hospital and I was told he might die. I decided I had to go see him, even if he wasn't talking to me. I walked up to him and held his hand and said 'Oh Daddy, please don't leave me.' He looked at me, his eyes were welled-up with tears, then turned his head away from me. He still he wouldn't talk to me...his death would be the final silence."

In contrast to prolonged targets who receive a single, unremitting period of ostracism, *episodic* targets are repeatedly exposed to multiple instances of ostracism from the source throughout the duration of their relationship. For episodic targets, ostracism is a predictable consequence of any actual or perceived misdemeanour on their part. For instance, one target had been ostracised by her husband for periods of up to 3

months throughout their 15 years of marriage. During the periods of silence, her husband went to extreme lengths to act as though she did not exist, as can be seen from the following incident:

"I have a heart condition which required surgery at one point, and during one of these times when he wasn't speaking to me, I actually had the ambulance at my house for the first time ever, with the man giving me oxygen, and [my husband] walks through the house and ignored the fact that it was happening.."

Regardless of whether ostracism is prolonged or episodic, or conducted by a single or multiple sources, all targets emphasised that being ostracised is an extremely aversive experience. In order to further understand the phenomenological experience of being a target of ostracism, the experiences of targets who wrote letters or were interviewed were examined using the dimensions described by Williams's model (i.e., antecedents, moderators, and reactions).

Aspects of Williams's Model of Ostracism Pertaining to Targets

Antecedents. In Williams's model of ostracism, the antecedents section sets out factors (broadly divided into situational factors and individual differences) that may lead sources to use ostracism as opposed to other forms of interpersonal conflict. Although this section of the model is from the perspective of sources, the findings of the letters and interviews suggest that there are targets who are repeatedly ostracised by a variety of sources. Over 57% of targets interviewed could be classified as perpetual targets—that is, individuals who are constantly subjected to the silent treatment from loved ones and colleagues throughout their life. One target wrote that throughout her life, she had been ostracised by her siblings, mother, relatives, husband, and most of her co-workers. This suggests that there may also be antecedents for targets—that is, factors that lead some individuals to be more likely to be ostracised.

Although Williams's model only describes antecedents for sources of ostracism, the factors presented as antecedents as to why sources choose to ostracise others (i.e., situational and individual differences) may also act as antecedents as to why targets are ignored by others. One possible antecedent for targets is *situational forces*. Regardless of the personal qualities of the target, there are some situations where the target is more susceptible to being ostracised. For instance, one target interviewed was part of a strict religious sect. Her husband, a fellow sect member, episodically ignored her for long periods of time. When she decided to divorce her husband because she could no longer cope with the silence, the sect leaders informed her that as the sect did not condone divorce, she would be excommunicated and no longer be recognised by any of the followers. When she went through with the divorce, not only was she expelled from the sect, her friends and family who remained members were no longer allowed to communicate with her. In this instance, the target was ostracised by her friends not because of any personal characteristic but because of the demands of the situation.

Situational forces could also account for many episodes of ostracism that occur in public places, such as the workplace. The impetus for using ostracism, rather than other forms of conflict in public seems to be that ostracism is less "obvious" than an argument or a physical fight, and hence less likely to receive the intervention or censure of onlookers.

There were also situations in which *role differences* led to ostracism. For example, several targets discussed instances whereby they were ignored by their manager or employer. One target stated how her employer would often use the silent treatment on her and other workers to ensure their obedience:

"She would ignore anyone who is a little bit assertive, a little bit questioning of her authority. She has a new position and she's trying to step on any kind of uprising from anyone and she doesn't notice that what she's doing is actually quite detrimental to her position"

Another potential antecedent for targets is *individual differences*. During the interviews, several targets described specific individual differences made them more likely to be ostracised. For instance, one target blamed her outspokenness (“I get the silent treatment from a lot of people. I must be a real bitch”), whereas others blamed their own shyness (“I am pretty shy and have always been a loner”), lack of social skills (“I was an easy target— socially and geographically isolated, socially inept because of years of correspondence school”), or general personality (“I must be the sort of person that [ostracism] works with, because a lot of people wouldn’t allow that to worry them, I know... but I know I must have the sort of personality that doesn’t like people not speaking”), as to why they were constantly ignored or rejected by others.

However, it was not only deficiencies in personality that led some targets to be ostracised. Several sources stated that they ostracised those who were good debaters, or exceptionally eloquent during an argument. For instance, one source stated that she ostracised her husband:

“... because I can’t match his quick wittedness and retorts. I get too confused and too tongue-tied. I get tongue-tied and can’t think straight so I just shut up because I don’t want to put my foot in my mouth any further”

Antecedents such as individual differences and situational forces are antecedents that are presented in the model (albeit for sources rather than targets). However, the interviews revealed several other factors that may be potential antecedents for targets. One such factor was *familial tendencies*. Many perpetual targets came from a background whereby they had been ostracised by their parent(s). Having developed a sensitivity to ostracism as a result of this exposure, many of these targets displayed severe adverse responses to this tactic when ostracised later in life. As a result, sources would perceive the effectiveness of ostracism (rather than other forms of conflict) and continue to use it. For instance, one target was ostracised by her mother throughout her childhood. As

a result, she came to fear and loathe being ignored. Unfortunately, she informed her first husband about the devastating effect that silence had on her:

"(ostracism) was what I hated more than anything really, people not talking to me. And so...I told my husband that that (the silent treatment) was one of my mother's methods and so he started to use it too...I must be the sort of person that it works with"

This suggests that another potential antecedent that may lead targets to be ostracised is *source characteristics*. That is, some sources will choose to use ostracism, rather than other forms of interpersonal conflict, whenever the opportunity arises (i.e., perpetual sources—described further in the “sources of ostracism” section). Thus, when confronted by such a source, it is likely that a target will be ignored regardless of their characteristics (i.e., individual differences, familial tendencies) or the situation.

Moderators. According to the model, the effects of ostracism on targets can be moderated by two factors: individual differences and attributions. In terms of *individual difference*, targets who reported lower levels of the primary needs (i.e., lower levels of trait belonging, self-esteem, control, and meaningful existence) tended to report that ostracism was more aversive. For instance, one target who was perpetually ostracised by her husband and members of her family stated, “if [the target] has low self-esteem to begin with, [the silent treatment] surely augments that feeling of ‘what? Am I not even worthy of being spoken to? Am I invisible???’ ” Hence, ostracism merely compounded the target’s already low levels of affiliation, control, self-esteem, and purpose, often leading to ongoing psychological distress.

Attributions may also play an important moderating role in determining targets’ responses to ostracism. Many targets took personal responsibility for the ostracism episode (i.e., attributed the cause of ostracism internally). For instance, one target stated; “it is a terrible thing to be with someone who won’t communicate with you. You

blame yourself and wonder what you have done to deserve it.” In general, the targets interviewed who internally attributed the cause of ostracism tended to experience more aversive cognitive, emotional, and behavioural responses than those who attributed the blame to the source or the situation (i.e., external attribution).

In addition to the moderators elucidated in the model, the interviews also suggested other factors that may potentially moderate the effects of ostracism on targets. One such factor is the *identity of the source*. Many targets stated that if the source was merely an acquaintance, they could dismiss the episode with only minor psychological impact. In contrast, if the source was a loved one, especially a partner, the targets were utterly devastated. One target who was ignored by her lover stated:

“the loss of a friend or the apparent loss of a friend [through the silent treatment] is not all that great to cope with. But I think you can probably cope because there are lots of other friends around...but the loss of someone extremely important to you—that’s different”

The interviews also suggested that the effects of ostracism might also be moderated by the presence of *support networks*. Although the effects of being ostracised will always be somewhat adverse, the presence of others may help buffer the effects on the target’s primary needs (e.g., by assuring the targets that they are not alone, helping them regain control over the situation, and reassuring them of their self-worth and sense of purpose). One target who was constantly ostracised by her husband stated: “It was only because of my strong family links and access to their reassurances of my own self-worth that I didn’t cave in, go mad, or leave.” Targets who lacked a strong, supportive social network received the full brunt of the ostracism. They became introverted, depressed, suicidal, and often abused substances such as alcohol or drugs as a means of escaping from the constant silence.

Reactions. In Williams’s model of ostracism, the effect of ostracism on targets

follows a specific time sequence. On initial exposure to ostracism, targets experience *immediate effects* (e.g., pain, hurt feelings, anger, somatic arousal, bad mood). If the ostracism persists *short-term*, targets experience a threat to their four primary needs that is accompanied by a desire to cognitively, emotionally, or behaviourally act to regain these needs. Should the ostracism continue *long-term*, and the four needs are not regained, the threat to primary needs is internalised, leading to a series of aversive effects (e.g., chronic loss of bonds, learned helplessness, chronic low self-esteem, sense of purposelessness, potential suicidal behaviours, etc).

However, it became apparent when analysing the interviews that the effects of ostracism on long-term targets could not be classified according to such temporal distinctions. There are a number of reasons for this observation. The first difficulty associated with using a temporal distinction is defining what constitutes *short-term* and *long-term* in real life instances of ostracism. In the laboratory, it is easy to determine the period of ostracism and classify this finite period as short-term (e.g., typically five minutes of ostracism as used by Williams and his colleagues). However, in real life instances of ostracism, there is considerable variability in the duration of the ostracism episode, ranging from an hour to several decades. Thus, what constitutes short-term ostracism in the real world? Periods that last longer than a few minutes but shorter than a day? Less than a week? Less than a year? The distinction between short term and long term ostracism is made even more problematic when trying to classify episodic ostracism— that is, each incident may only last a couple of hours and hence may be classified as short-term yet these episodes may stretch across a period of years and thus constitute long-term ostracism.

The second difficulty associated with using a temporal classification to outline the consequences of ostracism is the targets' perception of the length of the ostracism

period. When questioned about individual instances of ostracism, many targets stated that they had been ostracised “for ages.” Yet, after further questioning as to the exact duration of these incidents, several of these targets stated that the episode had lasted only couple of hours or a day. For these targets, their period of ostracism felt long-term even though their experience was substantially shorter than that of many other targets. Hence, any classification of the effects of ostracism based on artificial temporal divisions would fail to take into account individual targets’ perception of ostracism duration.

The final difficulty in using a temporal distinction is that many targets reported effects to their four primary needs as a result of ostracism that did not fit the expected temporal sequence. For instance, perpetual targets reported internalised need-threat after every episode of ostracism regardless of its length (i.e., chronic loss of bonds, learned helplessness, chronic low self-esteem, suicidal ideation etc). Similarly, targets who had received episodic ostracism over several years by a loved one reported experiencing symptoms indicative of internalised need-threat *during* each episode, even though Williams’s model hypothesises that such short episodes of ostracism cannot elicit such (hypothesised) long-term effects. Thus, it would seem that for targets who have been ostracised episodically, or for a prolonged period of time, further exposure to ostracism leads them to experience the same sequence of responses to their four primary needs as presented in the model but at an accelerated rate.

Thus, as the effects of ostracism in real life instances of ostracism do not seem to follow the sequence described in Williams’s model, I propose a classification system that examines ostracism in terms of three experiential, rather than temporal, phases: the initial phase, the concurrent phase, and the reverberatory phase.

Initial phase: The initial phase of ostracism refer to changes in behaviour, affect,

cognitions, and somatic systems that occur immediately after the target perceives that they are being ostracised. As such, these responses are similar to those described as *immediate effects* in Williams's model. When first confronted with ostracism, targets typically display symptoms of shock and distress as they attempt to comprehend why they are being ignored. Episodic targets often reported a sense of "déjà vu" as they recognised signs that the ostracism process was about to begin again. One target who was episodically ignored by her husband stated that she had become quite proficient at predicting when she was about to be ostracised:

"sometimes I can see the warning signs starting. He will sometimes purposefully almost misinterpret something I'm saying... and then I panic and try and head that off as quick as I can."

In the interviews, episodic targets also reported somatic responses at the onset of ostracism, with several reporting heart palpitations, nausea, or an upset stomach when they suddenly realised that, yet again, they were being ignored by the source.

Concurrent phase: After the onset of ostracism, targets begin to display a wide range of responses during the ostracism period (i.e., during the *concurrent* phase). The model predicts that during the ostracism period, the target will experience a threat to their four primary needs. In accordance with this prediction, the interviewed targets did express feelings indicative of lower levels of these four needs, however, as these targets had experienced prolonged periods of ostracism, or had been repeatedly ignored by multiple sources, the threat to their primary needs had become internalised. That is, targets often expressed sentiments indicative of low self worth ("I'm just no good at anything... failure, failure, failure"), a lack of belonging with others ("You didn't belong. You thought 'I'm a mistake, I shouldn't be here, I'm not wanted here.'" That's what you felt..."), very little control ("... I felt helpless in so many areas of my life..."), and a sense of purposelessness ("... it [the silent treatment] made me question 'what's it all

for? Why am I still here?” whereas before I never questioned that. I knew why I was there and I knew what it was all for”). As also found in the interviews conducted by Faulkner and Williams (1996), these threatened needs often manifested in self-destructive thoughts and behaviours (“I often think to myself ‘when is this going to end?’ I’ve thought of suicide”).

Although the interviews provided support for the detrimental effect of ostracism on targets’ primary needs, they also suggested a range of effects or responses occurring during the concurrent phase that are not described in the model. One particularly noticeable theme was the effect of ostracism on one’s health. During the free recall section of the interview, many targets spontaneously asserted that they experienced a wide variety of somatic effects as a result of ostracism (e.g., “I know that the ostracism with my mother is affecting me because I start to feel really fatigued,” “I started having migraines,” “frequent colds, sore throats, general lack of energy,” “it makes me sick to my stomach that she doesn’t say hello to me”). These health-related effects of ostracism seem primarily to arise from prolonged stress responses (e.g., chronic high blood pressure, heart palpitations), with many indicative of suppressed immune functioning (e.g., constant colds, fatigue, inability to recover from illnesses). The targets also suggested that ostracism exacerbated already existing medical conditions, increasing the severity of symptoms, or inducing attacks or seizures.

It was apparent from the interviews that the effects of ostracism on targets during the concurrent phase were not only somatic or psychological— many targets also paid a high interpersonal price. Not surprisingly, ostracism tended to have a corrosive effect on their relationship with the source. This was particularly the case for targets who were ostracised by their partner. Many such targets were incredibly bitter that their partner, the one person who was supposed to support and care for them

beyond all others, could continually subject them to such psychological and physiological distress. The combined effects of being ignored and (for episodic targets) trying to appease the source to avoid being ignored, typically eroded any positive feelings that the target had toward the source, often to the point where they dissolved their relationship—in fact, 67% of targets interviewed formally left their partner (i.e., separation or divorce) as a result of ongoing ostracism. This finding supports research conducted by Gottman and Krokoff (1989) on the interaction patterns of married couples. Specifically, they found that the silent treatment (which the researchers characterised as withdrawal) is symptomatic of deteriorating relationships. Several other targets interviewed wanted to leave their partner but could not do so for various reasons, typically because they were financially dependant on their partner, or they had young children and felt that they could not further disrupt the family unit through divorce. Also, in some cases, targets often lacked the self-confidence to leave their abusive partner after many years of ostracism. One such target stated that after years of ostracism from her partner, “I’m a very weak person, I’m not strong. If I was strong, I would’ve left... I’m so weak that I think I can’t do anything on my own.”

Thus, for the duration of the ostracism period, targets seemed to experience aversive psychological, somatic, and interpersonal effects. However, the majority of targets did not simply sit back and passively endure the ostracism period—they often acted to rectify or relieve the situation through various *behavioural strategies*. The first strategy employed by targets was to *seek clarity*. As previously stated, the majority of targets reported that the motive for ostracism was often unclear, hence they would try, by any means possible, to find out why they were being ignored. One target stated: “I’d cry and I’d say ‘what’ve I done??’ You try to ask what you’ve done or why you are getting (the silent treatment) or why you’re getting treated like that.”

In many cases, seeking clarity only made the situation worse. Many of the sources interviewed reported that when they were punitively ostracising a target (typically because of some perceived misdemeanour on the target's part), the target's inability to comprehend why they were being ignored only signalled further insensitivity to the source's feelings. One source stated: "...I get really mad when they go 'I don't know what I've done wrong.' Then I get even quieter..."

If the target is unsuccessful at eliciting a response to ascertain the source's motive, they typically used a series of alternative strategies, often in quick succession or even in tandem, to try and end the ostracism episode. Several strategies were identified including; forgiveness-seeking, discussion, abuse, ingratiation, mediation, defensive ostracism, and acceptance/resignation. *Forgiveness-seeking* refers to when the target approaches the source and apologises for any action that may have warranted the silent treatment, despite the fact that in many instances, targets did not know what they had done, or were unsure if it was in fact their fault. One target who was perpetually ostracised by his wife stated; "I remember feeling terrible at these times and would end up apologising to her (even if it wasn't my fault) for it all to end. However, even this sometimes failed to work."

A tactic that was often used in tandem with forgiveness-seeking is *discussion*—trying to elicit a response from sources by speaking to them in a non-confrontational manner. The contents of the discussion may vary. Some targets focused on discussing the ostracism situation from their own viewpoint. Other targets avoided discussing the ostracism episode, instead they tried to change the source's mood, often through the use of humour. For instance, one target would try to make her husband laugh his way out of his silence:

"Sometimes I use the benefit of humour and you know, lay it out like it is 'yeah, well, you're sitting there and your face is dropped down around your ankles. For

Christ sake, get a life! Sometimes I've used that and basically, if you can catch it before it really sets in [it works]"

Another strategy is *ingratiation*, which refers to attempts to elicit a conversation through flattery, pandering to their source's needs or wants, or purchasing items such as flowers or presents. Typically, this tactic was reported to have limited success. According to sources interviewed, if a material gesture is made too early in the ostracism episode (i.e., before the source has had sufficient time to cool down, or they believe that the target has not suffered enough) it will be rejected. For instance, one source stated:

"if they buy me a peace present when I am not ready to forgive them, I will usually ignore it. [One target] once bought me a beautiful bunch of pink roses to say sorry and put them on the kitchen table. I just left them there and pretended that they didn't exist and the poor things died from lack of water. Another time [another target] bought me my favourite cake to entice me to talk. I didn't touch a slice and it stayed uneaten in the fridge for a week."

In contrast to strategies such as discussion and ingratiation that aim to appease the source, *abuse* refers to situations when targets resort to acts of verbal denigration or physical violence toward the source as a means of eliciting a response. Acts of abuse demonstrate the extreme frustration and despair that targets feel when confronted by a source who refuses to acknowledge their very existence. Some targets admitted to verbally abusing the source as a means of venting their own frustrations, others abused the source in order to goad them into an argument. In very few cases, this strategy was effective. For instance, one source stated that his ex-wife's verbal abuse would often shock him out of the silent treatment:

"One of my wives— we were quite aggressive together. I don't think we ever had any of those long periods of silence because it all came out fairly aggressively because she was quite an aggressive person. She'd blow up or counteract it in some way...but my last wife, she was more placid and she used to get the silent treatment"

Although several targets reported using verbal abuse on sources, acts of physical abuse were (thankfully) rare, however targets may have been reluctant to admit being violent even if it had occurred. Targets who did admit to using physical abuse resorted to this tactic after other tactics (such as forgiveness-seeking or discussion) had failed. One target who was episodically ignored by her daughter, almost resorted to violence during a family holiday (during which the daughter refused to speak or participate in any activities). She stated:

"I'm not violent, well I avoid violence like the plague, I grabbed her by the wrist and I thought 'gee what am I doing?' I was actually going to throw her across the restaurant, I was that angry. That's how I was the whole time--I was angry the whole time."

Another target who was episodically ostracised by her husband resorted to violence in a desperate attempt to have her husband acknowledge her existence.

"I was just beside myself with frustration so I literally poured an entire jug of water right over his head because he was reading a book and he refused to acknowledge that I even existed... it was the only time I ever did anything violent... he just wiped one hand over his face and continued to read..."

These examples indicate that despite philosophical musings that silence may be the best method to diffuse a hostile situation, it can still potentially lead to violent and tragic consequences.

Other targets chose to use less forceful methods of showing their displeasure. For example, some targets reported that they would *defensively ostracise* the source. Some targets used defensive ostracism as a form of "time-out"—that is, as soon as they perceived that were being ostracised, they left the source alone. They did not speak to the source, nor did they seek out their company until the source had calmed down. When the target had gauged that the source's anger has cooled, they then employed one of the other tactics (typically discussion or ingratiation) as an overture.

Other targets, however, deliberately used defensive ostracism as a tactic to hurt the source, or to get their attention. For instance, some targets defensively ostracised the source out of desperation when no other tactic worked ("I think you've got to fight fire with fire, I think that's the way you do it...it's not something that I would usually do, but if [they are] going to act like that toward you, well I can give as good as I get"). Others resorted to defensive ostracism when they no longer cared to pursue a relationship with the source. For instance, one target who was repeatedly ostracised by his father, decided to defensively ostracise his father during one ostracism episode. He stated:

"I just didn't care anymore. I wasn't interested in playing the silent game anymore. So I thought, 'hell, I can give as good as I get.' It was a relief not to speak to him, and as time went on, I really didn't miss him—he was a lousy father. He had a really cruel streak. So it wasn't as if I was missing out on anything by not speaking to him. Even when people tried to get me to start speaking to him again, I told them I wouldn't. I no longer wanted anything to do with him"

However, defensive ostracism was not always successful. One target who decided to turn the tables on her ostracising husband found that the response was not what she had expected:

"One day when I felt he had gone too far I decided that I wouldn't bother speaking to him at all, apart from answering him as briefly as possible if he spoke to me. I managed to keep this up for some days, possibly a week or so but finally he did something which really annoyed me so I spoke (whinged? shouted at?) to him about it. He was taken aback and I was disturbed by his response which was 'But you're been so happy lately!'"

Whereas some targets acted to appease sources (i.e., discussion, ingratiation), and others confronted (i.e., abuse) or ignored sources (i.e., defensive ostracism), some demonstrated *acceptance*. That is, they continued their day-to-day lives, if not unfazed then certainly stoic about the fact that they were being ignored. Acceptance was typically practiced in relationships where ostracism is an established interpersonal tactic

(i.e., episodic ostracism), and the target externally attributed the cause of ostracism to either the situation or the source. For instance, one target was repeatedly ostracised by her husband throughout their marriage. Eventually she realised that her husband was not ostracising her personally, rather he was shutting-down due to stress (financial and business related). Once she realised that she was not at fault for the ostracism episodes, she began to accept the situation. She stated:

"Every time I talked to him when he gave me the silent treatment, I thought I could control it [the situation]. So then I changed...I said to myself 'well why talk to him when I can just be with him?' And when he feels like talking, he'll talk...I realised that during his silent times, the most important thing was not whether or not he was speaking to me, but that we were spending time together..."

However, acceptance without internalisation is not a tactic that is readily available to many targets. Targets who internally attribute the cause of ostracism rarely show acceptance, and instead tend to use other tactics such as discussion or ingratiation in order to try to make amends. Similarly, targets who are exposed to one prolonged episode of ostracism (that may continue for several years or decades) rarely show acceptance, but instead display signs of *resignation*. For instance, one target who has been ignored by her father for over 12 years stated:

"I have no hope that we will be reconciled. There is nothing I can do, nothing I can say that will make things change. There isn't a day that goes by where I don't feel crushed by this. I feel as though I live my whole life to try and get his approval and there is no hope of that. This has just ruined me"

Although acceptance and resignation may appear similar (i.e., they both involve the target continuing with their day-to-day life with little or no attempt to engage the source), acceptance is characterised by hope as it presupposes the notion that the situation will be resolved. Yet targets who have been ignored for months or years have usually lost all hope of interacting with the source, and carry with them the internalisation of their lost primary needs.

Finally, should all tactics fail, the target may decide to use *mediation*—that is, find someone who is willing to persuade the source to start speaking to the target. The choice of mediator can vary from other family members, friends, children (should the ostracism occur between parents), and professionals (such as counsellors). However, this tactic has mixed success as some sources become infuriated that the target has involved an outsider in their private affairs, thus leading the source to punish the target with more ostracism episodes.

The choice of coping strategy to pursue in any given ostracism situation may vary according to several factors. One such factor may be the length of the ostracism episode. At the onset of ostracism, targets may use strategies that they believe will appease the source (i.e., discussion or ingratiation), and thereby produce an immediate result. If these tactics fail, the target may try abuse in a desperate attempt to have their existence acknowledged. Finally, if no strategy is successful, the source may try defensive ostracism and terminate the relationship, or eventually lapse into resignation.

Another factor that may influence the choice of strategy is whether or not the target has a history of being ignored by a particular source. Targets who have been ignored episodically by a particular source for a number of years may know which tactic works best in the situation. Some targets may even have established a routine to terminate the ostracism episode. For instance, one episodic target stated:

"I read somewhere that you should always be the first one to start the peace process (women always are nearly). Consequently, I'm the one who usually does 'the bridge.' That's what we call extending ourselves to break the silence. That may come through touch, humour, or a few words that have a bit of expression in them and are not purely information giving (e.g., so-and-so called). We are both very very stubborn. Sometimes we'll make the other really work to re-establish a communication zone. It's humiliating and degrading and childish and it makes me wonder about our relationship altogether."

The choice of strategy may also depend on the motive behind the ostracism episode. For instance, if the target knows that they are at fault, tactics such as ingratiation or discussion (that focuses on apologising) will typically be more likely to end the episode than confrontational tactics such as abuse or defensive ostracism.

The type of ostracism (i.e., noisy vs. quiet) may also dictate which strategy targets should use to terminate the ostracism episode. As previously stated, the aim of noisy silence is to forcefully demonstrate to the target that they have acted in a manner that has angered the source. As such, many sources stated that the best strategy to use with noisy silence is to let the source express their anger. Then, after a reasonable amount of time, the target should make some kind of peacekeeping gesture. Although this strategy may also work with some types of quiet silence, (e.g., tuning-out, shutting-down), other less benign forms of quiet silence, such as cutting-off, may resist all strategies. All sources of cutting-off stated that they had no wish to speak to the target ever again, hence all efforts on the part of the target would be ignored.

Ultimately, the success of any strategy employed by targets depends on whether or not the source wishes to regain contact with the target. If the source does not wish to speak, the target could try every tactic—persuasive arguments, eloquent apologies, tearful pleading, elaborate gifts, defiant silence, and ultimate resignation—without ever even attaining eye contact from the source. When it comes to ostracism, the source has complete control—they choose when to begin and when, if ever, to end the episode. Unless the target chooses to physically leave the relationship, they may well remain a slave to the whims of the source.

Reverberatory phase: During the ostracism period, targets reported experiencing aversive psychological, somatic, and interpersonal consequences that they then try to alleviate through the use of various cognitive and behavioural strategies. Yet these

aversive consequences of ostracism may not simply disappear once the ostracism period ends (or, in the case of cutting-off, when the target becomes resigned to the fact that they will never again be acknowledged by the source). Often, the effects of ostracism tend to leave their mark, reverberating through many aspects of the target's life.

The ongoing psychological impact of ostracism is particularly insidious. As previously stated, targets typically report a threat to their four primary needs for the duration of the ostracism episode. In many cases, these threatened needs were internalised, leading to a chronic loss of belonging, perpetually low trait self-esteem, learned helplessness, and a sense of purposeless so profound that many targets contemplated whether to end their life. Once the threat to their primary needs was internalised, targets typically found that their performance in all areas of their life (whether business or personal) tended to be compromised. This then added to their psychological distress, and put further downward pressure on their primary needs.

The findings of the interviews also suggested that the somatic effects of ostracism tended to persist beyond the duration of the ostracism period (e.g., "I had pains in my stomach the whole time that she wasn't speaking to me, and I've got irritable bowel treatment from it, I'm quite sure of that!"). There were also targets who presented with severe ailments indicative of suppressed immune functioning that they believed were brought on by continuous periods of ostracism in their relationship (e.g., recurring colds, bronchial problem, chronic fatigue syndrome, high blood pressure). The possible immune dysfunction arising from ostracism is a particularly alarming finding, as it suggests that not only does ostracism affect one psychologically (often to the point where there is severe psychological trauma), but physiologically, potentially to the point of chronic physical impairment or even death. However, care must be taken

when interpreting these health-related findings. Targets stated that they *believed* ostracism was responsible for a range of health problems. Yet, many targets were also experiencing concurrent traumatic events that may have contributed to their ailing health (i.e., physical or sexual abuse, divorce, hard physical labour, death of loved ones). Yet for targets to state that they felt physically ill while being ostracised (or even if they think about being ostracised) suggests that there may be some basis for their comments— enough to warrant further empirical investigation.

The effects of prolonged or episodic ostracism also tended to reverberate through the target's interpersonal relationships. This occurred primarily in two ways. First, in many instances, targets who were ignored by their partner found that ostracism put a strain on their social circle. Few friends would be able to withstand the tense atmosphere of households where ostracism is taking place. One target stated "we lost a lot of friends or acquaintances... cause naturally nobody wants to come into a house where you can cut the air with a knife." Hence, many friends would stay away, leaving the target with no discernable outside assistance.

Second, not only were targets deprived of existing friendships during the ostracism period, some were also unable to form new bonds. Their experiences with repeated social exclusion and rejection made many targets, particularly episodic targets, keenly attuned to signs of rejection from others ("I am overly receptive to any sign of rejection by others and I tend to be a little withdrawn unless I'm very sure of my footing"). Unfortunately, in new friendships and social situations, repartee is rarely free flowing. For targets of long term silence, however, the innocent pauses in conversation as a new acquaintance scrambles to think of a new topic of conversation or a witty response, are easily misinterpreted. They bring to mind the greater silences that the target has experienced in their relationships, and hence these small silences herald the

potential for further rejection. As a result, the target retreats from forming a new acquaintance, even though a new friend would help them to regain the primary needs that have been threatened through long term rejection. For instance, one target stated:

"If there are people around me talking to each other, I won't. I just sort of go into a little shell and I don't want to talk in case I'm not there. It's as if I'm not there. I listen to what they're saying and trying to take it in, but I feel as if I'm a ghost."

The fear of further rejection made many targets of ostracism pursue other types of bonds. For instance, many targets stated that their primary joy came from interacting with children, whether their own or others (i.e., nieces or nephews, grandchildren). Other targets stated that they preferred the company of pets, whereas others pursued pleasure through solitary activities (e.g., gardening), or through religion. Overall, the company of pets and children, hobbies and religion ensured that the target could, in some limited way, regain their primary needs without being personally evaluated by others (e.g., regaining a sense of belonging through their bond with a devoted pet, increasing their self-esteem by cultivating a beautiful garden, increasing their sense of control by actively pursuing and accomplishing a creative goal, and attaining a sense of meaningful existence through the pursuit of a religion where all events are viewed in the context of an afterlife).

Yet even engaging in such fulfilling pursuits cannot eradicate the ravages of ostracism. As a result of years of silence from loved ones, some targets developed a sensitivity to silence such that even pauses in a phone conversation or the stillness that accompanies lying alone in bed at night was enough to induce severe anxiety. One perpetual target who received the silent treatment for 4 years by her stepfather stated:

"I think one of the worst things in life would be to be deaf. I cannot bear silence...I have to sleep with the radio on at night..."

Thus, after examining the letters and interviews, I propose that during the reverberatory phase, the effects stemming from repeated or prolonged exposure to ostracism can be viewed as a result of changes to targets' *ostracism sensitivity threshold*. According to Baumeister and Leary (1995), humans have a fundamental need to form ongoing, positive, social relationships-- that is, we all need to have a sense of belonging as rejection by others may lead to aversive psychological, interpersonal, and physiological consequences. According to Williams (1997), ostracism "may be one of the clearest methods of attacking a sense of belonging" (p.148). Hence, in order to maintain a sense of belonging, individuals must be attuned to signs of potential ostracism and rejection. Such attention to possible ostracism could be conceptualised as an ostracism sensitivity threshold (OST). In most individuals, this threshold is set at a level that allows them to go about their daily functioning attentive to signs of ostracism *only* if these signs directly threaten their sense of belonging to another person or group. For instance, most people's sense of belonging would not be affected if they are ignored by the stranger sitting next to them on the bus, or if they do not receive an immediate reply to an email. However, their sense of belonging (and other primary needs) will be affected if the person ignoring them on the bus is a good friend, or if their emails to a colleague are repeatedly ignored. As such, their OST is acting to ensure that they function adaptively in their environment.

However, if targets have received repeated or prolonged exposure to ostracism, their OST no longer functions adaptively. It is hypothesised that long-term exposure to ostracism (whether repeated or prolonged) affects the OST in two ways. First, the OST is lowered such that targets become overly vigilant to signs that they are being ostracised. As previously described, many targets reported being fearful of interacting with others just in case pauses in the conversation are indicative of imminent rejection.

For instance, in brief pauses during the phone interviews conducted in this study, targets would often anxiously ask the interviewer if they were still listening to them. Moreover, many targets stated that they were so fearful of possible ostracism that they would limit all forms of social interaction to the point where they had become virtual hermits. In contrast, there were a minority of targets who stated that after long-term exposure to ostracism, they were no longer adversely affected when ignored by that particular source (i.e., their OST was raised). However, after further questioning, these targets admitted that they were still psychologically and physiologically affected, it was only their outward response to ostracism that had changed (e.g., they tried to dismiss the ostracism episode, or tried to minimise any outward signs of distress in order to convince the source that they were no longer affected by the silence).

Second, repeated or prolonged exposure to ostracism tends to accelerate the targets' responses to ostracism. That is, when faced with ostracism, targets who have had prior experience with ostracism will still experience the same sequence of effects proposed by the model (i.e., immediate effects, threat to the four primary needs, and the eventual internalisation of these threatened needs) but in an accelerated cascade, so that the movement from need-threat to internalisation may be over a period of minutes rather than days/weeks.

Thus, within us all, the OST normally works to effectively ensure that individuals maintain their bonds with others. However, repeated or prolonged exposure to ostracism may affect the OST such that it perpetuates maladaptive patterns of behaviour, sentencing targets to a vicious cycle whereby their sensitivity to ostracism is increased, their need-threat accelerated, and hence their desire to interact with others is further impaired due to their ongoing perception that they are about to be ostracised.

Overall, it is apparent that for targets, the effects of ostracism persist long after

the ostracism episode has ended and colour their perception of all forms of social interaction. Their accounts of ostracism and the extreme distress caused by their experiences also raised many questions about sources of ostracism. According to many target accounts, sources of ostracism joyfully engaged in acts of ostracism for no particular reason except to maliciously destroy the psychological and physiological wellbeing of the target. Yet are these accounts an accurate portrayal of sources? If not, what factors motivate some people to ignore a loved one for days, weeks, or years? In order to attain a better understanding of the phenomenon, the experience of ostracism was also examined from the perspective of sources.

Sources of Ostracism

Overall, far fewer sources than targets responded to the advertisements, thus the majority of interviews and letters examined ostracism from the perspective of targets. Nevertheless, the interviews that were conducted with sources (and additional insights about sources garnered from interviews with targets) provided a rich impressionistic account of what ostracism is like from the perspective of sources. These phenomenological accounts are invaluable in view of the fact that there has been very little research conducted to examine the effects of ostracism on sources (for exceptions see Sommer et al., 2001; Williams, Wheeler, & Harvey, 2001).

The sources who participated in the study (or who were discussed by targets) tended to differ on several dimensions. First, a striking difference between sources was their attitude toward using the silent treatment. Some sources were *proud* of their ostracism proficiency. One source stated: "I have often given the silent treatment to my husband as I believed that it was the best weapon...it can make a grown man cry without having to hit him over the head." In contrast, other sources were *penitent*, expressing their anguish at the detrimental ramifications of using this tactic on loved

ones. One source stated: "I am not proud of giving this treatment, and often feel I have let myself down by doing it..." One particularly poignant example is the following experiences of a father who chose to give his son the silent treatment for two weeks after a particularly heated argument:

"After two weeks, I woke up one morning with a blinding flash of insight: 'What are you doing to your relationship with your son?' In that short period of time my son had already become intimidated by this treatment— he did exactly what his mother said at all times and whenever he spoke, it was in a quiet whisper. I am ashamed to say that I was sort of pleased with the effects of my ostracism but, as I say, one day I realised that it was making him weak and submissive and that it was eroding the future quality of our relationship."

Although proud sources typically expressed that they were quite comfortable using ostracism despite the negative ramifications to the target ("I'm gonna use the silent treatment till the day I die"), penitent sources often expressed that they had participated in the study in the hope that they could learn how to stop using ostracism as a tactic.

Another dimension that sources generally differed on was the extent to which sources used ostracism as opposed to other forms of interpersonal conflict. Some used ostracism sparingly (i.e., *sporadic* sources). Sporadic sources typically use ostracism in particular situations or with specific targets (e.g., targets who are good at debating, or those who are particularly susceptible to ostracism tactics). In contrast, other sources use ostracism in all instances of interpersonal conflict, regardless of the target or the situation (i.e., *perpetual* sources). Many perpetual sources have practiced ostracism from childhood, ignoring family members, friends, partners, colleagues, acquaintances, and strangers over a lifelong career as an ostraciser.

Although aspects of ostracism pertaining to sources have been discussed (albeit briefly) in previous sections, the experiences of sources of long-term ostracism were examined more thoroughly in the context of Williams's model.

Aspects of Williams's Model of Ostracism Pertaining to Sources

Antecedents. According to Williams's model, the factors that influence sources to use ostracism (as opposed to other forms of conflict) can be broadly divided into two categories— situational factors and individual differences.

The interviews and letters provided several examples of situational antecedents. As previously discussed (in the section describing antecedents for targets), there are some situations where ostracism is more prevalent than others. According to the sources interviewed, they were more likely to use ostracism in public rather than arguing or physical abuse, as it is less obvious and more deniable than other forms of interpersonal conflict. For instance, there were several examples of ostracism being used in the workplace in order to force an employee to resign. One target (a nurse) was silenced by all of the medical staff in her ward when she vocally opposed the sacking of a fellow worker. By ostracising her, her fellow workers apparently hoped that she would conform to their viewpoint or find her situation so uncomfortable that she would choose to leave.

There were also situations where *role differences* led the source to use ostracism. Role difference led to ostracism under two very different circumstances. First, those in positions of power often gave subordinates the silent treatment, particularly in a work situation. Often they did so without realising, ignoring subordinates in the corridors or failing to send them memos or invitations. Conversely, those in subordinate positions also used ostracism as it was a less confrontational tactic than verbal or physical abuse. For instance, a group of typists ostracised their boss as they deemed her incompetent. One stated:

"We felt that under the circumstances, if she is not going to help us then the best thing to do is completely ignore her... It must be rather humiliating not to be spoken to day after day, and the lines of communication have completely broken down. The executive officer who is the boss above her has told us that we all have to work

together as a team, but I'm afraid the damage is done and things won't right themselves as it's too far gone. The staff all work well together and the business has not deteriorated because of it so we will just carry on as we are and continue the silent treatment. As for how she feels, I think deep down she is feeling the strain of it all and she is losing control."

As this was a public workplace, ostracism was the most socially acceptable form of conflict. If they had verbally or physically abused their employer, they would have been fired. By ignoring their boss, the workplace remained functional, at least on the surface— an onlooker would not have been able to perceive the underlying conflict.

Another antecedent for sources elucidated in the model is *individual differences*. Although many potential individual differences were raised in the interviews as possible antecedents, there were some that were consistently cited as common traits amongst all sources. One such trait is stubbornness. Almost all sources described themselves (or were described by targets) as stubborn. For instance, one source stated:

"I'll hold a grudge till the day I die, I've still got a grudge against a 6 year old boy who got me into trouble for playing... 'I'll show you mine if you show me yours' behind the bike shed when we were in kindergarten"

It is not surprising that many sources who perpetuated prolonged instances of ostracism were described as stubborn, either by themselves or by the target. It is this stubbornness that allowed such sources to maintain their silence in the face of pleas, presents, and promises from the target, for weeks, months, years, and in some cases, decades.

Another individual difference that was common amongst sources was a quiet temperament— that is, sources were typically described as quiet, restrained, introverted, or withdrawn by nature. They were rarely prone to excessive conversation and when angry, they tended to completely remove what little conversation they did indulge in. Hence, many sources admitted to being perpetual users of ostracism— it was their first

weapon of choice whenever they were presented with a conflict.

There were a minority of sources who described themselves (or were described by targets) as exuberant and highly vocal. These sources had learnt to use ostracism as a strategy because of its effectiveness— an effectiveness that arose because of the contrast between their general conversational manner and their silent, ostracising demeanour. One source stated:

"I found that if I didn't speak to them, that annoyed them even more. This is because I'm bubbly and outgoing. To have someone around the house all of a sudden go deathly quiet and not speak to you, that's like the most horrible thing that could ever happen to them"

There were many targets who stated that their husbands (long term sources of ostracism) possessed "Jekyll and Hyde" personalities— that is, they were incredibly fun-loving and charming to friends and strangers, yet were ostracising and cruel to their families. In fact, this dual personality contributed to the targets' helplessness, for when they tried to explain to friends or acquaintances that they were being ostracised by the source, they were often not believed, as the source was always charming in their friends' presence. One target who was episodically ostracised by her husband stated:

"Nobody believed me. Everyone said 'he's such a wonderful man'...He's just so charming to everybody...what happens is that, for instance, you're out somewhere together and because you've been ignored for weeks and weeks you become a little bit cranky and so you're in amongst people and he'll say something charming and you'll turn around and you snap, just like that, some kind of acknowledgement, and what happens is that everyone thinks that I'm a bitch whereas you know I'm being tortured here and nobody knows, nobody can see it."

One source openly admitted to having a Jekyll and Hyde personality (i.e., being kind and communicative with her co-workers and silent to her family). She stated:

"As soon as I walk into my front door, it's as if I turn into a different person. When I'm at work...I can communicate with [all the workers] and people who come into the office, but as soon as I hop into my car and come into my front door, it's like Jekyll and Hyde"

Although individual differences and situational factors are presented as antecedents in Williams's model, the interviews revealed other possible antecedents of ostracism that were not suggested by the model. For instance, many sources and targets stated that *familial tendencies* played a large role in determining whether individuals became perpetual sources. That is, sources often came from families where they had observed the silent treatment being used by their parents (typically where their father used the silent treatment on their mother), or where one or both of their parents used the silent treatment on them. One target stated that the silent treatment was used by four generations of males in her husband's family. One male source of ostracism wrote:

"At the present moment, my sister aged 58 in the US won't talk to either my father or myself— for supposedly differing reasons. My father's sister has not spoken to him for over 30 years. My mother's brother once refused to talk to his wife for 6 months. My mother regularly refused to talk to me or my sister for days at a time. It seems like ostracism is a congenital condition in my family."

In many cases, sources of ostracism admitted to emulating the ostracism-type behaviours of their same sex parent. Many male sources had emotionally distant, autocratic fathers who would ostracise their wife and children if their demands were not met. A typical description of such fathers is as follows:

"we weren't allowed to make a sound because he'd want to hear the news or he'd want to read the newspaper or he'd want peace. So, whenever he came in everything would go silent. We might be playing and laughing but as soon as he walked in you'd go quiet because even the children knew that if you didn't, if they didn't stop, we'd all be in trouble. So, he was very dictating. And when he was angry, he would totally cut you off. His silence would just go and on and on and on and we'd be walking on eggshells, trying everything to please him"

Ironically, although these sources often disliked, or were completely estranged from, their father, they nevertheless emulated his behaviour with their own family. The pull to use ostracism after experiencing or observing it as a child seems very strong. There were several targets who stated that they could never use ostracism after being

exposed to it as a child as they were all too aware of its aversive effects. Yet, when further questioned, these participants confessed that they too would revert to ostracism when particularly stressed. One target stated that he never wanted to be like his father (who ostracised him repeatedly as a child), and always made a big effort to talk to his son, yet when he was under time pressure or extremely angry with his child, he found himself using the silent treatment—it was almost like a default tactic that he had to try hard to repress.

“there are times when [my son] does something that infuriate me and my reaction is something that I think [would be] my father’s reaction but then I stop it... not subconsciously but consciously stop it from going further because I knew what my reaction would have been as a youngster”

Another antecedent identified in the interviews was *target characteristics*. Although perpetual sources typically used ostracism during any interpersonal conflict, other sources stated that the characteristics of the target made them more or less likely to use ostracism. In general, sources would typically ostracise targets who excelled at other forms of social conflict (e.g., those who had good debating skills), or who showed a particular susceptibility to being ignored. As previously stated, some targets made the unfortunate decision to inform their loved ones of their susceptibility to ostracism—it is little wonder that their loved ones then used this tactic to gain the upper hand in a conflict.

Moderators. The moderators section of the model pertains only to targets. Yet there is evidence from the interviews that some of the factors cited in the model as moderators for targets (i.e., individual differences and attributions) may also moderate the effects of *ostracising*. Individual differences, such as sources’ attitude toward ostracising (i.e., whether they are penitent or proud), would affect whether or not they suffer aversive consequences while ostracising. For instance, several sources who stated

that they enjoyed solitude typically did not report a reduction to their feelings of belonging or sense of meaningful existence as a result of ostracising the target.

Attributions may also play a role in moderating the effect of ostracising the target(s). For instance, sources whose motive for ostracism was punitive, and hence blamed the target for causing the ostracism episode (i.e., attributed the cause of ostracism externally), reported feeling less apologetic or guilty about using the silent treatment. They were also less likely to initiate a reconciliation with the target, rather they waited for the target to make some form of overture, such as an apology, before terminating the ostracism period.

The *identity of the target* may also potentially moderate the effect of ostracising. In general, sources stated that it was a lot more difficult, and psychologically aversive, to ostracise a loved one as opposed to an acquaintance. The relationship between target and source may also moderate the duration of the ostracism episode. For instance, one source stated that she would never ostracise family members for more than a day, yet ostracised an acquaintance (whom she had argued with) for over a year:

"Silencing someone you love is just terrible. It is really, really hard and it hurts. I only ever do it for a little while because part of you worries that if you go to far, you will lose them... but with a stranger or someone I hardly know, it is really easy. I could ignore them forever"

Finally, *support networks* may also moderate the effects of ostracising. Support networks act to supplement the emotional bonds that are severed when sources ostracise. For instance, one source stated that while she was ignoring her boyfriend, she would make a concerted effort to go out with her female friends. Not only did this ensure that her own emotional needs were being met by her supportive network of friends, it also increased the aversive effects of the ostracism episode by signalling to her boyfriend that his company was easily replaced.

Another factor that may moderate the effect of ostracising is whether sources ostracise the target alone or with others. Having a co-source(s) may help to diminish the effects of ostracising in several ways. First, a co-source may help to bolster primary needs threatened while ostracising, particularly belonging, as ostracising a target has been shown to increase the cohesiveness of remaining group members (see Williams, 2000). Second, ostracising with another person or group may diminish personal responsibility for the ostracism episode and thus reduce any negative feelings that ostracism may induce (e.g., guilt).

Reactions. As with the moderators, the *reactions* section of the model is only presented from the perspective of targets. However, it was apparent from the interviews that sources also experience a variety of reactions to ostracism. Sources' reactions to ostracising can best be examined in terms of the new dimensions proposed previously for this section of the model (i.e., initial phase, concurrent phase, and reverberatory phase) rather than the short and long-term distinctions described in Williams's model.

Initial phase: The initial phase of ostracising occurs as soon as the source begins the ostracism episode. The act of ostracising leads to immediate changes in sources' behaviour, affect, cognitions, and somatic systems. Sources typically reported that their immediate emotional response was anger directed toward the target (or their actions), particularly in cases of punitive ostracism. Their anger was often accompanied by reports of physiological symptoms such as elevated heart rate, blood pressure, and sweating. Such emotive and physiological changes were often accompanied by behavioural strategies designed to ensure that the target knew they were being ostracised. This is particularly the case for noisy sources, who make grand gestures of rejection (such as slamming doors, storming from the room) in order to ensure that the

target is aware that they are being ignored.

Concurrent phase: After the initial phase, sources reported a wide range of responses occur while the source ostracises the target (i.e., during the concurrent phase). Williams's current model of ostracism focuses on the effects of ostracism on the target's four primary needs during the ostracism period. However, in the interviews with sources, there was evidence to suggest that they too experienced changes to their primary needs during the ostracism period. Unlike targets, however, sources did not report uniform changes (whether threat or fortification) to the primary needs. The most consistent finding was an increased sense of control sources experienced when giving the silent treatment ("I suppose it gives me a sense of power, immense control because I'm the one dishing out the silent treatment," "it made me more powerful... I think to myself 'you've pissed me off and now you're going to pay because now I'm not going to speak to you for the whole week and you can suffer in silence' "). Changes to the remaining needs tended to be less predictable. For instance, some sources reported higher levels of self-esteem when ostracising ("when I'm giving the silent treatment, I feel good"), whereas others reported no change or even a decline as they thought less of themselves for resorting to ostracism tactics with a loved one ("I felt pretty low"). Sources typically reported no change in meaningful existence ("it doesn't affect my sense of purpose"), or a slight decline ("at other times [ostracising] really gets you down, really down, and you think 'well, what's it all about?' "), whereas several sources experienced lower levels of belonging while ostracising a loved one ("You feel like crap... you don't feel that you belong...").

The lack of consistent changes to source's primary needs during ostracism extended to the effects of ostracising on physical health. Unlike targets who often discussed the aversive health effects of ostracism unprompted by the interviewer,

sources rarely discussed how ostracism affected their health. When questioned about the somatic effects of ostracising, sources typically stated that they felt “fine.” Others noted stress-type symptoms, most likely indicative of suppressed emotion. One source stated:

“Well I wish I could just blow my top when people hurt me. But I can’t that’s what it’s all about. The left side of my chest closes off like a door shutting and I can’t talk. If it’s a real bad hurt my whole chest closes off and it’s impossible to talk about it. And very often it doesn’t seem to affect me but it goes straight to my chest and I have to stop and think what did that idiot say to affect me this way just as though there is someone greater than me taking offence at what’s said”

Although the model focuses on the effects of ostracism on primary needs (and to some extent health), sources also discussed a range of effects during the ostracism period that are not described in the model. One such effect was the cognitive and behavioural effort needed to enact the ostracism episode. Throughout the ostracism period, the source must actively pursue an ostracism strategy— whether it is quiet silence (i.e., silently ignoring the target) or noisy silence (i.e., slamming doors and making a fuss to inform the target that they are being ostracised). Although ostracism is often characterised as a “non-action,” (see Williams, 2001), the interviews with sources suggested that the act of ostracism is often quite effortful. For the duration of the ostracism period, sources need to closely monitor their behaviour, constantly vigilant for any action that may inadvertently acknowledge the target’s existence (see Williams, Bernieri, et al., 2000).

Some sources choose to further extend the effort expended during ostracism by engaging in malicious acts known as dispetti. Dispetti is an Italian term that refers to spiteful, nasty, or mischievous acts (Macci, 1970). Acts of dispetti typically exacerbate the aversive effects of ostracism by revealing to targets the extent of their powerlessness in the situation. For instance, one target stated that her husband would

often perform *dispetti* while he gave her the silent treatment, such as hiding her car keys, or withholding money so she was unable to buy grocery or items for the family (“his punishment isn’t only just not talking, he won’t pay the bills, he won’t leave me any money, and it’s just as if I’m not there at all”).

Another target discussed how her fellow passengers and the crew of the ship ignored her during her passage from England to Australia. In addition to ignoring her, the crew members often used acts of *dispetti* to express their dislike. She stated:

"One time I went to eat my soup and found a great globule of phlegm in my soup. One day an officer knocked at my cabin door and told me that my luggage had all been sent ashore...I was afraid to eat anything at that stage and my stomach used to rumble with hunger"

For some sources, the constant state of vigilance associated with ostracising (which is exacerbated by performing forms of *dispetti*) is exhausting. For instance, one source episodically ostracised her fiancé for several days whenever they argued. After waging noisy silence on him for a while, she would find that “realistically, trying not to talk or doing the silent treatment for 5 days was bloody hard...usually by the fifth day if he’d come home with a bunch of flowers I’d think ‘oh thank God!’...” Yet for other sources, ostracising becomes easier, more “automatic” as time goes on, to the point where it is less effortful to ignore the target than acknowledge them. For instance, one source ostracised a fellow parent at her child’s school after an argument. She stated:

"[as the ostracism went on] I got stronger and felt more comfortable. I would see her in the early days and...I'd get an adrenalin rush. I'd go 'I don't want to be in the room with you I want out of here' and I didn't like that feeling but as time goes by I don't feel like that anymore"

However, as ostracism become less and less effortful to perform, there is the danger that the source may lose control over the ostracism process and be unable to stop, even once they decide to reconcile with the target. Many sources stated that after

a period of ostracism (even as short as a day), they found it almost impossible to break their silence and start speaking to the target once again. For instance, one source ostracised his son after an argument for over two weeks. After he observed the aversive effect that ostracism was having on his son, he decided to break his silence—only to find that it was close to impossible. He stated:

“To terminate the ostracism, however, was an extremely difficult process. I could only begin with grudging monosyllabic responses to his indirect overtures. I was only able to expand on these responses with the passing of time and it is only now, about six weeks since the ostracism ceased that our relationship appears to be getting back to pre-row normality... if it had lasted much longer, I might not have been able to stop and that not only would our relationship have been destroyed but also my son himself might have been permanently emotionally and physiologically disfigured. Further... it may have led to illness and perhaps, ultimately, to his premature death... ostracism can be like a whirlpool, or quicksand if you, the user, don't extract yourself from it as soon as possible, it is likely to become impossible to terminate regardless of the emergence of any subsequent will to do so.”

There are several possible reasons why sources find themselves in a position where they lose control of the ostracism episode. First, sources may find it difficult to terminate the ostracism episode and forgive the target for fear of “losing face.” In many instances, the initial cause of ostracism is something trivial (i.e., the target has not paid attention to the source, or has forgotten to perform a household chore, etc). The source may feel that the act does not warrant days of silence yet they continue to ostracise the target in order to make the cause of the ostracism seem more legitimate. One source stated: “if you're being quiet then you don't have to put into words what is upsetting you and sometimes what is upsetting you is a pretty piddley thing and by being silent about it, it makes it look more important.”

Second, it may also be difficult to stop the silent treatment because of the target's response to ostracism. Targets reported that they would do anything to elicit a response from sources, such as buying them presents, performing chores, or literally getting down on their hands and knees to beg forgiveness. Such actions may be

incredibly gratifying to the source, particularly in those instances where the source is punishing the target for not paying sufficient attention to them. In order to maintain this subservient behaviour from the target, sources may continue to ignore the target long after they have forgiven them.

Finally, many sources seem to become habituated to ignoring the target. After a few days of monitoring their behaviour in front of the target, this pattern of rejection soon replaces previous behavioural patterns as the normal mode of behaviour. Just as it was once hard to ignore the target in the initial stages of ostracism, so it becomes hard to acknowledge the target in the later stages of ostracism. The inability to stop the ostracism episode will no doubt have an ongoing (i.e., reverberatory) effect on the source's relationship with the target.

Reverberatory phase: Although targets of ostracism tended to report clear and consistent responses during the reverberatory phase, there was little consistency in source's reports of responses during the reverberatory phase. In terms of psychological effects, some sources reported feeling powerful and superior to others, as they knew they could attain the upper hand in their relationship by simply ignoring the other person. Others reported feeling terrible that they resorted to ostracism tactics and participated in the interview in the hope that they could be "cured" of their dependence on this tactic. There were also discrepant reports on the ongoing effects to source's physical health. Although there were a few sources who reported ongoing health problems as a result of ostracising, the majority of sources claimed to feel physically fine during and after the ostracism episode.

Although there were no common psychological or somatic findings, all sources admitted that the effects of ostracising reverberated through their interpersonal relationships. The use of ostracism typically led to short-term interpersonal gains for

the source (e.g., getting their way on a particular issue, eliciting an apology or gift from a partner), however, it often led to the slow and painful destruction of their relationship. Exposing a partner or loved one to repeated or prolonged episodes of ostracism promotes the impression that the source's relationship with the target is of little value, and may easily be discarded. Such actions quickly erode any positive sentiment that the target has toward the source— after all, how could the source perpetuate such atrocious acts of negligence to a person they allegedly love? As previously stated, many targets terminated relationships where they were subjected to prolonged or repeated episodic instances of ostracism. Those targets who could not leave the relationship (e.g., due to financial concerns) typically despised the source even though they were resigned to staying in the less than fulfilling relationship. Thus, through perpetual ostracism, the source may repeatedly lose close, intimate relationships.

One possible reason why there is no consistent pattern of psychological and somatic effects during the reverberatory phase of ostracising is because of sources' differing attitudes toward this interpersonal tactic. As was previously stated, sources differed in terms of their responses to ostracising— penitent sources typically reported feeling badly after ostracising others, whereas proud sources enjoyed ostracising and hence reported higher levels of primary needs after ignoring a target. It is not surprising then that there is so little consistency in reports of effects during the reverberatory phase when there are two opposite source profiles.

However, regardless of whether the source was penitent or proud, one of the most common responses during the reverberatory phase for sources was the escalation of their ostracism usage. All sources described the use of ostracism as “addictive.” Many sources stated that after the success of their first experience as a source, they

often adopted ostracism as their primary weapon of choice during any interpersonal conflict, becoming more and more masterful at the tactic the more they used it ("once you realise how well it works, how it works better than arguing, better than threats, better than smacking someone over the head, then you just can't go back to using anything else").

Overall, the findings of the interviews suggest that for sources too, there is an *ostracism sensitivity threshold*. The OST for *ostracising* seems to work in two ways. First, sources move through the sequence of anticipated effects of ostracising at an accelerated rate. During the ostracism episode, most sources (particularly those who use ostracism episodically) experience immediate rage, followed by an increased sense of control over the target and the situation. This control may be tempered by discomfort (at having to constantly monitor their actions around the target), or a loss of primary needs such as belonging (as they lose their bond with the target) or self-esteem (if they feel bad about themselves for engaging in the tactic). If the ostracism persists, sources typically report that the discomfort associated with ostracising is alleviated as the act of ostracising becomes more "practiced," often to the point where it is more difficult to terminate the ostracism period than to continue. By repeatedly using ostracism, many perpetual sources seem to experience these stages of ostracising at an accelerated rate, typically reporting that the initial period of discomfort and difficulty associated with ostracising becomes shorter and shorter the more exposure they have to ostracising. With many sources, this accelerated cascade of responses evolves to the point where the source feels completely at ease with ostracising the target at the very onset of the ostracism episode.

Second, repeated or prolonged ostracising leads to a rise in the OST for ostracising. This is evident in two ways. Whereas targets' OST decreases, leading them

to become ultra-sensitive to the effects of being ignored, sources who repeatedly use ostracism tend to report being less adversely affected by ostracising. These sources typically report fortification rather than threat to their primary needs (particularly control) while ostracising. This fortification no doubt allows the source to ostracise the target for prolonged periods of time.

The raising of sources' OST is also apparent in their treatment of the target. That is, sources who repeatedly use ostracism report that they are less affected by the plight of the target during the ostracism period. They show little or no concern for the suffering that their actions may be causing the target. This can be seen in the example previously described where the husband ignored his wife while she was being attended to by the ambulance staff. Again, this increasing detachment and inability to empathise with the target assists the source to continue ostracising the target, possibly indefinitely.

The lack of empathy expressed toward the target is often extended to those who may inadvertently be part of the ostracism episode— specifically, observers. The effects of ostracism on this group will be examined further in the next section.

Observers

Throughout the course of the interviews, it became apparent that targets and sources were not the only ones who were affected by ostracism. There was also a silent group who witnessed the ostracism episode and often suffered psychologically and physiologically from their inadvertent involvement in the silent treatment— those who observed ostracism. As most of the ostracism literature to date has focused on targets, and to a much lesser extent sources, the effects of ostracism on observers has to date not been empirically examined. Thus, the impressionistic accounts attained through the interviews provide a first step in examining the varied roles and experiences of observers during ostracism.

Although many observers remained silent witnesses during the ostracism episodes, others became actively involved. In many instances, observers became the target's *supporters*— they were generally friends or family members of the target and provided a sympathetic ear or refuge if the target needed someone to speak to, or somewhere to stay. These supporters provided an invaluable service as they helped the target through the difficulty of being ignored and no doubt helped to buffer any threat to their primary needs caused by the ostracism, particularly belonging and self-esteem. Many of these observers were also peacekeepers— they offered advice to the target on how to stop the silent treatment, or they approached the source on the target's behalf in order to stop the ostracism episode. One source who was ostracising his father reconciled after the peacekeeping actions of his family.

"I walked straight into the house. My mother was there. I said 'what the hell's he doing here?' And she said 'we're trying to patch it up.' I said 'no, I'm not interested, I'm perfectly comfortable the way it is. I don't want to see him anymore' She broke down, my sister was there and she broke down and [they said] 'please please get back with him.' My wife was there and she broke down and said the same thing...so I thought, ok, and I patched it up with him"

Although many observers acted to heal the breach between target and source, other observers became *conspirators* and joined the source in ostracising the target. For instance, one source stated that once he started to ignore an ex-girlfriend in the workplace, two fellow employees joined him.

"I snubbed this person and then these two other guys saw what was happening and asked me what it was all about and I told them and they snubbed her too...it got to the point where she confronted me with it, and we sorted it out. I actually had a word with them to make them start speaking to her again."

Although some conspirators ostracised the target out of solidarity with the source, or out of some delight in ostracising the target, others joined for fear of also being ostracised. In an example described previously, a nurse was ostracised by the staff

of her ward because she stood up for another employee. Initially, others in her ward stood by her and continued to speak to her. However, when they began to receive the silent treatment from other staff members, they too ignored her.

Although the relationship between those who observed, and those who took part in the ostracism episode, varied from acquaintances to other family members, the largest group of observers were children. This was primarily due to the fact that the majority of interviewees were ostracising/being ostracised by their partner or spouse, hence their children were often in the middle of the silent treatment between their parents. Sometimes they too became targets despite the fact that the children had done nothing to incur the silent treatment ("when I was a child, my mother would have periods of silence which usually took place after having an argument with my father. The trouble was she wouldn't speak to me or my brother either").

In some cases, the parents (targets and sources alike) were careful to keep their children as far removed as possible from the ostracism episode. However, in other cases, the parents used their children as conduits or go-betweens to send messages to the other party. One source stated that she often used her children to relay messages while she ostracised her husband:

"I'd say to the kids, 'oh you go and tell your father.' I wouldn't talk to him and I just thought I'm not cooking tea either so I said to the kids 'go out and tell your father that mum's not cooking tea, go down the road and get us Kentucky Fried Chicken' "

Some children took their conduit duties further by acting as peacekeepers, and tried to put an end to the ostracism episode. One source who was ignoring her husband stated:

"My eldest son at the time, he'd say 'will you talk to him, smooth things over with him?'...I just said to him 'no, I'm sorry I can't' and he sort of begged me all that day to please talk to him and smooth things over."

Regardless of whether children were simply observers or active participants in the ostracism, there is evidence to suggest that they suffered aversive effects from their involvement. Having parents who are locked in a cycle of silence leads to a household environment characterised by tension and apprehension. Many interviewees perceived that this stressful environment often led their children to exhibit inhibited patterns of behaviour when they were in the house (i.e., not raising their voices, or playing too loud) so as not to make the situation worse. It also led some children to become socially isolated as they feared inviting their friends over just in case they witnessed their parents' ostracism ("I was very embarrassed about my mother and father not speaking. I'd certainly never talk about that to any of my friends"). According to some participants, the stressful home environment also leads to aversive somatic consequences. One target who was repeatedly ostracised by her husband stated:

"[the silent treatment] creates unnecessary pain for everybody. It's like a stone in a pool— it just radiates out and affects children. My children had all these stress-related problems too because of the stress in the household. My daughter got urinary incontinence. It was purely stress related"

Being an observer no doubt also has an impact as to whether these children will grow up to be targets or sources of ostracism. As previously stated, many targets grew up observing one of their parents (often their father) performing the silent treatment. Several interviewees stated that they "learnt" this behaviour from one of their parents. For instance, there was one source who stated that her children were already starting to use the silent treatment:

"I think it is a learned behaviour from my mum and I think I'm probably passing it on to my 4 year old because when he gets angry, he storms off...he'll tell my youngest 'don't talk to mum, I'm angry at her!'...It's frightening because I'm putting my bad habits onto him... I've learnt this from my mother, so I'm the female version of it. Can you imagine it in a man? ...I could be breeding that into my son, that behaviour where he gets angry and he shuts off and won't let his wife in"

Thus, the path from observer to ostraciser can begin very early— as previously stated it takes only one successful episode of ostracism to become addicted to this powerful form of behaviour.

Discussion

The aim of the current study was to abandon pre-determined notions of ostracism and examine the nature of ostracism through phenomenological accounts of real-life targets and sources of ostracism. The interviews yielded rich testimonies of what it feels like to be a target or source of ostracism, as well as providing initial evidence of the impact of ostracism on observers. The interviews yielded much information about the phenomenon that has as yet not been previously elucidated nor empirically tested (e.g., the delineation of different types of sources and targets, behavioural strategies used by targets to combat ostracism, different ways in which ostracism is performed such as quiet or noisy silence). This suggests that much of the current research has only just scratched the surface of the complexity of the phenomenon. As such, the interviews have provided a valuable source of inspiration for the subsequent studies in the current research project.

Thus, several areas of interest that arose from the interviews were chosen for further exploration using more empirical methods. These areas were: comparing the effects of ostracism to other forms of conflict; the antecedents of ostracism; and the influence of moderators (specifically, the identity of the source and causal attributions) on the effects of ostracism.

The Antecedents of Ostracism

In the ostracism literature to date, the focus has been on examining the consequences of ostracism. There has been no research conducted to empirically examine the antecedents of ostracism (i.e., factors that influence sources to use

ostracism as opposed to other forms of interpersonal conflict). The interviews provided support for the antecedents listed in the model (i.e., individual differences, situational forces, and role/ relational differences), and provided evidence of other factors that may also act as antecedents, such as target characteristics and familial tendencies.

Although the antecedents section of the model is from the perspective of sources, the interviews provided ample evidence that there are also antecedents for targets, that is, factors that lead some individuals to be repeatedly ostracised. These factors parallel those described as antecedents for sources (i.e., social/ situational forces, individual differences), as well as additional factors such as familial tendencies and characteristics of the source (e.g., whether they are perpetual or episodic sources).

Thus, as a first step in systematically investigating the antecedents of ostracism, the current research project examined the role of one specific antecedent— individual differences— in prompting the ostracism behaviour of both targets and sources.

Comparing the Effects of Ostracism to Other Forms of Conflict

One of the unexpected findings of the interviews was the comparisons targets and sources made between ostracism and other forms of interpersonal conflict. Many targets unequivocally stated that ostracism was the worst form of conflict they had ever experienced, with some targets stating that they preferred physical abuse to being ignored. In contrast, sources stated that they preferred using ostracism to other conflict tactics, as it was easier and more effective. There have been no previous studies that have explicitly and empirically compared the effects of ostracism to other forms of conflict. Thus, one of the studies in the current research project examined whether ostracism differed from other forms of conflict (specifically, argument) in terms of its effects on the four primary needs of both targets and sources.

Moderators: The Identity of the Source and Causal Attributions for Ostracism

It was evident from the interviews that there are several factors that potentially moderate the deleterious effects of ostracism on targets (e.g., individual differences, attributions, identity of the source, and support networks). However, in the few studies where moderators have been empirically assessed, they have been shown to have little or no influence on the effects of ostracism (e.g., Williams, Cheung, & Choi, 2000; Williams, Govan, et al., 2002). This has led some researchers to propose that the power of being excluded and ignored is such a devastating experience that it will have a deleterious effect on the four primary needs regardless of the presence of any moderating factors (Williams et al., 2002). This view, however, is in direct contrast to the findings of the interviews. For instance, according to several targets, the *identity of the source* was an important moderating factor in determining their response to ostracism. Specifically, targets reported that when the source was a loved one, such as a partner, the ostracism had a more devastating effect psychologically, somatically, and interpersonally than if the source was an acquaintance or stranger. Other targets reported that their *attributions* for the ostracism episode also played an important role in determining their responses to ostracism. That is, if they knew why they were being ignored (i.e., the causal clarity of the episode was high) they were less adversely affected than if they were unsure as to why they were being ignored by the source (i.e., the causal clarity of the situation was low).

Therefore, the current research project aimed to investigate the role of moderators—specifically, the identity of the source and the causal attributions for ostracism—in influencing the adverse impact of ostracism. If the effects of ostracism are universal and invariant—that is, if the power of ostracism supersedes all

moderators— then targets should experience aversive responses to ostracism regardless of the identity of the source, or the causal attributions for ostracism.

Thus, by examining these three areas, the current research project quantitatively assessed areas that have received little or no attention in previous ostracism research. Within these areas, the current research project had two further aims. First, to redress (wherever possible) the balance of ostracism research from its current focus on targets to one where the effects of ostracism on both targets and sources are examined. The interviews revealed that the source perspective during episodes of ostracism is no less interesting or valid than the target perspective. Rather, further knowledge of ostracism from the source perspective (i.e., what causes sources to ostracise, how they feel while ostracising etc) may help our understanding of ostracism as well as determine what actions may be most successful when attempting to terminate ostracism episodes.

Second, the current project examined (wherever possible) both the psychological and the health-related effects of ostracism. One of the most interesting and unexpected findings from the interviews was the apparent link between ostracism and health. Although sources reported little or no aversive effects to their health as a result of ostracising, all of the targets reported that they had suffered a variety of ailments as a result of long-term exposure to ostracism, ranging from temporary illnesses such as recurring colds, to chronic problems such as high blood pressure as well as conditions indicative of suppressed immune functioning, such as chronic fatigue. Despite the consistency of this ostracism-health link, their findings are in no way conclusive, primarily because the interviews consisted of retrospective self-reports of events that were not corroborated by medical evidence (e.g., hospital records, doctor's reports). Thus, based on this data, it is not possible to show a clear causal

relationship between ostracism and health (i.e., people who are ostracised may have poor health just as poor health may make people more susceptible to ostracism).

Yet, the link between ostracism and health suggested by the interviews should not be entirely dismissed. It is important to note that these targets attributed their health problems to long-term periods of ostracism—they had no doubts that being ignored made them ill. Moreover, the targets reported poor health as a result of ostracism unprompted by the interviewer during the free recall section of the interview. Hence, they viewed the effects on their health to be important.

Although the interviews provided some evidence to suggest that ostracism may lead to aversive health-related responses, the majority of ostracism research has focused only on the psychological effects of ostracism (e.g., the effects of ostracism on primary needs). To date, there has been little experimental examination of the link between ostracism and health (for an exception see Stroud et al., 2000). Thus, the current research project aims to explore not only the psychological effects of ostracism (i.e., on the four needs) but also the health-related and physiological effects of ostracism.

Overall, the remaining studies in the current research project will yield considerable novel information about the nature of ostracism and the effect of ostracism on both targets and sources. Moreover, this information will also serve to test the predictions of the model of ostracism. Williams (1997, 2001) acknowledges that the model is primarily theoretically, rather than experimentally, derived. The current research project aimed to provide evidence to clarify the existing parameters of the model as well as broaden the model to encompass new findings. To some degree, the interviews have already tested the model. They served to: a) confirm aspects of the model (i.e., the effects of ostracism on the primary needs of targets); b) suggest modifications to the model (i.e., the inclusion of factors such as familial tendencies and

source/target characteristics in the antecedents section); or c) suggest complete revision of other sections (i.e., changing the classification of the consequences section of the model from a temporal division— short term and long term— to a division based on the ostracism experience— the initial phase, the concurrent phase, and the reverberatory phase).

The interviews have also demonstrated that the model cannot remain target-focused in some areas (i.e., the moderators and reactions sections), and source-focused in others (i.e., the antecedents section). All sections of the model could (and should) be viewed from both a target and a source perspective. Thus, one of the final aims of the current research project was to revise the model so that it represents the ostracism experience from the perspective of both targets and sources. A prototype of this new model is presented in Figure 2.1. The findings of the subsequent studies in the research project formed the basis of the completed model presented in the General Discussion.

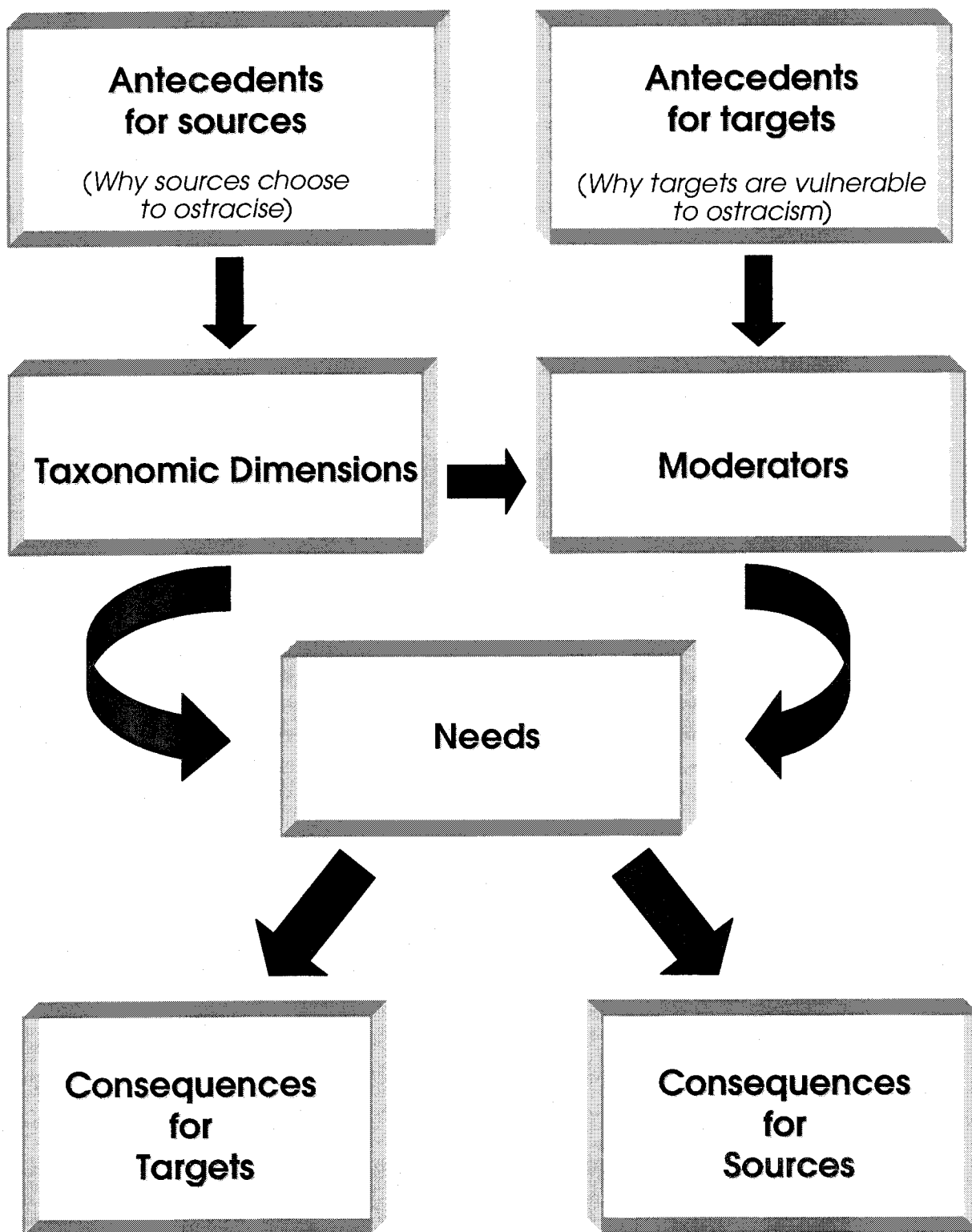


Figure 2.1: Prototype of the New Model of Ostracism

CHAPTER 3

The Antecedents of Ostracism

"When I get angry, it feels as though there is ice water running through my veins, and I become cold and silent. Some people burst into flames when they're angry, but I freeze. It's just my personality, I guess. I'll probably freeze people out till the day I die"

A perpetual source of ostracism.

"I must be the sort of person that (ostracism) works with, because a lot of people wouldn't allow that to worry them, I know... but I know I must have the sort of personality that doesn't like people not speaking."

A perpetual target of ostracism.

If you are confronted by a situation that prompts your anger, disdain, or distress, what is your first response? Do you "burst into flames," singeing the target with your temper? Or do you freeze, exposing the target to your glacial silence? The interviews with sources of long-term ostracism described in Chapter 2 demonstrated that for some people, ostracism is their preferred tactic during a conflict—their weapon of choice in an arsenal of possible interpersonal tactics. Others, however, use ostracism more sparingly, either during socially acceptable occasions (e.g., public transport or elevators), or in situations where all other tactics have failed (e.g., during an argument with an exceptionally articulate individual whose debating skills seem immune to counter-arguments, insults, threats, or flattery). This distinction between *perpetual* sources whose personality traits might lead them to choose ostracism rather than other tactics, and *sporadic* sources, who use ostracism only when the situation demands it, highlights the different *antecedents* (as outlined by Williams's [1997/2001] model) that lead people to use ostracism.

STUDY 2: THE ANTECEDENTS OF OSTRACISM

Williams's (1997/2001) model (see Figure 1.1) delineates several antecedents of ostracism for sources. The antecedent section of the model has undergone considerable revision over the years, far more so than any other section of the model. Initially, there were only two antecedents, broadly titled "individual differences" and "social/situational forces" (see Williams, 1997). Individual differences were defined as "certain experiences or traits (that) may incline individuals to use ostracism" (p. 143). Social/situational forces were defined as those that "facilitate or inhibit the use of ostracism" (p.143). These would include situations where ostracism is expected or acceptable (e.g., public transport), or where the use of other tactics (such as verbal or physical abuse) would be inappropriate or cause a scene (e.g., fighting with one's spouse in a restaurant). The distinction between perpetual and sporadic sources that arose from the interviews (Chapter 2) highlights these two antecedents—perpetual sources would be more likely to have particular personality traits that predispose them to use ostracism, whereas sporadic sources would not have these same traits, rather they use ostracism due to situational forces.

Later revisions of the model retained the individual differences factor, but tried to further delineate the social/situational forces factor. In one revision of the model, social/situational forces was renamed "social pressure" (e.g., Williams et al., 2000). This category encompassed situations where it is more socially desirable to use ostracism than other tactics, either because the ambiguity of ostracism makes it non-obvious and deniable (particularly in the presence of observers), or because other tactics would be deemed unacceptable (e.g., using time out in schools rather than physical punishment). The antecedents in this version of the model also included an additional factor, "role differences." This category acknowledged the use of ostracism by those in an unequal power relationship who are either unable to successfully use other tactics (e.g., they get

flustered and tongue-tied during an argument) or are not free to use more direct tactics because of their subordinate position (e.g., the office worker who chooses to ignore their employer rather than confront them for fear of losing their job). Finally, the most recent revisions of the model (see Williams, 2001; Williams & Zadro, 2001) have again retained individual differences as an antecedent, but have renamed social pressure as “situational demands” and role differences as “role or relational differences.”

In all of Williams’s revisions to date, the antecedents were generally formulated from qualitative research, including narrative studies (e.g., Williams, Shore, & Grahe, 1998) and interviews (Faulkner & Williams, 1996). As antecedents arose from these studies, they were incorporated into the model. This is also the case in the present research project. That is, in Chapter 2, it was proposed that the antecedents section of the model be further modified to incorporate the information derived from the interviews with targets and sources of long-term ostracism (e.g., the role of familial tendencies and characteristics of the target). Although using a qualitative approach was initially invaluable because it revealed many antecedents that would not have been apparent in laboratory studies, the next step is to examine these antecedents more systematically.

Antecedents For Sources of Ostracism — Individual Differences

In all versions of the model, the role of individual differences as an important antecedent of ostracism is always acknowledged. Yet, the nature of these individual differences have not been clearly defined. In chapters and papers where Williams has described the individual differences of sources (e.g., Williams, 1997; Williams, 2001; Williams & Zadro, 2001), he identified several diverse examples such as an ineptitude at using other forms of interpersonal conflict, desiring to either avoid social contact or confrontation, or desiring to remain in control of the situation (and the target).

Yet, if one examines these examples closely, it is apparent that they are examples of specific personality traits. For instance, wanting control over the situation and the target suggests a high need for control, whereas a desire to avoid contact with others suggests attachment style or affiliation issues. Thus, rather than generate an ongoing list of individual differences arising from the narrative studies and interviews, it may be more useful to quantitatively assess whether specific personality traits are antecedents of ostracism behaviour.

But which personality traits are more likely to predict propensity to ostracise? If one examines the model, individual differences are also mentioned as possible moderators of ostracism behaviour. The moderators section of the model outlines personality traits that are hypothesised to modify the effects of ostracism, specifically, traits that relate to the four primary needs (i.e., the need for belonging, control, self-esteem, and meaningful existence). Could these particular traits also predict whether people would choose to use ostracism? For instance, sources who did not wish to associate with others (i.e., who have a low need for affiliation) may withdraw from social contact and hence be more likely to socially and possibly physically ostracise others; those with a high need for control may find that staying silent after an argument (despite the entreaties and pleas of their loved one) allows them to gain power over the situation and the target; those who have a low opinion of themselves and their abilities may ignore people during a conflict rather than use assertive tactics, such as arguing, where they may fail; whereas others may ignore or exclude those who are perceived to be socially inferior or abnormal to attain a sense of purpose in life or a sense that they are part of the culture (hence reducing mortality salience).

In addition to personality traits relating to the four needs, attachment style is also listed in the model as a possible moderator of ostracism, and hence may be another antecedent predisposing some people to use ostracism. In a study that examined the

association between attachment style and responses to conflict between partners, Gaines, Reis, Summers, Rusbult, Coc, Chante, Wexler, Marelich, and Kurland (1997) found that when partners exhibited adverse behaviours, insecurely attached people tended to retaliate with destructive tactics, specifically “exit” (e.g., separating, leaving the relationship, or destroying it with verbal or physical abuse) and “neglect” (e.g., ignoring the partner, not spending time together, or using criticism/maltreatment), whereas securely attached people tend to use constructive tactics such as “voice” (i.e., actively speaking up and constructively trying to improve the situation and the relationship). Although exit and neglect encompass aspects of ostracism— exit most closely resembles physical ostracism (i.e., leaving the relationship), and neglect more closely resembles social ostracism (i.e., ignoring the partner)— they also contain elements that are not ostracism (e.g., physical or verbal abuse). Thus, this research provides suggestive but not conclusive evidence that attachment style may be another antecedent of ostracism.

Other traits not associated with the four needs may also influence individuals’ propensity to use ostracism. One such personality trait is stubbornness. In the interviews with targets of long-term ostracism, many reported (without prompting) that the sources who ostracised them were incredibly stubborn in nature and likely to bear a grudge for long periods of time. This was supported by sources of long-term ostracism, who stated that stubbornness led them to persist in using ostracism rather than other forms of conflict, and helped them to maintain the tactic long after the initial reason for the conflict had been forgotten. In fact, some sources stated that stubbornness kept them from reconciling with the target.

Although there are several personality traits that may influence the propensity to be a source of ostracism, to date the only empirical support for personality traits predicting propensity to ostracise is a narrative study conducted by Sommer et al.

(2001). In that study, participants were asked to write about two ostracism episodes—one where they were a target of the silent treatment and one where they were a source of the silent treatment. Measures of self-esteem were also taken. Sommer et al. found that those with low self-esteem were more likely to use ostracism than those with high self-esteem, particularly if they perceived that they were being criticised or rejected by others. However, those with high self-esteem were more likely to use ostracism to terminate their relationship than those with low self-esteem, particularly in instances where they were being ostracised by their partner.

Thus, in view of the paucity of systematic research to date on the antecedents of ostracism, it was the primary aim of this study to quantitatively examine whether specific source personality traits (i.e., those relating to the four needs, in addition to stubbornness and attachment style) are antecedents of ostracism.

Antecedents for Targets of Ostracism—Individual Differences

But should antecedents only be examined from the perspective of sources? In the interviews with long-term targets, many stated that they were being simultaneously ostracised by multiple people (friends, colleagues, and loved ones), suggesting that there was perhaps something about the target that elicited ostracism. Inevitably, there are some individuals who are universally repugnant to others and hence are perpetually ostracised, whether it be because of their physical condition (e.g., poor hygiene), social skills (e.g., those who are grotesquely lecherous, constantly complaining, or who have social views that are extremely divergent with the rest of society), or behaviour (e.g., inappropriate physical contact such as groping, nose-picking, or flashing). Others may be avoided and excluded because they are a danger to others, such as those who are bullies (Barner-Barry, 1986), or are physically abusive.

These repellent, highly “ostracisable” people are extremes—it is easy to see why they are perpetual targets. But what about those who are not socially repugnant yet are

also constantly ostracised? It is possible that some perpetual targets have qualities that allow them to be more susceptible to ostracism tactics. For instance, in the interviews, many targets stated that being repeatedly ostracised as a child made them more vulnerable to ostracism as an adult. When loved ones or colleagues perceived this vulnerability, they then exploited it during a conflict, because they knew that ostracism would be more devastating to the target (and hence effective) than other forms of conflict. Alternatively, some perpetual targets may be repeatedly exposed to situations that are conducive to ostracism tactics. For instance, those who hold subordinate or menial positions in a firm may find that they are repeatedly ignored by their supervisors whether in social (e.g., their boss may not greet them in the corridor or elevator), or business (e.g., not being informed about meetings or social events) interactions.

Personality traits could also play a part in the propensity to be a target. The moderators section of the model suggests that personality traits (e.g., need to belong, self-esteem, control, meaningful existence, and attachment style) may reduce or exacerbate the effects of ostracism. However, if the target already has lower levels of one or more of these traits, then they may have a higher propensity to be a target. It is plausible that those who already feel alienated, worthless, helpless, or feel that their life lacks purpose, may be more susceptible to ostracism tactics. There is some support for this assertion. Specifically, Sommer et al., (2001) found that those with low self-esteem reported receiving the silent treatment more often than those with high self-esteem. Similarly, Geist and Hamrick (1983) reported that those with low need for affiliation often report a history of being socially rejected.

Such propensity to be ostracised, whether it is because of personal characteristics or situational variables, seems to suggest that there should be an antecedents section in the model for targets as well as sources. Yet, such antecedents are not addressed in the model. From the interviews, it is apparent that the antecedents

for targets closely parallel those for sources— individual differences, situational factors, role/relational differences, as well as additional factors such as familial tendencies— yet these aspects have not been systematically assessed. This is not to state that targets should always be held responsible for the ostracism act. Some sources will use ostracism regardless of the characteristics of the target, just as some situations simply precipitate the use of ostracism. Rather, exploring antecedents for targets acknowledges the fact that ostracism, like any interpersonal behaviour, is a complex phenomenon that relies on the interaction between targets and sources. Thus, the second aim of the present study was to systematically examine whether specific personality traits predict propensity to be a target of ostracism.

Experiment 2.1: Individual differences as antecedents of ostracism for targets and sources

In the present study, participants were asked to complete a series of questionnaires. These questionnaires assessed: how often they were a target and a source of ostracism; personality traits relating to each of the four needs; attachment style; and stubbornness. The responses to the questionnaires were then analysed to determine whether the propensity to be a source or target of ostracism could be predicted by the personality traits. Because the study was exploratory, no specific predictions were made.

Method

Participants

Three hundred first year psychology students from the University of New South Wales, 93 males and 205 females³ (M age = 19.88 years, SD = 2.56), participated

³ Two participants did not complete the question assessing sex.

in the study. Participants received course credit in exchange for their voluntary participation in the study.

Procedure

Participants were informed that the study aimed to assess “people's attitudes and perceptions to various topics.” Participants were asked to complete a questionnaire booklet containing seven personality questionnaires and two additional questions assessing propensity to be a source and target of ostracism (see Appendix E). Participants completed the consent forms (see Appendix F) and the questionnaires in their own homes. The experimenter ensured that the participant understood the importance of completing the questionnaire in a quiet place without distractions (e.g., not in front of the television, or in the presence of family or friends). Participants were assured that there were no right or wrong answers and that their responses would remain completely anonymous and confidential. When the questionnaire was returned, participants were debriefed and allocated course credit.

Questionnaire booklet. In addition to assessing demographic variables such as age and sex, the questionnaire booklet contained seven personality questionnaires. Five of these questionnaires related to the four needs elucidated in Williams's (1997/2001) model. To assess belonging, the 16-item Affiliative Subset of the 16 Personality Factor Questionnaire (16PF; Cattell, 1956) was used where the items were rated true or false; to assess control, two scales were used—the 20-item Desire for Control scale (where 1 = the statement does not apply to me at all; 7 = the statement always applies to me; Burger & Cooper, 1979), and the Affiliative sub-scale of the Multidimensional Multiattributational Causality Scale assessing locus of control (Lefcourt, Van Beyer, Ware, & Cox, 1979); self-esteem was assessed using the Rosenberg (1965) 10-item Self-Esteem scale (where 1 = strongly disagree; 4 = strongly agree); and meaningful

existence was assessed using the 15-item Death Anxiety Scale (Templer, 1970) where the items were rated true or false.

In addition to these personality scales, attachment style was also measured using Bartholomew and Horowitz's (1991) Self-report Attachment Style Prototypes. Participants were asked to choose one of the four attachment style prototypes that "describes you best." These prototypes were; secure ("It is easy for me to become emotionally close to others. I am comfortable depending on them and having them depend on me. I don't worry about being alone or having others not accept me"), fearful ("I am uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others"), preoccupied ("I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others don't value me as much as I value them"), and dismissing ("I am very comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me").

Finally, as interviews with targets and sources of long-term ostracism revealed that sources were often perceived as stubborn, participants were asked to rate, on a single item, their level of stubbornness ("I consider myself to be a stubborn person") on a 4 point scale (where 1 = strongly disagree; 4 = strongly agree).

Participants' experience with ostracism (specifically, the silent treatment) was assessed using two questions; propensity to be a source—"I often give people the silent treatment (i.e., ignore them, don't speak to them);" and propensity to be a target—"People often give me the silent treatment (i.e., ignore me, don't speak to me)." These questions were rated on 5-point scales (where 1 = strongly disagree; 5 = strongly agree).

Results

The Relationship Between Personality Traits

Although four distinct primary needs are elucidated in the model, there is substantial evidence that these needs are inter-related. For instance, high levels of belonging tend to be associated with high levels of self-esteem (e.g., Geist & Hamrick, 1983); increasing self-esteem and belonging may reduce threats to one's meaningful existence (e.g., Greenberg, Pyszczynski, & Solomon, 1986); and self-esteem may be lowered by reducing perceived control in the situation (e.g., Burger, 1984). Thus, to assess the magnitude of the relationship between the personality traits used in this study, Pearson correlation coefficients between need for affiliation, locus of control, need for control, self-esteem, death anxiety, stubbornness, propensity to be a target of ostracism (termed "target propensity" henceforth for brevity), and propensity to be a source of ostracism (termed "source propensity" henceforth for brevity) were calculated. Attachment style (a four level categorical variable) was coded into a two level categorical variable— secure attachment and insecure attachment style (i.e., fearful, preoccupied, and dismissing)— and included in the correlation matrix. The results of this analysis are presented in Table 3.1.

It is evident from Table 3.1 that the highest correlation was between target and source propensity, $r = .38$, $p < .01$. There were also several significant correlations between target/source propensity and the remaining personality traits. Source propensity was significantly correlated with stubbornness, low self-esteem, low affiliative need, and insecure attachment style (highest correlation was for need for affiliation, $r = -.26$, $p < .01$). Target propensity was significantly correlated with low self-esteem, low desire for control, low affiliative need, and insecure attachment style (highest correlation was for self-esteem, $r = -.25$, $p < .01$).

In addition to the correlations pertaining to target and source propensity, there were also several significant yet fairly low correlations between the personality traits. Specifically, self-esteem correlated with all of the traits except stubbornness. Significantly higher self-esteem was correlated with higher levels of affiliative need and desire for control, lower levels of death anxiety, internal locus of control, and secure attachment style (highest correlation was for desire for control, $r = .37$, $p < .01$). For the remaining traits, there were few significant correlations, specifically, high levels of affiliative need were correlated with high levels of desire for control, lower levels of stubbornness, and secure attachment style (highest correlation was for self-esteem, $r = .31$, $p < .01$).

The primary aim of the study was to assess the extent to which each personality trait could predict target and source propensity. Thus, multiple regression analyses were conducted with target and source propensity as dependent variables (separate regression analyses were conducted for each) and the personality traits as the independent variables. In each regression analysis, attachment style (a categorical variable) was contrast coded in the manner stipulated by Cohen and Cohen (1975). Contrast coding was chosen rather than dummy coding as it allowed, within each regression, comparisons between the attachment styles to be directly assessed by way of planned orthogonal contrasts (i.e., comparisons between secure vs. insecure attachment styles, and between the insecure attachment styles). The results of the multiple regression for source propensity are presented below, followed by the regression for target propensity.

Table 3.1.

Study 2. Correlation matrix for the personality traits

	Stubbornness	Attachment Style	Death Anxiety	Self-esteem	Locus of control	Desire for Control	Affiliation	Target Propensity
Source propensity (I often give others the silent treatment)	.12*	-.26**	.01	-.14*	.09	-.06	-.26**	.38**
Target propensity (People often give me the silent treatment)	.01	-.21**	.07	-.25**	.09	-.18**	-.18**	1.0
Belonging Affiliation	-.16*	.295**	.03	.31**	-.11	.18**	1.0	
Control Desire for control	.05	.06	-.07	.37**	-.01	1.0		
Locus of control	.11	-.01	.01	-.14*	1.0			
Self-esteem Self-esteem Scale	-.02	.21**	-.18**	1.0				
Meaningful Existence Death Anxiety	-.07	.01	1.0					
Attachment style (Secure vs. insecure)	-.06	1.0						

Note: With all personality scales, a higher score = higher levels of that personality trait (i.e., higher need for affiliation, desire for control, self-esteem, death anxiety) except for locus of control where a higher score = external locus of control, and attachment style where a higher score = secure attachment.

* $p < .05$ (2 tailed), ** $p < .01$ (2 tailed)

Propensity to be a Source of Ostracism

In response to the question "I often give people the silent treatment," 32.4% of participants ($N = 97$) asserted that they strongly disagreed with the statement, whereas only 9% ($N = 27$) stated that they strongly agreed with the statement. Thus, overall,

participants reported that they did not often give others the silent treatment ($M = 2.4$, $SD = 1.4$) with 71.2% of participants reporting that their experience as a source was at or below the mid point of the scale. There were no sex differences for these measures (males [$M = 2.5$, $SD = 1.4$]; females [$M = 2.4$, $SD = 1.3$], $t < 1$).

Results of the multiple regression for source propensity. The R for regression significantly differed from zero, $F(10, 211) = 5.6$, $p < .0005$, with the model accounting for 21% of the variance in source propensity. The results of the regression— means and standard deviations of the variables, the unstandardised regression coefficients (b), the standard error of the unstandardised regression coefficients (SEb), and the standardised regression coefficients (β)— are presented in Table 3.2.

Although several personality traits were significantly correlated with source propensity, only three variables emerged as significant predictors— target propensity, need for affiliation, and attachment style. Of these traits, target propensity made the largest unique contribution to predicting source propensity ($\beta = .329$), such that participants who reported that they frequently used ostracism on others also reported being frequently ostracised. Need for affiliation also made a significant contribution ($\beta = -.148$) such that participants with a lower need for affiliation reported that they often used the silent treatment.

Attachment style also significantly predicted source propensity. Overall, 42.4% of participants reported that they were securely attached; 23.4% were fearful; 19.7% were preoccupied; and 14.6% were dismissing. Attachment style made a significant contribution to predicting source propensity ($\beta = -.146$) such that participants who reported having a secure attachment style were less likely to be sources of ostracism than participants who reported having insecure attachment styles (i.e.,

fearful, preoccupied, or dismissing). Contrasts assessing the relationship between source propensity and the other attachment styles were not significant.

Table 3.2.

Study 2. Multiple regression analysis: Predictors of source propensity.

Predictor	Mean	SD	b	SEb	β	t
Target Propensity	2.0	1.1	.419	.084	.329	4.97**
Belonging Affiliation	9.7	3.5	-.058	.027	-.148	2.1*
Control Desire for control	90.2	12.2	.002	.007	.022	.33
Locus of control	48.1	7.7	.006	.011	.033	.51
Self-esteem Self-esteem Scale	30.6	5.6	.002	.018	.009	.12
Meaningful Existence Death Anxiety	7.0	2.9	.003	.029	.006	.09
Stubbornness	2.7	.97	.108	.088	.077	1.2
Attachment style ^a Secure vs. insecure	n/a ^b	n/a ^b	-.301	.136	-.146	2.2*

* $p < .05$, ** $p < .0005$

^a Only significant contrasts for attachment style are presented in the table.

^b Because the means and STDs for attachment that result from the regression are for the contrast between secure and insecure attachment style (rather than means and STDs for each attachment style), they do not provide meaningful data and are thus not presented in the table.

Thus, despite positive correlations between source propensity and several personality traits, only two traits— need for affiliation and attachment style— were

significant predictors of source propensity; target propensity was the strongest predictor of source propensity.

Propensity to be a Target of Ostracism

In response to the question, "People often give me the silent treatment, 36.1% of participants ($N = 108$) stated that they strongly disagreed with the statement, whereas only 3% ($N = 9$) stated that they strongly agreed with the statement. Thus, overall, participants reported that they were not frequently ostracised ($M = 2.0$, $SD = 1.1$), with 88.0% of participants reporting that their experience as a target was at or below the mid point of the scale. Males ($M = 2.3$, $SD = 1.1$) reported being ostracised more often than females ($M = 1.9$, $SD = 1.0$), $t(296) = 2.4$, $p = .019$.

Results of the multiple regression for target propensity. The R for regression significantly differed from zero, $F(10, 211) = 6.4$, $p < .0005$, with the model accounting for 23.3% of the variance in source propensity. The results of the regression— means and standard deviations of the variables, the unstandardised regression coefficients (b), the standard error of the unstandardised regression coefficients (SEb), and the standardised regression coefficients (β)— are presented in Table 3.3.

It is evident from Table 3.3 that only two traits significantly predicted target propensity— source propensity and attachment style. Source propensity made the largest unique contribution to predicting target propensity ($\beta = .319$), such that participants who reported that they were frequently ostracised also reported frequently using ostracism on others.

Attachment style was also a significant predictor of target propensity ($\beta = .201$), such that participants who reported having a preoccupied attachment style (i.e., "I want to be completely emotionally intimate with others, but I often find that others are

reluctant to get as close as I would like”) reported that they were more likely to experience ostracism than participants with the other attachment styles. Contrasts assessing the relationship between target propensity and the remaining attachment styles were not significant.

Table 3.3.

Study 2. Multiple regression analysis: Predictors of target propensity.

Predictor	Mean	SD	b	SEb	β	t
Source Propensity	2.4	1.4	.250	.050	.319	4.97**
Belonging Affiliation	9.7	3.5	-.013	.021	-.043	.62
Control Desire for control	90.2	12.2	-.008	.006	-.091	1.4
Locus of control	48.1	7.7	.007	.009	.050	.79
Self-esteem Self-esteem Scale	30.6	5.6	-.019	.014	-.102	1.4
Meaningful Existence Death Anxiety	7.0	2.9	.013	.022	.037	.59
Stubbornness	2.7	.97	-.035	.068	-.032	.52
Attachment style ^a Preoccupied vs. remaining attachment styles	n/a ^b	n/a ^b	.403	.127	.201	3.2*

* $p < .05$, ** $p < .0005$

^a Only significant contrasts for attachment style are presented in the table.

^b Because the means and STDs for attachment that result from the regression are for the contrast between secure and insecure attachment style (rather than means and STDs for each attachment style), they do not provide meaningful data and are thus not presented in the table.

Thus, as with source propensity, there were several significant correlations between target propensity and the personality traits, however only two traits— source propensity and attachment style (i.e., preoccupied attachment)— emerged as significant predictors.

Discussion

Unlike other aspects of the model, the antecedents of ostracism have received little quantitative attention. The aim of the present study was to systematically investigate one antecedent of ostracism— individual differences.

In all revisions of Williams's model, individual differences have remained constant as one antecedent of ostracism. However, the question of which specific individual differences are the best predictors of ostracism behaviour has not been examined. Thus, in this study, specific individual differences derived both from theory and from the interviews (Chapter 2) were measured to determine whether or not they predicted propensity to be a source of ostracism.

In terms of the individual differences derived from Williams's model— that is, belonging (affiliative need); control (desire for control and locus of control), self-esteem (self-esteem scale), and meaningful existence (death anxiety)— belonging and control were correlated with the propensity to be a source. However, only belonging significantly predicted source propensity. That is, those with lower affiliative need reported that they often gave others the silent treatment. This result seems intuitive. If someone prefers to pursue solitary activities rather than engage in wall-to-wall parties and copious amounts of social intercourse, then it is not surprising that they would often exclude or ignore others in order to remain alone. However, Geist and Hamrick (1983) suggest that those with low need for affiliation may have a history of unsuccessful interpersonal relationships, and hence "their subsequent lower motivation for affiliation is a means by which to avoid further rejection" (p.727). In this sense,

those with a low need for affiliation are defensively ostracising others, and thereby ensuring that they reject or ignore people before they become the object of exclusion or inattention.

In addition to individual differences pertaining to the four needs, the present study also examined whether attachment style predicted source propensity. It was found that participants who were insecurely attached (i.e., fearful, preoccupied, or dismissing) reported that they gave the silent treatment to others significantly more often than those who were securely attached. As such, the results of the present study echo the findings of Gaines et al. (1997), who found that insecurely attached individuals tend to respond to conflict with destructive ostracism-type tactics such as physical, emotional, or vocal withdrawal from the relationship, in contrast to securely attached individuals who use constructive vocal tactics such as discussing the problem. As in the present study, Gaines et al. only found a difference in tactics used by secure and insecure individuals— there was no difference amongst those with insecure attachment patterns.

Overall, the present study demonstrated that propensity to be a source could be predicted (albeit limitedly) by individual differences. However, examining the antecedents of ostracism solely from the perspective of sources only tells half the story. Interviews with targets of ostracism suggested that there are some people who seem particularly vulnerable or susceptible to ostracism. Thus, the second aim of the study was to examine antecedents for targets of ostracism, specifically individual differences (i.e., traits pertaining to the four needs, attachment style, and stubbornness) that seem to elicit ostracism from others.

Although several individual differences pertaining to the four needs were correlated with the propensity to be a target— belonging (need for affiliation), self-esteem, and control (i.e., desire for control)— none of these needs emerged as

significant predictors of target propensity. The only individual difference to significantly predict propensity to be a target was attachment style, such that those with a preoccupied attachment style were more likely to report being a target of ostracism than those with any other attachment style. This is not surprising because preoccupied attachment style is characterised by a desire for intimacy, but an anticipation of rejection (i.e., “I want to be completely emotionally intimate with others but I often find that others are reluctant to get as close as I would like”). It may be the case that preoccupied people do not actually receive the silent treatment more often than the other attachment styles. Rather, they may be more sensitive to detecting ostracism when it actually occurs (i.e., they are more likely to correctly perceive when they are being ostracised by sources), or they may perceive that they are being ignored even in situations where this is not the intention (e.g., in situations where the source may simply be tired and not as responsive as usual, or when the source is really not ostracising the target but has simply not noticed the target's question or fulfilled their needs).

Although the model does not explicitly include sex as a possible antecedent of ostracism, the effect of sex on the propensity to be a target and source of ostracism was also examined. When asked about their propensity to be a source of ostracism, males and females reported equal use of the silent treatment on others. There is mixed support for this finding. In a study of conflict tactics used by couples, Buss et al. (1987) found that there was no significant difference in the use of the silent treatment between males and females. However, Falbo and Peplau (1980) found that in heterosexual couples, ostracism (or “withdrawal” as it was termed) was more likely to be used by females. The contradictory findings of these two studies may be due to the way in which ostracism was operationally defined. That is, it is evident from the interviews in Chapter 2 that the style of ostracism may vary— some may use noisy ostracism whereas others may use forms of quiet ostracism (i.e., holding-back, tuning-out, shutting-down,

and cutting-off). The findings of the interviews tentatively suggest that males and females may prefer to use different forms of ostracism. For instance, tuning-out was typically described as being perpetuated by males, whereas noisy silence was typically described as being perpetuated by females. Thus, it may be that males and females both use ostracism but differ in terms of the form of ostracism they use— a difference that is magnified when researchers only examine one particular form of ostracism.

When asked about their propensity to be a target, it was found that males reported being given the silent treatment by others more often than females. This is an unexpected finding. When advertising for the interviews used in Chapter 2, many more females than males called in and reported being targets of ostracism. This observation, however, may be an artefact of the way interviewees were recruited— potential interviewees were asked to reply to an advertisement placed in the *Woman's Day* magazine and in local newspapers, both of which may have been more accessible to females. Further, the confidential nature of the present study may have allowed more males to openly acknowledge that they were targets of the silent treatment. However, further research is necessary to provide support for sex differences in target and source propensity.

Overall, of all the variables assessed, the best predictor of source propensity was target propensity. Thus, those who use the tactic seem to fall prey to the tactic (and vice versa). Yet this result does not show the causal nature of this relationship. Do people who give the silent treatment alienate their friends to the point where they too are ignored? Or is it the case that those who are constantly ignored learn to defensively ignore others as a pre-emptive strike against future ostracism, as has suggested by Sommer et al. (2001) and Geist and Hamrick (1983)? Or do other antecedents (such as those that arose from the interviews in Chapter 2) also play a role— for instance, does a

history of being ignored as a child lead one to both use this tactic (because they have personally experienced its impact and effectiveness) and be more vulnerable to it?

These questions highlight one of the limitations of this study— the inability to determine causality between individual differences and propensity to be target or source of ostracism. The design of the present study is only able to demonstrate whether or not a relationship exists between the specific personality traits and self-reported ostracism— it is not able to clearly state that ostracism is caused by a particular personality trait or vice versa. To assess possible causal explanations, it is evident that more research is necessary to examine the relation between target and source propensity and individual differences.

Although more research is necessary to assess causal relations, the results of the present study suggest that although individual differences are predictors of source and target propensity, their predictive power is fairly low— the personality traits assessed in this study accounted for only about 20% of the variance in target and source propensity. It is possible that personality traits other than those assessed in the present study may better predict target or source propensity, however, the findings of the present study suggest that although individual differences do play a role in predicting the occurrence of ostracism, other antecedents in the model (i.e., situational forces, role/relational differences) may better predict source or target propensity. Moreover, although the model sets out individual differences and situational factors as separate antecedents of ostracism, target or source propensity may arise from the interaction of these antecedents. For instance, Sommer et al., (2001) found that high self-esteem individuals were more likely to use the silent treatment when they were ready to terminate the relationship. This result shows an interaction between individual differences (self-esteem) and situational variables (an existing relationship being perceived as intolerable). As previously stated, the antecedents of ostracism have

received little empirical attention, and the interaction between the antecedents in the model is an area that has been completely neglected both theoretically and empirically. It is apparent that future research is needed to further investigate the workings of this entire section of the model.

Overall, the present study is only a first step in assessing the antecedents of ostracism. Although the nature of the methodology used in the study has its limitations (i.e., it does not allow attribution of causality between individual differences and the propensity to be a source or target) it does provide some insight into the personality traits that predict target and source behaviour. Distinguishing between the factors that lead to ostracism is important, for without a clear understanding of why people use this tactic (as opposed to other forms of conflict), it is not possible to adequately predict when ostracism will occur, what form of ostracism will be used (e.g., punitive, oblivious, defensive, etc), or what consequences ostracism will have on the primary needs and behaviour of the target(s) or the source. In the interviews, many targets and sources stated that they were searching for a way to stop the destructive consequences of ongoing ostracism on both their needs and their relationship. Without a clear understanding of why some people choose to use ostracism, or why some are so vulnerable to ostracism, there is little chance that interventions can be created to terminate this behaviour when it becomes an impediment to healthy, everyday functioning.

IMPLICATIONS OF FINDINGS FOR THE PRESENT RESEARCH PROJECT

Overall, the interviews and the results of the present study highlight the importance of examining ostracism from the perspective of both sources and targets. The interviews in Chapter 2 highlighted the possibility that individual differences may

play a role in determining not only who chooses to use ostracism but also who receives ostracism. The present study found quantitative support for this assertion, presenting support for individual differences that operate separately for sources and targets, and traits that are antecedents for both source and target propensity. Although the present study examined ostracism from the perspective of targets and sources, existing ostracism paradigms do not have this dual focus. Instead, ostracism paradigms to date reflect the previous versions of the model by focusing solely on either targets or sources (typically targets). Thus, a paradigm needed to be created that examined ostracism *simultaneously* from the perspective of both targets and sources in order to attain a better understanding of this phenomenon.

The primary focus of Chapter 4 was to create such a paradigm (i.e., “the train ride”), and subsequently use it to further explore the primary issues raised in the interviews from the perspective of both targets and sources. For example, to compare the effects of ostracism to other forms of aversive interpersonal behaviour such as argument, and assess the effects of ostracism on self-reported health constructs such as stress, arousal, and anxiety.

CHAPTER 4

“The Train Ride”: Comparing the effects of ostracism and argument on the primary needs and somatic responses of targets and sources

“Silence is argument carried out by other means”

Ernesto “Che” Guevara

“I would rather that you yell at me, abuse me, call me any name in the book, but just don’t sit there and pretend I’m not there ... nothing could be worse than silence”

A target of prolonged ostracism

Imagine for a moment that you are riding the train home from work. It is late in the afternoon and the train is packed with people who are all trying to find a seat. Miraculously, you manage to find a seat, coincidentally, in between two colleagues. You greet them, and begin talking to them about your day. Suddenly, they turn to one another and begin to discuss last night’s wildlife documentary on the breeding habits of llamas. You begin to realise that they were not listening to you, nor have they even looked in your direction since you sat beside them. You interject a question about the sexual prowess of llamas, but receive no response. You lean toward them to catch their glance, but they avoid eye contact and continue their animated discussion. They are obviously angry with you, but ignore any attempts you make to find out why they are upset. Your heart falls to the pit of your stomach and you begin to feel slightly nauseous as you realise that nothing you do or say will make them speak to you, or even acknowledge your existence. You slump back into your seat as they laugh and chatter over the top of you.

Now imagine the same scenario but instead of being ignored, your colleagues “greet” you with a furious tirade, rebuking you for not doing some task at work. You

know why they are angry and thus have the opportunity to defend your actions and make a stand in the argument. You can feel your heart begin to beat faster and faster as you start to counter their arguments, your voice rising to drown-out their feeble protests. Looking at the two scenarios, which would you prefer— to be ignored, or to be argued with?

Or imagine the situation from the other perspective— if you were angry with a colleague or loved one, would you prefer to take a silent stance and choose to ignore them? Or would you charge forth and engage them in a full-scale argument? That is, would you choose to remain silent or to speak forcefully about what is bothering you?

These scenarios depict three of the primary themes raised in the interviews with long-term targets and sources (Chapter 2). Specifically, these scenarios illustrate the importance of; a) examining each ostracism situation from the perspective of both targets and sources; b) determining whether ostracism is more aversive than other forms of conflict such as argument; and c) understanding the effect that ostracism may have on one's health (e.g., somatic responses such as arousal, accelerated heart rate, nausea, etc). Each of these themes represent aspects of ostracism that have received relatively little empirical attention and hence are areas that will be further explored in the present study.

STUDY 3: COMPARING THE EFFECTS OF OSTRACISM AND ARGUMENT ON TARGETS AND SOURCES

Examining The Effects Of Ostracism On Both Targets And Sources

It has been suggested in previous chapters that Williams's model of ostracism presents a somewhat incomplete view of ostracism. That is, the model generally examines ostracism solely from the perspective of targets. It focuses on how targets feel after being ostracised (i.e., the *threatened needs* and *reactions to ostracism* sections of the model), and the factors that may influence the effect of ostracism on targets (i.e., the *moderators* section).

Because of the focus on targets, the model does not provide much information about the effect of ostracism on sources. The role of sources is acknowledged only in terms of the reasons why they may choose to use ostracism (the *antecedents* section) and the form of ostracism they choose to use (the *taxonomic structure*). Hence, the model's interest in sources ends once they have committed the act itself. But what are their thoughts, their feelings, and their behaviours while carrying out this tactic? These issues are certainly no less worthy of attention and investigation than examining the impact of ostracism on targets.

The interviews in Chapter 2 support the notion that it is important to examine the perspectives of both targets and sources. Whereas the interviews with targets clarified and confirmed selective aspects of the model, the interviews with sources were incredibly illuminating because there was no prior framework on which to predict their responses to ostracism. The interviews with sources provided a glimpse into the thought processes behind why one chooses to use this tactic, the thoughts and emotions that accompany ostracising another person or group, and the subsequent consequences to the source, the target, and the relationship.

According to the interviews with sources, the effects of ostracising others are numerous. From outward appearances, acts of ostracising (e.g., not talking, refusing eye contact) seem relatively effortless when compared to other tactics that could be used during a conflict (e.g., verbally or physically challenging the target). However, it has been suggested that sources must engage in fairly high levels of cognitive and emotional effort while ostracising because they must monitor their relatively automatic verbal and non-verbal behaviours in the presence of the target to ensure that there is no accidental acknowledgment of the target's existence. In fact, Williams and Sommer (1997) and Geller et al. (1974) both observed that the confederates in their studies, who were trained to ostracise or include participants, experienced considerable discomfort when

ostracising targets, with Geller et al. noting that "...being an ignorer may be almost as uncomfortable as being ignored..." (p. 556). Similarly, in an empirical study of sources, Ciarocco et al. (2001) found that sources who were asked to avoid speaking to a confederate during an interaction task showed impairments in subsequent cognitive and physical tasks compared to those who conversed with the confederate (i.e., less persistence on unsolvable anagrams and less stamina in a handgrip task, respectively).

The effort required to ostracise the target, however, is likely to be compensated by some fortification of primary needs. For instance, narrative and self-report accounts of participants' experiences with the silent treatment indicate that sources tend to feel need-fortification when giving a friend the silent treatment, reporting a greater sense of control (Sommer et al., 2001; Williams, Bernieri, et al., 2000; Williams, Shore, & Grahe, 1998). In addition, anthropological and sociological data suggest that ostracising a deviate member leads to greater cohesiveness amongst remaining group members (Gruter & Masters, 1996). Indeed, increased cohesiveness of the ostracising group is purported to be one of the primary functions of ostracism. This increase in cohesiveness may be due to eliminating a disharmonious member, and/or by the very act of ostracising itself where the sources are bonded through engaging in a "conspiracy of silence." Thus, the effort expended to ostracise a target may be offset by a perceived gain in control and belonging. However, there has been very little experimental research on this issue or of any issue relating to sources of ostracism. And, as with the model, this lack of research on sources demonstrates that the current body of ostracism research tells only half the story of any ostracism episode.

Chapter 3 began the process of broadening the model to encompass the experiences of both targets and sources. By examining the antecedents of ostracism from the perspective of both targets and sources, Chapter 3 demonstrated that it was possible through quantitative research to redress the target-bias of the model and to

examine the effects of ostracism on both parties. Therefore, in the present study, the primary aim was to examine the effects of ostracism on both targets and sources, rather than continuing the trend of previous research and focusing solely on the effects of ostracism on targets. The results of this study could then be used to further modify the model to elucidate the effects of ostracism on sources as well as targets.

Ostracism Versus Other Forms Of Interpersonal Conflict

In the interviews, many targets claimed to have been subjected to a range of interpersonal tactics in addition to ostracism (e.g., arguments, verbal or physical abuse). Yet several of these targets claimed that ostracism was by far the most damaging tactic. One target even stated that she preferred to be physically abused than ostracised as “the bruises and scars healed very quickly and I believe that (the silent treatment) is far more damaging than a black eye...”

Despite such assertions, there has been very little research investigating whether the consequences of social ostracism differ from the consequences of other forms of interpersonal conflict. That is, previous studies conducted by Williams and his colleagues have focused on comparing participants who were ostracised from a conversation or task to those who were otherwise included. Although it is an important first step to ensure that ostracism is deleterious to primary needs, it is perhaps more meaningful to compare the effects of ostracism to other forms of interpersonal conflict like argument, because it is possible that ostracism does not differ fundamentally from these other forms of conflict.

Is it plausible to expect different responses to ostracism and argument? After all, both are interpersonal and aversive. The model hypothesises that the target’s powerlessness to play an active role in resolving the situation, coupled with the lack of attention they receive from the source(s), will lead targets of ostracism to experience lower levels of belonging, control, self-esteem, and meaningful existence than targets of

argument, who can actively influence the outcome of the situation through their words and actions, and who do receive the attention of the source(s). To illustrate, in the interviews, targets of long-term ostracism reported that they often goaded the source into an argument because they preferred negative acknowledgment to no acknowledgment at all. However, these interviews were conducted with people who experienced episodes of ostracism that continued for weeks, months, or years, and thus their experiences may not be comparable to participants who experience a short bout of ostracism.

And what of the effects of ostracism and argument on sources? Unfortunately, both the model and current ostracism research provides no clues on the potential differential effects of ostracising and arguing. During an argument, sources must put forth their views in a forceful and persuasive manner. Should they falter, or should their debating skills be poorer than those of the target, then they lose control over the situation. However, during ostracism, sources are the master of the type, duration, and probable conclusion of the tactic regardless of what the target may do or say. Hence, sources may experience a fortification of their needs (especially control) while ostracising compared to arguing.

Although the source has complete control over the situation and (to some degree) the target while ostracising, they nevertheless must expend considerable cognitive effort trying to ignore the target (Ciarocco et al., 2001). Also, by distancing themselves verbally, emotionally, and perhaps physically, from the target while ostracising, the source also effectively removes themselves from all the benefits that they may attain from their relationship with the target (e.g., companionship, mutual admiration, self-enhancement through encouragement and praise, or a sense of purpose). As such, sources of ostracism may actually experience a threat to primary needs that are reinforced by the relationship (e.g., belonging). In contrast, during an argument, both

the target and source are (generally) involved equally in all aspects of the tactic (i.e., the maintenance and conclusion of the argument). Thus, sources of argument may experience less threat to needs, such as belonging, that are contingent upon the maintenance of the relationship than do sources of ostracism.

In view of the lack of research conducted in this domain, the second primary aim of the present study was to examine whether two forms of conflict— ostracism and argument— differentially impact primary needs, for both targets and sources.

The Effects Of Ostracism On Self-Reported Health

In the interviews, targets stated that ostracism had detrimental effects on their health. There is evidence to suggest that when social interaction is withheld, or social contact breaks down, deregulation of physiological functioning occurs, leading to greater susceptibility to illness (e.g., Kiecolt-Glaser et al., 1992; Raleigh & McGuire, 1986). However, these studies focused on physical ostracism (i.e., social isolation) rather than being ignored and excluded in the presence of others. In one relevant study conducted by Stroud et al., (2000) it was found that participants who were socially excluded and rejected reported higher levels of tension and a greater increase in blood pressure (systolic and diastolic) from baseline. However, the paradigm used in that study (the YIPS— Yale Interpersonal Stressor) combined ostracism (e.g., ignoring and excluding the participant) with forms of rejection (e.g., verbal abuse) and hence does not give a clear picture of the health-related effects solely of ostracism.

Although the health-related effects for targets are at least presented in the model, there is almost no research on the health-related effects of ostracism on sources. During the interviews, the majority of sources stated that they felt “fine” or felt no change to their health while ostracising, although there were a few sources who stated that ostracising others made them feel ill due to the increase in their blood pressure and stress levels. If ostracism does fortify the primary needs of sources, then sources may

experience little negative impact on their health. Thus, the present study included a preliminary investigation of the effects of ostracism on self-reported measures of health (e.g., stress, arousal, and anxiety) for both targets and sources.

The Train Ride— A Paradigm To Examine Ostracism Simultaneously In Both Targets And Sources

The present study aimed to compare the effects of ostracism and argument on the primary needs and self-reported health of targets and sources. To accomplish this aim, it was necessary to create a paradigm that allowed the simultaneous examination of both targets and sources. In most previous laboratory studies, the target was the focus of investigation, hence sources were confederates (e.g., the ball-tossing paradigm; Williams & Sommer, 1997) or, in the case of Internet studies, were computer generated (e.g., Williams, Cheung, & Choi, 2000). As a result, sources' responses to ostracism were not recorded as they were invalid or (in the case of the computer generated players) non-existent. Ciarocco et al. (2001) did empirically examine the effect of ostracism on sources but used confederates as targets, thus the effect of ostracism on both targets and sources was not simultaneously assessed.

But how can the complex interaction between targets and sources be examined in the laboratory? One possible way is through role-play. Role-play has a long history as a research paradigm within many disciplines. According to Shaftel and Shaftel (1976) role-play, in its simplest sense, involves assuming a role to "practice" the behaviour required in various situations. Unlike acting, role-play involves experiencing a problem or situation that is governed by its own constraints in order to further understand the situation (Van Ments, 1983). Role-play is used in various areas (e.g., in schools, industrial training, the military, and counselling) to demonstrate how the roles people play in day-to-day life potentially affect the outcome of a situation. Role-play also has its place in psychology as a research technique, allowing psychologists, especially those constrained by ethical concerns, to examine phenomena within ethical constraints and

without undue expense or danger (e.g., Haney, Banks, & Zimbardo, 1973; Haney & Zimbardo, 1998).

There were several reasons to expect that role-play might be an effective means of examining ostracism. First, confederates in the ball tossing study who were required to ostracise the target from a 5-minute ball game noted that it was uncomfortable carrying out the task. According to Williams and Sommer (1997), the confederates were competent at carrying out the task but “nevertheless indicated that it was difficult to engage in social ostracism” (p. 702). It seems that being aware that one is only playing the role of a source of ostracism does not shield the role-player from psychological impact. Second, while pilot-testing the ball-tossing paradigm, Williams noted that persons playing the role of targets stated that they were surprised that they still felt left out and awkward even though they were fully aware of the reason that the ball was not being thrown to them (Williams, 2001). Third, role-play has been previously used to examine prolonged episodes of ostracism. Specifically, Williams, Bernieri, et al., (2000) conducted a simulation—the Scarlet Letter Study—in which the researchers volunteered to play the role of both targets and sources of ostracism over a five day working week, recording their experiences as both targets and sources in a diary for the duration of the week. Examination of the diaries indicated that even though the participants consented to ostracise and be ostracised, they nevertheless recorded aversive feelings during their day as the target, and considerable discomfort (but with reports of heightened control or power) while ostracising.

Therefore, in view of the fact that there was some precedent for successfully using role-play to examine ostracism, a role-play paradigm was created to examine the short-term effect of social ostracism on both targets and sources. This paradigm—the “train ride”—is conceptually similar to the scenarios at the start of this chapter. Namely, three school/university friends find themselves on the same train home. The

target (who is sitting in between the two sources) begins a conversation but is ignored by the sources who only look and speak to each other, for the duration of the ride (5 minutes). The target is typically punitively ignored by the sources (i.e., the sources perceive that the target has mistreated them somehow and they ostracise the target in order to punish them). After 5 minutes of playing the role-play game, the “train” is halted and the targets and sources complete questionnaires to assess their experiences during the ride⁴.

By creating the train ride paradigm, it was possible to empirically examine the primary themes raised in the interviews. Moreover, it was possible to examine these themes from the perspective of both targets and sources. Thus, this study reports the results of three experiments that; a) investigated the effects of ostracism compared to another form of conflict— argument; and b) a provided a preliminary examination of the effects of ostracism on self-reported health.

Experiment 3.1: Ostracism Versus Argument

The first experiment examined the effects of ostracism and argument on the four primary needs identified by Williams’s model (belonging, control, self-esteem, and meaningful existence), as well as self-reported health-related responses of both targets and sources. In terms of needs, it was hypothesised that targets of ostracism would report lower levels of primary needs than targets of argument. This prediction was based on the fact that targets of an argument still receive attention (albeit negative attention) and therefore should still feel they belong to the group. Further, targets of argument could still gain control over the situation by responding to the sources’ accusations and by justifying their behaviour, whereas any such attempts by

⁴ Ostensibly, the paradigm did not have to be a train ride. It could have been any situation where three people are seated together. However, a train ride was chosen as it would be familiar to all participants. An unfamiliar scenario (e.g., a plane ride) may have caused some participants to worry about acting appropriately in the situation. As a result, they would have been less focused on the actual role-play task. A train ride is so commonplace that participants could focus all their attention on performing the task at hand.

targets of ostracism would appear to be unnoticed and inconsequential. Finally, through effective arguing, targets of argument would have the opportunity to retain their sense of self-worth and purpose. Ostracised targets, however, are not acknowledged by sources, nor are they given the opportunity to give their side of the situation, and thus would be unable to elevate their self-esteem and sense of purpose. In terms of health, it was hypothesised that for targets, the adverse psychological effects engendered by ostracism would be accompanied by similarly negative health effects.

Williams's model does not explicitly state the effects of *ostracising* on the four needs of sources, nor is there any experimental research that has examined this issue. However, narrative, interview, and diary studies have found that sources of ostracism report higher levels of control (e.g., Sommer et al., 2001; Williams et al., 1998; Williams, Wheeler, & Harvey, 2001), whereas anthropological research has suggested higher levels of belonging after ostracising (e.g., Gruter & Masters, 1986). Thus, it was predicted that sources of ostracism would report higher levels on at least these two needs than sources of argument.

Because the present experiment simultaneously examined both targets and sources, it presented a unique opportunity to compare the effects of ostracism and argument on targets and sources within each type of social conflict. Although there is no previous empirical research that has examined the effects of conflict simultaneously on targets and sources, it was predicted that targets of ostracism would report lower levels of belonging, control, self-esteem, and meaningful existence than sources of ostracism. However, because targets and sources of argument are interacting with each other (albeit adversely), it was more difficult to predict what differences, if any, would be observed between targets and sources in this condition.

Method

Participants and Design

Thirty-five high school students, 26 females and 9 males ($M = 15.6$ years, $SD = .65$), were randomly assigned to a 2 (role: target vs. source) X 2 (conflict: ostracism vs. argument) between-subjects design (ns shown in Table 1)⁵.

Procedure

Upon entering the laboratory, participants viewed a makeshift train consisting of several rows of chairs with three seats per row. In order to provide further cues for the train-riding context, signs found in trains (e.g., “no smoking,” “do not place your feet on the seats”) were placed on the walls and a tape recording of the sounds typically heard while riding in a train were played in the background. The experimenter played the role of “train conductor.” Equipped with a stopwatch and a whistle, the experimenter signalled the beginning and end of the ride.

Participants were randomly assigned train tickets that stipulated their role as targets (tickets marked T) or sources (tickets marked S) and the row to which they were assigned (see Appendix G). In each row, the two outer seats were occupied by sources, and the middle seat occupied by targets. Participants in the ostracism and argument conditions were placed in alternative rows so that participants would be unaware others in the same experimental condition. The seating configuration for a typical train ride can be seen in Figure 4.1.

Once seated, the participants were asked to complete consent forms (see Appendix H). All of the participants were then allocated train ride booklets. These booklets contained the scenario that detailed the participants’ roles during the train ride and the post-study questionnaire that examined primary needs and health-related

⁵ When allocating participants to groups, there were insufficient participants to make up the final group. To make up the trio, one of the experimenters took the role of one of the sources. The experimenter did not complete the post-experiment questionnaire.



Figure 4.1: Train Ride Seating Configuration

indicators (see Appendix I for target and source booklets). The role-play scenarios differed according to the role (target or source) and experimental condition (ostracism or argument). All scenarios began by instructing the participants to imagine that they were taking a crowded train home. Targets in both conditions were informed that they were seated in between two classmates (sources). They were also instructed that they were a bit worried about sitting in between the sources because the target had not invited the sources to their birthday party the previous weekend. Targets were told that they had wanted to invite the sources, but could not because of restrictions in the number of people that they could invite. It was necessary to give targets a valid reason for their conduct so that the effect on their primary needs and health during the ride could be attributed solely to the conflict manipulation and not to guilt/other emotional responses arising from their mistreatment of the sources. Also, assigning a reason for their actions provided targets with a response to the sources' accusations in the argument condition. Targets were then instructed to initiate a conversation with the sources.

Sources in both conditions were told that a classmate (the target) was sitting in between themselves and a friend (the other source). As in real world instances of ostracism, the sources were provided with a valid reason for why they were ignoring the target—they were informed that both they and their fellow source were angry at the target because the target did not invite them to their birthday party last weekend. The source scenarios differed in terms of how the source was instructed to express this anger when the target attempted to start a conversation; sources of ostracism were instructed to talk over the top of the target and “ignore (the target) completely no matter what they may say or do.” Sources in the argument condition were told to “argue with and insult (the target)” for not inviting the sources to the party. After participants read through their scenarios, the experimenter informed participants that

they would be role-playing their scenarios for five minutes, after which a whistle would be blown to signify the end of the ride. The experimenter then began the train ride.

After five minutes, the experimenter asked participants to fill out the post study questionnaire. Participants were asked to rate on an 100-point scale (0 = not at all, 100 = completely) the level to which they possessed each of the following four needs: belonging ("I felt a strong connection with the other two people in my train row," "I felt included in the conversation"), control ("I felt like I was in control over what was happening," "I felt frustrated"), self-esteem ("I felt badly about myself," "I felt superior"), and meaningful existence ("I felt invisible," "I felt my point of view was at least acknowledged by others"). The questionnaire also included four measures related to health ("I felt anxious," "I felt like I was getting a headache," "I felt like I was getting nauseous," and "I felt I was getting stressed out"). Participants were then thanked and thoroughly debriefed.

Results

Observations

Because this was the first attempt at using this role-play paradigm, of particular interest was whether it appeared to be engaging and meaningful to the participants. Observation of participants while the train was in motion suggested that this paradigm was engaging the participants in an active drama. While sources in both conditions seemed to take on their roles with enthusiasm and gusto, there was a marked contrast between targets in the argument and ostracism conditions. Targets in the argument condition generally tried to meet the sources' accusations and strenuously defend their actions. From casual observation, their behaviour was virtually the same as the sources. In contrast, when targets in the ostracism condition began to perceive that their attempts to join the conversation were unsuccessful, they became quiet. Their comments became less frequent and their attempts to engage the sources non-verbally

were curtailed to the point where (after about two minutes of ostracism) they sat with arms folded, staring down or off in the distance, and utterly silent as the noise and laughter continued around them. There were a minority of targets who, when faced with ostracism, began to try harder to engage the sources' attention (e.g., imposing themselves prominently in the sources' line of vision). However, by the third minute of ostracism, these targets too began to withdraw. At the end of the study, targets of ostracism were often the last to leave the train ride, demonstrating signs of lethargy and sluggishness that seemed to be a physical manifestation of their distress (see Baumeister & DeWall, in press).

The effect of ostracism and argument on the four primary needs

The items assessing the four needs were reverse scored where necessary, and the internal consistency of the items assessing each need was examined. Cronbach's alpha coefficients for each need were: belonging = .71; control = .76; self-esteem = .07; meaningful existence = .69. These coefficients suggested that the internal consistency for the items was reasonable except for self-esteem. Thus, the average for the two items assessing each need was used in the analysis, except for self-esteem in which the two items were analysed as two separate dependant variables, one called *superiority* and the other called *feeling badly*. Analyses of variance, followed up by tests of simple effects, were used to analyse the data⁶. The analyses are presented in the following manner: targets vs. sources (comparing targets of ostracism to sources of ostracism, and targets of argument to sources of argument); targets (comparing targets of ostracism to targets of argument); and sources (comparing sources of ostracism to sources of argument). The means and standard deviations for all variables can be seen in Table 4.1.

⁶ Selected Fs are presented in this chapter. Complete ANOVAs and follow-up analyses for this chapter are presented in Appendix S.

Targets vs. Sources. There were several main effects for role such that targets reported lower levels of belonging, control, superiority, and meaningful existence than sources (smallest F was for control, $F(1, 31) = 12.8, p < .001$). Further, there were significant interactions between role and type of conflict for belonging, control, and meaningful existence (smallest F was for meaningful existence, $F(1, 31) = 8.0, p < .01$).

Table 4.1.

Experiment 3.1. Means and standard deviations (in parentheses) of fundamental needs (0 = lowest; 100 = highest level of that need), and health-related self-reports, as a function of role (target or source) and type of conflict (ostracism, argument).

	Conflict			
	Ostracism		Argument	
	Target ($n = 6$)	Source ($n = 12$)	Target ($n = 6$)	Source ($n = 11$)
Fundamental Needs				
Belonging	9.3 (16.0)	66.7 (19.2)	59.8 (36.4)	57.5 (12.5)
'I felt badly about myself' ^a	54.8 (36.4)	59.3 (30.7)	44.8 (35.7)	67.7 (25.7)
Superiority	5.8 (7.0)	55.9 (29.3)	23.3 (17.6)	58.6 (23.6)
Control	13.7 (12.8)	69.0 (26.2)	40.8 (25.1)	42.9 (20.7)
Meaningful Existence	10.8 (18.8)	71.7 (19.5)	50.4 (37.6)	62.9 (22.0)
Health-Related Self-Reports				
Headache	62.8 (34.8)	28.7 (33.0)	51.7 (34.7)	15.4 (17.6)
Nausea	33.2 (29.0)	19.3 (31.4)	33.3 (39.2)	9.7 (9.9)
Stressed Out	66.7 (32.5)	25.3 (28.6)	57.0 (29.9)	28.8 (29.3)
Anxiousness	25.2 (23.5)	36.5 (29.1)	60.0 (40.2)	23.0 (15.6)

^a This item is reverse scored such that a high score indicates a higher feeling of well-being.

The nature of these interactions was that targets in the ostracism condition reported lower levels of belonging, control, and meaningful existence than sources in the ostracism condition (smallest F was for control, $F(1, 16) = 23.4, p < .001$), whereas targets and sources did not differ in the argument condition (all $F_s < 1$).

Targets. As predicted, targets of ostracism reported significantly lower levels of belonging, control, superiority, and meaningful existence than targets of argument (smallest F was for superiority, $F(1, 10) = 5.1, p < .05$).

Sources. Sources of ostracism tended to report higher levels of the four primary needs than sources of argument (except for feeling badly about oneself), however, the only significant difference was for control, $F(1, 21) = 6.97, p < .02$.

The effects of ostracism and argument on aspects of health

Targets vs. sources. There were several main effects for role such that targets reported experiencing more stress and felt they were developing a headache more than sources during the train ride (smallest F was for stress, $F(1, 31) = 10.8, p < .003$). Further, there was a significant interaction between role and type of conflict for anxiety, $F(1, 31) = 6.3, p < .02$, such that there was no significant difference in the anxiety levels of targets and sources in the ostracism condition ($F < 1$), but targets of argument reported higher levels of anxiety than sources of argument, $F(1, 15) = 7.6, p < .02$.

Although there were no interactions for stress, headache, or nausea, there were significant main effects for stress and headache. Because the experiment aimed to examine health differences between targets and sources in each conflict condition, the significant main effects for stress and headache were followed-up with simple effects analyses. In the ostracism condition, targets reported experiencing more stress than sources, $F(1, 16) = 7.7, p < .02$, and the difference between targets and sources for the onset of a headache approached significance, $F(1, 16) = 4.1, p = .059$. In the argument condition, there was no difference between targets and sources for stress, however

targets reported feeling the onset of a headache more than sources, $F(1, 15) = 8.4, p < .02$.

Targets. Contrary to predictions, there were no significant differences in responses to health-related questions between targets of ostracism and argument (largest F was for anxiousness, $F(1, 10) = 3.3, p = .097$).

Sources. As with targets, there were no significant differences in responses to health-related questions between sources of ostracism and argument (largest F was for anxiousness, $F(1, 21) = 1.9, p = .186$).

Discussion

The train ride paradigm represents a new way of examining the effects of social ostracism. Rather than using traditional ostracism paradigms that examine only the target (or only the source, Ciarocco et al., 2001), the train ride paradigm allowed targets and sources to be examined simultaneously. Further, it was clear from observing the participants while the train was in “motion” that they were absorbed in the role-play paradigm. Overall, the train ride paradigm appeared to be an effective and engaging way to examine the effects of social ostracism. Further, it allowed targets of ostracism to be compared to targets of argument. As predicted, targets of ostracism reported lower levels of belonging, control, superiority, and meaningful existence than targets of argument. These findings suggest that, at least in the present context, being ignored was more aversive than being argued with.

This experiment also investigated the effects of social conflict on sources. As predicted, sources of ostracism reported significantly higher levels of control than sources of argument. This finding provides empirical support for previous qualitative reports in which sources stated that ostracising allowed them to maintain control over both the situation and the target (see Williams & Zadro, 2001). It was also predicted that sources of ostracism would report higher levels of belonging than sources of

argument. Although in the predicted direction, this result was not significant. One possible reason for the lack of significant effect is the ambiguous nature of one of the questions assessing belonging— “I felt a strong connection with the two other people in my train row;” this question was, in retrospect, an inappropriate question, because sources of ostracism would not feel a sense of connection with both the co-source and the target. Thus, the wording of this question was modified in the subsequent experiments.

In the present experiment, targets of ostracism reported significantly lower levels of all four needs (except for one self-esteem item; feeling badly about oneself) than sources of ostracism. Targets of argument, however, only reported significantly lower levels of one self-esteem item (superiority) than sources of argument. These findings, coupled with the results of the comparisons between targets in each condition, and the comparisons between sources in each condition, suggest that while ostracism and argument are both aversive to targets, they have different outcomes in terms of need-threat. In terms of the impact on sources, it appears that ostracism was a more successful conflict strategy because it led to higher levels of control than arguing, and was more likely to thwart the primary needs of targets.

Finally, Experiment 3.1 examined some health-related consequences of social conflict. It was speculated that targets of ostracism would report more adverse health responses than targets of argument, however, the results failed to reveal any significant differences in responding to health-related questions between targets of ostracism and argument. Nor were there any significant differences in responding to health-related questions between sources of ostracism and argument. Instead, health effects were only apparent when comparing targets and sources within each type of interpersonal conflict. In the ostracism condition, targets reported more stress than sources, while in the argument condition, targets reported more anxiety and headache than sources. It is

puzzling that the lower levels of all needs experienced by targets, particularly targets of ostracism, was not accompanied by more negative effects to the aspects of health examined in the experiment. One possible problem could be the diverse nature of the health questions. Because this was a preliminary investigation, the effects of social conflict on several different aspects of health were examined in a general manner using single questions (e.g., nausea, headache, stress, anxiety). Thus, the subsequent experiments focused on assessing specific aspects of health using validated and theoretically derived questionnaires.

Experiment 3.2: The impact of ostracism and argument on four primary needs, stress, and arousal

Experiment 3.2 conceptually replicated the basic conditions of Experiment 3.1, with modifications aimed at increasing realism and improving measures. In the interviews with targets and sources, it was often stated that ostracism was typically preceded by an argument. In Experiment 3.1, sources began their interaction with targets by immediately ostracising or arguing with them, and maintained this form of conflict for the duration of the simulated train ride. In the present experiment, the scenarios were changed to better reflect real-life episodes of ostracism by asking sources to begin the role-play by arguing with the target for one minute and then, after a signal from the train conductor, to ostracise the target for the rest of the ride.

The present experiment also aimed to examine further whether ostracism and argument differentially affected self-reported health—specifically, the experiences of stress or arousal during the train ride. According to Mackay, Cox, Burrows, and Lazzerini (1978), arousal is an adaptive response which refers to the autonomic and somatic changes (e.g., accelerated heart rate, increased blood flow) that occur when an individual is presented with a demanding or novel situation, whereas stress is a detrimental response that occurs when the individual perceives that the demands of the

situation exceed their ability to cope. It was predicted that targets of ostracism would experience higher levels of stress (perhaps because of experiencing lower primary needs while being ignored), whereas targets of argument should experience higher levels of arousal (because of trying to actively defend their position during their argument with sources). The effect of ostracism and argument on the stress and arousal levels of sources was more difficult to predict. However, it was hypothesised that sources in both conditions would experience high arousal responses through the exertions of maintaining the argument or ostracism. Further, if being a source of ostracism results in higher levels of primary needs (such as control, as was found in Experiment 3.1), it was also predicted that sources of ostracism might report lower levels of stress than would sources of argument.

Method

Participants and Design

Fifty-seven female first-year psychology students from the University of New South Wales ($M = 19.2$ years, $SD = 2.6$ years) participated in a 2 (role: target vs. source) X 2 (conflict: ostracism vs. argument) between-subjects design (as shown in Table 4.2).

Procedure

The procedure was essentially the same as that used in Experiment 3.1, except for a few modifications. The scenarios presented to participants differed from those in Experiment 3.1 in two ways (see Appendix J for train ride booklets for targets and sources). First, because these participants were university rather than high school students, the reason for the conflict was changed so that it was more relevant to the sample. Second, sources in the ostracism condition in this experiment were asked to engage in a one-minute argument before ostracising the target.

All participants were told that they were seated with two classmates on the train ride home. Sources in both conditions were informed that they had been speaking to

the other source during the introductory psychology tutorial. After the tutorial, they saw the target inform the tutor that the sources had been talking during class. The sources were told that they were angry the target had told on them. All sources were instructed to argue with the target about the incident until they heard the train whistle (blown after the first minute). Sources in the argument condition were told to continue arguing after the whistle was blown, whereas sources in the ostracism condition were told to ignore the target and speak only to the other source after the whistle. Targets in both conditions were told that the sources had been making so much noise that they (the target) could not concentrate during the psychology tutorial, and so the target had informed the tutor at the end of the class, hoping the tutor could speak to the sources if they did it again. After speaking to the tutor, however, the target realised that the sources had observed the conversation with the tutor.

After participants had completed their consent forms (see Appendix K) and read through their scenarios, the experimenter signalled the beginning of the ride. After one minute, the experimenter blew the whistle, indicating to sources in the ostracism condition that they were to begin ignoring the target. After five minutes of role-play, the experimenter ended the ride. The participants then filled out the post-study questionnaire that examined each of the four needs. The questionnaire was generally the same as that used in Experiment 3.1, however there were additional questions for some needs, and other questions were modified: belonging ("I felt a special bond with at least one other person in my train row," "I felt included in the group"), control ("I felt an unusually strong sense of control over what was happening," "I felt frustrated"), self-esteem ("I felt badly about myself," "I felt superior to at least one other person in my train row"), and meaningful existence ("I felt invisible," "It was as though my existence was meaningless," "I felt that I was acknowledged by at least one other person in my train row").

To assess stress and arousal, the Stress-Arousal Adjective Checklist (SACL, Mackay, Cox, Burrows, & Lazzerini, 1978; modified by King, Burrows & Stanley, 1983) was given to participants. This 20-item scale consists of two 10-item subscales, one assessing stress (e.g., tense, worried) and the other assessing arousal (e.g., active, energetic). Participants were instructed to rate the 20 words according to four possible response patterns ($++$ = definitely yes, $+$ = slightly yes, $?$ = not sure or don't understand, $-$ = definitely not). The participants were then thanked and debriefed.

Results

Observations

Initially, all participants, including those in the ostracism condition, engaged in an argument for the first minute of the ride. From observation, it was impossible to tell the groups apart— all sources enthusiastically began to argue with the targets, all targets energetically defended their position. After the whistle was blown, however, the scene changed dramatically. While sources and targets in the argument condition continued their argument without interruption, sources of ostracism began to ignore the protests of the target, and began to talk amongst themselves. Targets of ostracism initially kept trying to argue with the sources, turning from one source to another, clearly perplexed as they attempted to maintain the argument and eye contact. However, it soon became apparent to targets of ostracism that they were being ignored and they began to show the same signs of lethargy that were apparent in Experiment 3.1.

The effect of ostracism and argument on the four primary needs

The items assessing each of the four needs were reverse scored where necessary, and the internal consistency of the items assessing each need was examined. Cronbach's alpha coefficients were: belonging = .82; control = .62; self-esteem = .15; and meaningful existence = .91. On the basis of these coefficients, the average for the items assessing each need was used in the analysis except self-esteem where the two

items, "I felt badly about myself" and "I felt superior," were analysed separately.

Analyses of variance, followed up by tests of simple effects, were used to analyse the data. The means and standard deviations for all variables can be seen in Table 4.2.

Targets vs. Sources. There were main effects for role such that targets reported lower levels of belonging, control, superiority, and meaningful existence than sources (smallest F was for superiority, $F(1, 53) = 8.7, p < .01$). Further, there were significant

Table 4.2.

Experiment 3.2. Means and standard deviations (in parentheses) of fundamental needs (0 = lowest; 100 = highest level of that need), and health-related self-reports (higher score indicates more stress/arousal), as a function of role (target or source) and type of conflict (ostracism, argument).

	Conflict			
	Ostracism		Argument	
	Target ($n = 10$)	Source ($n = 20$)	Target ($n = 9$)	Source ($n = 18$)
Fundamental Needs				
Belonging	8.0 (13.4)	73.3 (17.9)	23.3 (21.2)	65.3 (20.0)
I felt badly about myself ^a	46.0 (38.4)	49.0 (28.6)	41.1 (27.6)	55.6 (23.6)
Superiority	11.0 (18.5)	54.0 (33.2)	41.1 (37.2)	48.9 (29.1)
Control	17.0 (22.0)	65.5 (17.8)	23.3 (15.6)	56.1 (14.8)
Meaningful Existence	25.3 (18.6)	84.8 (20.0)	85.2 (13.0)	79.6 (20.6)
Health-Related Self-Reports				
Stress	6.1 (4.1)	2.7 (3.2)	5.7 (3.4)	3.7 (3.1)
Arousal	3.2 (2.4)	7.1 (2.4)	6.9 (3.2)	6.7 (3.3)

^a This item is reverse scored such that a high score indicates a higher feeling of well-being.

interactions between role and type of conflict for belonging, superiority, and meaningful existence (smallest F was for superiority, $F(1, 53) = 4.2, p < .05$). These interactions were the result of targets of ostracism reporting lower levels of belonging, superiority, and meaningful existence than sources of ostracism (smallest F was for superiority, $F(1, 28) = 14.4, p < .001$), whereas in the argument condition, targets, when compared to sources, only reported lower levels of belonging, $F(1, 25) = 25.4, p < .0001$.

Targets. As predicted, targets of ostracism reported lower levels of all needs than targets of argument (except for feeling badly about oneself), but these results only attained statistical significance for superiority and meaningful existence (smallest F was superiority, $F(1, 17) = 5.2, p < .05$).

Sources. Although sources of ostracism generally reported higher levels of all needs than sources of argument (except for feeling badly about oneself), these differences were not significant (largest F was for control, $F(1, 36) = 3.1, p = .09$).

The effect of ostracism and argument on stress and arousal

Targets vs. Sources. Analysis revealed that targets reported higher levels stress than sources, $F(1, 53) = 7.98, p < .05$, whereas sources reported higher levels of arousal than sources, $F(1, 53) = 5.2, p < .05$. There was also a significant interaction between role and type of conflict for arousal, $F(1, 53) = 6.5, p < .02$, such that in the ostracism condition, targets reported lower levels of arousal than sources, $F(1, 28) = 17.2, p < .001$, but no such effect was observed in the argument condition, $F < 1$.

Although the interaction for role and type of conflict for stress was not significant, the significant main effect for stress was explored with simple effects analyses. This showed that in the ostracism condition, targets reported significantly higher levels of stress than sources, $F(1, 28) = 6.3, p < .02$, but this pattern did not occur in the argument condition, $F(1, 25) = 2.2, p = .15$.

Targets. As predicted, targets of argument reported higher levels of arousal than targets of ostracism, $F(1, 17) = 8.3, p < .01$. Although targets of ostracism tended to report higher levels of stress than targets of argument, this difference was not significant, $F < 1$.

Sources. There were no significant differences in the arousal or stress levels of sources of ostracism and argument (largest F was for stress, $F(1, 36) = 1.0, p = .32$).

Discussion

In Experiment 3.2, the train ride paradigm was modified such that the ostracism was preceded by a minute-long argument in order to have the scenario better resemble real-life instances of ostracism. Experiment 3.2 also used a different sample than was used in Experiment 3.1, university rather than high school students. The university participants appeared to show the same enthusiasm during the train ride as did the high school participants. Moreover, the targets of ostracism in both experiments showed the same glazed, lethargic, hopeless demeanour that seems to be the characteristic non-verbal behaviour of those who are ostracised.

It was predicted that targets of ostracism would report lower levels of primary needs than targets of argument. This trend was found, however, it was significant only for self-esteem (superiority) and meaningful existence. Sources of ostracism tended to report higher levels of primary needs than sources of argument, yet none of these differences were significant. However, it must be pointed out that a significant effect for sources only occurred for control in Experiment 3.1. Thus, these forms of role-played social conflict appear to have a much weaker effect on the needs of sources than they do on the needs of targets.

As in Experiment 3.1, several interesting findings arose from comparisons between targets and sources within each form of conflict. Targets of ostracism reported lower levels of belonging, control, superiority, and meaningful existence than sources of

ostracism, whereas targets of argument only reported lower levels of belonging and control. Again, these results suggest that ostracism may be a more aversive form of conflict than argument in terms of the relative impact on targets and sources.

Experiment 3.2 also examined the effects of conflict on stress and arousal. Because of the vigorous nature of arguing, it was predicted that argument would be more arousing for targets than ostracism. The data supported this prediction. It was also predicted that ostracised targets would experience more stress than targets who were argued with. Although a trend in this direction was observed, it was not significant. Nor were there any significant differences in stress or arousal reported by sources of argument and ostracism.

Comparisons between targets and sources within each type of conflict yielded suggestive findings for stress and arousal. Targets of ostracism reported higher levels of stress but lower levels of arousal than sources of ostracism. In contrast, there were no significant differences in the stress and arousal levels of targets and sources of argument. Again, this suggests that ostracism has a different impact on both targets and sources than does argument.

Although Experiments 3.1 and 3.2 compared the effects of ostracism to argument, it is important to differentiate the effects of these two forms of conflict from social inclusion. The addition of a social inclusion condition would allow replication of previous ostracism research that compared the effects of ostracism to inclusion, and would also ensure that the loss of the needs experienced by targets of ostracism and argument are due to the nature of the conflict rather than some aspect of the paradigm itself (e.g., the seating position of targets in the train). Thus, Experiment 3.3 examined the effects of ostracism, argument, and social inclusion on targets and sources.

Experiment 3.3: The effect of ostracism, argument, and social inclusion on needs and anxiety

Experiments 3.1 and 3.2 examined the effects of ostracism compared to argument. However, an inclusion condition (in which targets join in a non-conflictual conversation between sources) is necessary in order to demonstrate that the effects of ostracism and argument on primary needs significantly differ from non-conflictual social interaction. It was predicted that targets of either form of conflict would report lower levels of the needs than targets of inclusion. Moreover, it was hypothesised that targets of ostracism would report lower levels of the primary needs than targets of argument. Further, trends from the previous experiments suggested that sources of ostracism would report higher levels of control and possibly belonging than sources of argument.

Experiment 3.3 also examined the effects of ostracism and argument on anxiety. State anxiety refers to a prolonged stress response that is characterised by tension, fear, and nervousness, whereas trait anxiety refers to individual differences in the propensity to perceive situations as threatening and, consequently, display anxiety (Spielberger, 1983). Although anxiety is a psychological construct, it has a physical component, such as feeling jittery or strained. It was predicted that targets of either form of conflict would report more state anxiety than targets of social inclusion. No specific predictions for sources were made, other than sources of inclusion should show lower levels of anxiety than sources of ostracism or argument.

Method

Participants and Design

One hundred and thirty eight second-year psychology students from the University of New South Wales were randomly assigned to a 2 (role: target vs. source)

X 3 (social interaction: ostracism vs. argument vs. inclusion) between-subjects design (ns shown in Table 4.3).⁷

Procedure

The scenarios were slightly modified from those in Experiment 3.2 (see Appendix L). Sources in the ostracism and argument conditions were told that they had missed a tutorial and needed to catch up, but the target had refused to lend them their notes despite the sources' assurances that they would return the notes safely as soon as possible. Sources in the argument condition were told to argue with the target during the ride; those in the ostracism condition were told to argue with the target initially for the first minute, and then ostracise them for the remaining 4-minutes of the train ride. Targets in the ostracism and argument conditions were informed that they had not allowed the sources to borrow their class notes because they feared that they would be returned damaged or not at all. Because Experiment 3.3 aimed to compare the effects of ostracism and argument to a relatively pleasant conversation, targets and sources in the inclusion condition were not informed about the note-borrowing incident—they were only told that they had met two classmates on the train ride home, and were asked to have a pleasant conversation for the duration of the ride.

The post-study questions assessing primary needs were the same as those used in Experiment 3.2. Participants also completed the state anxiety component of the Spielberger (1983) State-Trait Anxiety Inventory (STAI) where they were asked to rate the extent to which they agreed with 20 statements *at this moment* on a 4-point scale (in which 1 = not at all, and 4 = very much so). Two weeks after the train ride, participants completed the trait anxiety component of the inventory, in which they were required to rate on a 4-point scale (in which 1 = almost never, and 4 = almost always) the extent to

⁷ Because Experiment 3.3 was conducted as part of a classroom tutorial, confidentiality requirements prevented the questionnaire from assessing identifying characteristics of the participants.

which they agreed with 20 statements *in general*. Participants were then fully debriefed.

Results

Observations

In the first minute of the train ride, participants in the ostracism and argument conditions were indistinguishable, as targets and sources in the conflict conditions vocally and forcefully tried to defend their stance. This was in marked contrast to the participants in the inclusion condition who seemed to be engaging in a pleasant conversation. After the whistle was blown, the difference between the conflict conditions became apparent. Although participants in the argument condition continued their argument, sources in the ostracism condition began to ignore the targets' arguments and started to have a conversation with each other, their behaviour similar to those in the inclusion condition who leaned close to one another, often smiling and laughing during their animated conversation. As targets of ostracism began to realise they would not be acknowledged by the sources, they started to show the same signs of helplessness and lethargy as targets in the previous experiments.

The effect of ostracism, argument, and inclusion on the four primary needs

The items assessing each of the four needs were reverse scored where necessary, and the internal consistency of the items assessing each need was examined. Cronbach's alpha coefficients for each need were: belonging = .75; control = .56; self-esteem = -.22 and meaningful existence = .85. On the basis of these coefficients, the average of the items assessing each need was used in the analysis except self-esteem where the two variables, "I felt badly about myself" and "I felt superior" were analysed separately. Analyses of variance, followed up by tests of simple effects and post hoc comparisons using Tukey's HSD procedure, were used to analyse the data. The means and standard deviations for all variables can be seen in Table 4.3.

Table 4.3.

Experiment 3.3. Means and standard deviations (in parentheses) of fundamental needs (0 = lowest; 100 = highest level of that need), and anxiety (+ scores = higher state vs. trait anxiety, - scores = lower state vs. trait anxiety), as a function of role (target or source) and type of social interaction (ostracism, argument, inclusion).

	Social Interaction					
	Ostracism		Argument		Inclusion	
	Target (<i>n</i> = 16)	Source (<i>n</i> = 32)	Target (<i>n</i> = 15)	Source (<i>n</i> = 30)	Target (<i>n</i> = 15)	Source (<i>n</i> = 30)
Fundamental Needs						
Belonging	6.2 (8.1)	80.2 (11.5)	25.2 (26.2)	61.0 (16.9)	54.0 (16.7)	64.4 (16.7)
Superiority	13.6 (19.5)	66.1 (27.4)	33.8 (33.2)	41.2c (26.8)	19.1 (24.7)	32.5 (29.6)
I felt badly about myself ^a	43.8 (31.1)	53.0 (30.6)	46.3 (34.3)	63.1 (29.0)	86.7 (13.1)	82.2 (19.0)
Control	18.2 (26.1)	72.4 (16.4)	30.2 (21.9)	54.6 (17.6)	60.7 (16.9)	65.7 (15.7)
Meaningful Existence	22.9 (14.2)	88.2 (9.8)	73.6 (20.8)	81.3 (14.0)	80.9 (23.8)	85.8 (15.7)
Health-Related Self-Reports						
Anxiety (State Anxiety scores - Trait Anxiety scores)	8.2 (11.8)	-4.2 (10.6)	6.2 (10.7)	-1.7 (10.5)	-6.9 (8.9)	-7.0 (11.4)

^a This item is reverse scored such that a high score indicates a higher feeling of well-being

Targets vs. Sources. Once again, targets reported lower levels of belonging, control, superiority, and meaningful existence than sources (smallest *F* was for superiority, $F(1, 132) = 24.3, p < .0001$). Further, there were significant interactions between role and type of social interaction for belonging, control, superiority, and meaningful existence (smallest *F* was for superiority, $F(2, 132) = 8.3, p < .001$). Simple effects analyses revealed that in the ostracism condition, targets reported lower levels of belonging, control, superiority, and meaningful existence than sources (smallest *F* was for superiority, $F(1, 46) = 46.6, p < .0001$). In the argument condition, targets reported

feeling lower levels of belonging and control than sources (smallest F was for control, $F(1, 43) = 16.2, p < .001$). In the inclusion condition, there were no significant differences in the self-reported needs of targets and sources (largest F was for belonging, $F(1, 43) = 3.9, p < .06$).

Targets. There were significant differences between the targets in the three conditions for belonging, control, feeling badly about oneself, and meaningful existence (smallest F was for feeling badly about oneself, $F(2, 43) = 11.3, p < .0001$). Pairwise comparisons found that, as predicted, targets of inclusion reported higher levels of belonging, control, and felt better about themselves than targets of ostracism and argument ($ps < .001$). Targets of inclusion also reported higher levels of meaningful existence than targets of ostracism ($p < .001$) but not targets of argument ($p = .568$). It was also predicted that targets in the ostracism condition would report lower levels of primary needs than targets of argument. There was support for this hypothesis for belonging and meaningful existence (largest $p = .017$), but the trends for control and both self-esteem items, although in the predicted direction, did not reach significance (smallest $p = .093$).

Sources. There were significant differences between sources in all three conditions for belonging, superiority, feeling badly about oneself, and control (smallest F was for control, $F(2, 89) = 9.1, p < .001$). Pairwise comparisons showed that sources of ostracism reported significantly higher levels of belonging and superiority than sources of inclusion ($ps < .0001$). Further, sources of ostracism reported feeling worse about themselves than sources of inclusion ($p < .0001$). Compared to sources of inclusion, sources of argument reported significantly lower levels of control and felt worse about themselves (largest $p = .029$). When sources of conflict were compared, sources of ostracism reported significantly higher levels of belonging, control, and superiority than sources of argument (largest $p = .002$).

The effect of ostracism, argument, and inclusion on anxiety.

Anxiety was examined by determining whether the level of anxiety for targets and sources after the train ride (i.e. state anxiety) was higher or lower than the anxiety generally experienced by these individuals (i.e., trait anxiety). This change in anxiety was calculated by subtracting the trait anxiety score from the state anxiety score for each participant. Thus, a positive anxiety score indicated that participants experienced more anxiety during the train ride than they generally experience. The mean scores for this measure are depicted in Table 4.3.

Targets vs. sources. Overall, targets reported more anxiety on the train ride than sources, $F(1, 117) = 11.1, p < .001$. There was also a significant interaction between role and type of conflict, $F(2, 117) = 3.2, p < .05$. Simple effects analyses found that in both conflict conditions, targets reported higher levels of anxiety than sources (for ostracism, $F(1, 42) = 12.2, p < .001$; for argument, $F(1, 37) = 4.8, p < .04$). However, in the inclusion condition, targets and sources did not differ, $F < 1$.

Targets. There was a significant difference for anxiety reported by targets, $F(2, 39) = 8.9, p < .001$. This effect was due to targets of conflict reporting higher levels of anxiety during the ride than did targets of inclusion (largest $p = .006$). The difference between targets in the two conflict conditions was not significant ($p = .87$).

Sources. All sources reported slightly lower anxiety on the train ride than they generally experience but there was no group differences, $F(2, 78) = 1.5, p = .22$.

Discussion

Experiment 3.3 examined the effects of ostracism, argument, and social inclusion on the four needs and anxiety of targets and sources. The primary purpose of the experiment was to ensure that the effects of being a target or source of ostracism or argument differed from being a target and source of social inclusion. In accordance with the predictions, being the target of social interaction was less aversive than being a

target of social conflict. Targets of inclusion reported higher levels of belonging, control, and self-esteem (felt better about themselves) than targets of conflict, as well as having higher levels of meaningful existence than targets of ostracism. Moreover, there were no differences for any measure between targets and sources of inclusion.

When the two types of conflict were compared, targets of ostracism reported lower levels of all four needs than targets of argument, but these differences were only significant for belonging and meaningful existence. This suggests that some form of social interaction, even if it is argumentative, is better than being ignored.

Rather than just finding trends for the predictions about sources (as in the previous experiments), refinements to the questions and reduced variability in the data revealed that sources of ostracism reported significantly higher levels of belonging, control, and self-esteem (superiority) than sources of argument, and higher levels of belonging and self-esteem (superiority) than sources of inclusion. These findings support previous anthropological and qualitative data that ostracising a target may be more beneficial to the primary needs of sources than argument or even engaging in a pleasant conversation (see Gruter & Master, 1986).

The four need levels of targets and sources were also compared within the conflict and inclusion conditions. There were no differences in the needs of targets and sources of inclusion. In the conflict conditions, however, targets of ostracism reported lower levels of belonging, control, self-esteem (superiority), and meaningful existence than sources of ostracism, whereas targets of argument reported lower levels of only belonging and control than sources of argument.

Experiment 3.3 also examined the effects of conflict and inclusion on anxiety. The level of anxiety experienced by targets of conflict was significantly higher than the anxiety experienced by targets of inclusion but there was no significant difference between targets of ostracism versus targets of argument. Sources in all three conditions,

however, reported similarly low levels of anxiety during the ride. When the anxiety levels of targets and sources were compared within the conflict conditions, targets of both ostracism and argument reported higher levels of anxiety during the ride than sources.

General Discussion

The present chapter explored several themes identified in the interviews with targets and sources of long-term ostracism. First, the effects of ostracism were examined not only in targets (as in previous research) but also in sources. Second, the effects of ostracism were compared to the effects of argument in order to discern whether ostracism is different from another common type of aversive social interaction. Finally, the study examined the effects of ostracism on various health-related reports of targets and sources. In order to investigate these issues, a new role-play paradigm was developed to simultaneously examine the impact of social ostracism (and argument) on targets and sources.

In using a role-play paradigm, there is the potential criticism that the findings of the study may be an artefact of demand characteristics. However, this criticism seems unwarranted in view of several factors. First, in earlier observations with pilot-testing the ball-tossing paradigm (Williams & Sommer, 1997), and in the Scarlet letter study (Williams, Bernieri, et al. 2000), it was apparent that the impact of ostracism could be felt even when anticipated and even when punitive attributions were absent. That is, even when one is seemingly playing a role or knows generally what to expect, ostracism is still threatening, and frustrating. Second, the present experiments all employed a between-subjects design that compared participants experiencing two different forms of conflict. Although comparison between targets and sources could possibly be anticipated by participants and hence be subject to demand characteristics, participants were unaware that there was an argument and an ostracism scenario (and inclusion, in

Experiment 3.3) being simultaneously conducted on the train. Thus, participants could not have reported their responses to social conflict to produce differences between targets of ostracism and argument, nor between sources of ostracism and argument. Nor could they anticipate the disparity in effects between conflict conditions when targets and sources were compared within each conflict condition.

Regardless of whether participants in each experiment were high school or university students, they seemed intrigued with the train ride and played their roles with enthusiasm. Participants were engaged in an active drama that resulted in findings comparable to other laboratory-based procedures designed to examine social ostracism (e.g., Lawson Williams & Williams, 1998; Williams & Sommer, 1997). After only 5-minutes of ostracism during the train ride, targets generally reported a decrease in needs and showed non-verbal signs of dejection and distress.

In the earlier studies conducted by Williams and his colleagues (for review see Williams & Zadro, 2001), the effects of being ostracised were compared to the effects of being socially included. That research did not aim to show that ostracism was any different from any other negative experience. Yet, the model postulates that ostracism has the unique potential to threaten or thwart four fundamental needs identified in the psychological literature as essential to motivation and wellbeing, more so than other typical negative experiences. Therefore, in the present study, the effects of being a target of ostracism were compared to the effects of being a target of argument.

The basic premise of the study was that, unlike targets of argument, targets of ostracism have less opportunity to actively participate in the conflict, disabling them from engaging in behaviours that could help them regain threatened needs. Therefore, it was predicted that targets of ostracism would report lower levels of all four needs than targets of argument. In general, this prediction was supported, as targets of ostracism reported significantly lower levels of belonging, control, self-esteem

(superiority), and meaningful existence in Experiment 3.1; self-esteem (superiority), and meaningful existence in Experiment 3.2; and belonging and meaningful existence in Experiment 3.3, when compared to targets of argument. However, it is apparent that the pattern of needs lowered by ostracism compared to argument was not consistent across experiments. One potential reason for such inconsistent findings is the modifications to the ostracism manipulation used after Experiment 3.1. In order to better reflect instances of real-life ostracism, the ostracism manipulation was altered, such that targets argued with sources for one minute and were then ignored for the remaining 4 minutes in Experiments 3.2 and 3.3, rather than completely ignored for the full 5 minutes as in Experiment 3.1. It is evident from the results that 5 full minutes of ostracism lowered all four primary needs compared to argument. However, the inclusion of one minute of argument varied the pattern of the four needs affected by the subsequent ostracism. This was particularly the case for control, for although targets of ostracism reported significantly lower levels of control compared to targets of argument in Experiment 3.1, one minute of arguing with the two sources was sufficient to bolster their sense of control such that targets of ostracism did not report significantly lower levels of control in Experiment 3.2 or Experiment 3.3. It seems that a period of acknowledgement and interaction with sources (however unpleasant) may reduce the effects of ostracism on the primary needs, possibly as it allows targets to attain some control over the situation. The most consistent finding across the three experiments was that being ostracised significantly lowered meaningful existence compared to being argued with or included in a conversation. This suggests that ostracism is unique from argument as an interpersonal tactic in the sense that being ignored makes one feel invisible and meaningless to the source and the situation. When one is the target of an argument, there is still the opportunity to have a meaningful impact on the conversation and the thoughts and feelings of the source—a fact that is

supported by the finding that there was no significant difference in reported levels of meaningful existence between targets in the argument condition and those in the inclusion condition (Experiment 3.3). Thus, it seems that any form of social interaction, whether positive or negative, is necessary to maintain a sense of purpose.

The present study also examined the effects of social conflict on sources. Previous research focused on targets of ostracism, with very little experimental research examining the effects of ostracism on sources (cf., Ciarocco et al., 2001). The present findings generally revealed that sources of ostracism reported higher levels of some needs than sources of argument, specifically, control in Experiment 3.1, and belonging, control, and self-esteem (superiority) in Experiment 3.3. Moreover, in Experiment 3.3, sources of ostracism even reported higher levels of belonging and self-esteem (superiority) than sources of inclusion, which suggests that the fortifying effects of ostracising may even surpass those of participating in a pleasant conversation. These findings support previous anthropological and sociological speculations (Gruter & Masters, 1996), and non-experimental self-report data (Sommer et al., 2001; Williams, Bernieri et al., 2000; Williams, Shore, & Grahe, 1998) that suggest that ostracism serves to unify groups. Apparently, it empowers sources and elevates their feelings of self-importance.

These findings, however, contradict those of Ciarocco et al. (2001) who reported only aversive cognitive and physical effects in sources as a result of ostracising when compared to inclusion. One possible reason for the discrepancy in results could be that the number of sources ostracising the target differed in the two studies. In the Ciarocco et al. study, a single source ostracised the target whereas in the present study, the target was ostracised by two sources. When ostracising alone, the solitary source is solely responsible for the ostracism episode. They must constantly monitor their behaviour and the behaviour of the target. As such, they are no doubt keenly aware of

the discomfort of the target, and the fact that they are directly responsible for the target's misery. It is thus not surprising that sources in that study manifested signs of cognitive and physical depletion. In the present study, the source is one of two people carrying out the tactic and hence they share the "burden of blame" with their co-source. Their responsibility for carrying out the tactic is shared (and possibly diffused) with their co-source, which forges a bond between the two sources. Each source does not have to pay attention to the target as they are engaged in a pleasant conversation with their co-source. As a result, they are probably less aware of the target's anguish and may feel less personally responsible. All these factors may lead sources to experience less deleterious effects while ostracising, and more positive effects resulting (partially) from their bond with their co-source. Thus, as the two studies present two very different experimental situations for sources, it is not surprising that the results of the studies are so discrepant.

The train ride paradigm also provided the unique opportunity to compare targets and sources within each form of conflict, thereby permitting an examination of how conflict affects both parties. In all three experiments, targets of ostracism reported lower levels of belonging, control, meaningful existence, and self-esteem (superiority) than sources of ostracism. Comparatively, in the argument condition, there were fewer differences between targets and sources (lower levels of superiority in Experiment 3.1, and belonging and control in Experiments 3.2 and 3.3). As expected, there were no significant differences between targets and sources of inclusion in Experiment 3.3. These results provide support for the contention that ostracism is a unique form of conflict that simultaneously deprives targets of fundamental needs, while fortifying the needs of sources.

The present study also examined the effects of ostracism and argument on aspects of health. The few studies that have previously examined the effects of

ostracism on health-related variables have largely focused on the effects of physical isolation, rather than being excluded and ignored while in the presence of others. The present study examined the effects of ostracism and argument on various indicators of health (i.e., varied health responses in Experiment 3.1, stress and arousal in Experiment 3.2, and anxiety in Experiment 3.3). When comparing across targets, or comparing across sources, the results were not significant or were inconsistent. However, the results were more consistent when comparing targets and sources within each type of social interaction. As predicted, there were no differences between targets and sources of inclusion (on anxiety; Experiment 3.3). Targets of argument reported feeling more anxious (in both Experiments 3.1 and 3.3), and more likely to feel the onset of a headache (Experiment 3.1) than sources of argument. In contrast, targets of ostracism reported feeling more stressed (in both Experiments 3.1 and 3.2), less aroused (Experiment 3.2), and more anxious (Experiment 3.3) during the ride than sources of ostracism. On the face of it, these results may appear surprising given the lack of direct participation required of targets of ostracism. It seems that merely being exposed to being ignored and excluded is sufficient to trigger negative health-related reactions (see Eisenberger et al., 2003).

Although the primary aim of this study was to examine the effects of ostracism and argument on the health and needs of targets and sources, one of the more interesting facets of this study was observing the non-verbal behaviour of participants. Regardless of whether the participants were high school or university students, the patterns of non-verbal behaviours between targets and sources in the conflict conditions were identical. It was possible to look at the train without knowing who was assigned to what condition and to clearly see targets of ostracism, silent and withdrawn, amongst the noise and activity of the sources who spoke over the top of them, and the targets and sources who argued around them. Targets of ostracism were often the last

to leave the train— one might have predicted that after five minutes of silence they would be the first to leave. It seemed as though the paralytic lethargy that results from ostracism was maintained even after the study had finished and targets had been divested of their role.

Although the findings of the present study enrich the current ostracism literature by comparing ostracism to argument, and exploring the effects of ostracism on both targets and sources, it has also added an engaging method of inducing ostracism to the existing repertoire of empirical ostracism paradigms. The train ride is quite adaptable, and hence can be easily modified to examine any aspect of the model or of ostracism in general. For instance, it could be used to address whether different types of ostracism (e.g., punitive, oblivious, defensive) differentially affect primary needs, or the way in which personality traits moderate the effects of ostracism on both targets and sources.

IMPLICATIONS OF FINDINGS FOR THE PRESENT RESEARCH PROJECT

In the interviews conducted with targets and sources of long-term ostracism (Chapter 2), targets typically reported experiencing more detrimental psychological and somatic effects as a result of ostracism than did sources. The present study confirmed these self-reports by empirically demonstrating that targets of ostracism experience significantly lower primary needs than sources during ostracism. But is it the case that every ostracism experience is equally aversive for targets? Or are there some elements of the ostracism experience that determine the extent to which targets' primary needs are threatened? In Chapter 5, two potential moderators of ostracism were examined—the identity of the source and attributions for ostracism.

In addition to examining the whether these two factors moderated the effect of ostracism on the four primary need, Chapter 5 also investigated the effects ostracism on somatic responses. The present study was successful in using a new ostracism paradigm to examine the effects of ostracism on the primary needs of targets and

sources. However, it was less successful in clearly delineating the effects of ostracism on the self-reported health of targets and sources. Overall, it seems that 5 minutes of ostracism was not sufficient to induce significant, consistent, deleterious changes to reports of physical or psychological health. The nature of the self-reported somatic changes during short-term ostracism may be minor, or may be imperceptible, to the target or source. This suggests that if there are health-related effects of ostracism, self-report measures may not be the most sensitive means of measurement. Thus, Chapter 5 investigated whether source identity and causal attributions moderated the psychological *and* physiological (i.e., cardiovascular) effects of ostracism.

CHAPTER 5

Source identity, attributions, and the psychophysiological effects of ostracism

*"In the end, we will remember not the words of our enemies,
but the silence of our friends."*
Martin Luther King Jr.

"Silence is a text easy to misread."
A. A. Attanasio, "The Eagle and the Sword"

Let us return to the scenario that began the previous chapter. Imagine that you are sitting on the train, making your way home from work. During this trip, you are ignored by the two people sitting on either side of you. Regardless of what you do or what you say, they pay no attention to you and refuse to include you in the conversation—it is as if you were invisible. Now, would your response to ostracism—your thoughts, your feelings, your behaviours—differ according to the identity of the sources? That is, would the experience be more traumatic if you were ostracised by members of your own family as opposed to two acquaintances? Or two colleagues as opposed to two strangers? Or is the very act of ostracism so powerful that it will have detrimental psychological consequences regardless of the identity of the sources?

STUDY 4: THE INFLUENCE OF MODERATING FACTORS ON THE PSYCHOLOGICAL AND HEALTH-RELATED EFFECTS OF OSTRACISM

The interviews described in Chapter 2 demonstrated that ostracism permeates all possible relationships, whether casual acquaintances (e.g., between customers and service providers), professional contacts (e.g., between employers and employees or work colleagues), or intimate others (e.g., partner, family members). To an objective observer, each of these instances of ostracism may seem fundamentally alike—that is,

the behaviours that are used to ostracise a work colleague may be identical to those used to ostracise a spouse (e.g., no eye contact, not replying to a question, leaving the room when the target enters). Yet to the target, the identity of the source may phenomenologically change the experience of ostracism. For instance, being ignored by one's partner would most certainly seem to be more aversive than being ignored by a stranger sitting next to you on a train. Indeed, in the interviews, the most deleterious psychological and health-related effects of ostracism were reported by targets who had been excluded by their spouse or partner—the person with whom the target should have enjoyed their most fulfilling relationship.

Although assessing the phenomenological differences between being ignored by a loved one or a stranger is relatively easy during an interview, it is far more difficult to systematically assess in the laboratory. It would be impractical (and possibly unethical) to arrange for participants to be ostracised by their loved ones in any of the laboratory-based ostracism paradigms. Thus, assessing the impact of source identity during ostracism must be approached from a different perspective.

One possible approach to this issue is to examine the effects of ostracism when the relationship between target and source is as superficial as possible. Although the interviews suggest that the most emotionally devastating episodes of ostracism occur when being ignored by a loved one (typically partner or spouse), the laboratory research suggests that it is not necessary to have an intimate relationship with the source to experience lower primary needs when rejected and or ignored. For instance, the train ride study described in Chapter 4 demonstrated that targets experience lower primary needs when ostracised by two of their classmates. Moreover, research by Williams and his colleagues has demonstrated that targets report lower needs when excluded or ignored by strangers during a ball-tossing game (Williams & Sommer, 1997), a conversation (EzraKhovich et al., 1998) or even over the Internet where they are not

even in a face-to-face interaction with their ostracisers (Williams, Cheung, & Choi, 2000; Williams, Govan, et al., 2002).

The fact that ostracism has detrimental consequences even when the target is not in the physical presence of the source suggests that the fundamental drive to belong, to be part of a group, is so strong that any indication of rejection or isolation leads to aversive psychological and health-related responses. However, it is still the case that the identity of the source may play a role in moderating the effects of ostracism. Will the effects of ostracism be reduced if the relationship between the target and source is made as minimal as possible, that is, if the source is someone with whom the target has no personal ties (such as stranger), or, to minimise the relationship still further, is not even human (e.g., a computer generated image)? Or is the power of ostracism such that any act of exclusion will result in a loss of primary needs?

In order to address this issue, the role of source identity on the effects of ostracism was examined in the present study by manipulating whether targets were ostracised or included by two fellow students or two computer-generated players. To date, being ostracised by computers represents the most minimal form of ostracism to have been used in a laboratory paradigm—it could be conceived of as a baseline measure of ostracism. If targets prove to be as adversely affected by such a minimal form of exclusion as they are when ostracised by fellow humans, then this would provide evidence for the power of ostracism. Conversely, if targets report less aversive impact to their primary needs after being ignored by computers compared to being ignored by humans, then this would provide support for the perspective gained from the interviews, that is, source identity is an important determinant of the impact of ostracism.

Experiment 4.1: The Effect Of Source Identity On Primary Needs And Cardiovascular Functioning

Experiment 4.1 aimed to examine the role of source identity as a potential moderator of the effects of ostracism. But rather than continue the current trend in ostracism research and focus solely on examining the psychological effects of a moderating factor (in this case, source identity), the present experiment aimed to also explore the physiological effects of ostracism. The train ride studies (Chapter 4) represented a preliminary step in investigating both the psychological and health-related effects of ostracism through self-report measures. The present experiment will expand upon these studies by examining the effects of ostracism on specific physiological structures (i.e., the cardiovascular system).

Although the model of ostracism, and most ostracism research to date, has focused on psychological effects, there has been some relevant research examining the possible biological and physiological correlates of ostracism. Typically, however, this research has focused on non-human primates (e.g., Kling, 1986; McGuire & Raleigh, 1986; Raleigh & McGuire, 1986). These studies suggest that ostracism (separation from other animals) invokes physiological responses indicative of prolonged stress or anxiety including increased functioning of the sympathetic nervous system, and illness arising from disturbed immune functioning (e.g., McGuire & Raleigh, 1986). There is also evidence that isolation from other animals affects the hypothalamic-pituitary adrenal system, as well as serotonin and catecholamine functioning (e.g., Raleigh & McGuire, 1986).

Despite the fact that most of the research on the physiological effects of ostracism has centred on non-human primates, there is evidence to suggest that ostracism may have similarly negative physiological effects in humans (e.g., Kling, 1986). Moreover, over the last two decades, there has been extensive research

conducted on the potential benefits of social support on health and wellbeing (for meta-analysis, see Uchino, Cacioppo, & Keicolt-Glaser, 1996). Researchers have reliably found a strong positive association between social support and physical health. Specifically, social support aids in encouraging and maintaining behaviours conducive to good health such as regular exercise, medical checkups, and pursuing a healthy diet (Knox & Uvnäs-Moberg, 1998). Moreover, strong social networks can aid in not only the prevention of, but also the recovery from, illness. For instance, in studies with patients recovering from cardiovascular disorders (myocardial infarction), it has been found that those with higher levels of social support have lower rates of re-hospitalisation (e.g., Helgeson, 1991). There is also evidence that patients who have suffered from cardiovascular disorders are more likely to live longer if they have strong social support networks (e.g., Berkman, Vaccanno, & Seeman, 1993; Knox & Uvnäs-Moberg, 1998)

According to Uchino et al. (1998), social support affects health by influencing the functioning of various physiological processes such as the endocrine, immune, and cardiovascular systems. The disruption or termination of social support might thus be expected to result in disorders associated with the maladaptive functioning of these systems (e.g., cancer, coronary heart disease, respiratory illnesses; Uchino et al., 1996). Indeed, the results of several epidemiological studies (see House, Landis, & Umberson, 1988) suggest that social isolation has a negative impact on health and wellbeing, posing a risk to mortality that is comparable to such established damaging health factors as obesity, smoking, and high blood pressure (Kiecolt-Glaser et al., 1992).

Although these studies provide suggestive evidence of the potentially deleterious physiological effects of ostracism, they tend to focus solely on one aspect of ostracism: social isolation (i.e., physical ostracism). Thus, the studies do not shed light on the physiological consequences of many day-to-day instances of ostracism where the

target is in the actual or virtual presence of the source (e.g., being ignored by loved ones, strangers, and colleagues). Although Raleigh and McGuire (1986) speculate that "...subtle forms of ostracism such as not responding as expected or refusing to see another, may have physiological consequences upon the one ostracised..." (p. 46), to date, there have only been two studies that experimentally examined the physiological responses that occur as a consequence of being ignored in the actual or virtual presence of others (e.g., during the silent treatment). Stroud et al. (2000) created a paradigm (the YIPS-the Yale Interpersonal Stressor) to examine the effects of interpersonal stress on blood pressure and cortisol stress levels. They found that participants who were socially excluded and rejected reported higher levels of tension, and exhibited increased blood pressure from baseline. In a more recent study, Eisenberger, Lieberman, and Williams (2003) conducted functional magnetic resonance imaging (fMRI) scans while participants were ostracised over the Internet in order to determine whether social and physical pain both activate the same regions of the brain. They found activation of the anterior cingulate cortex—the brain region that is also activated when individuals endure physical pain—as a result of cyberostracism, even when the participants were simply observing the game.

Although these studies represent an important first step in examining the somatic effects of ostracism, there are still many questions about the physiological effects of ostracism that need to be answered. Thus, Experiment 4.1 aimed to examine the psychological and physiological effects of ostracism, and the moderating influence of source identity. There are several potential advantages of using physiological measurement to supplement self-report measures. For example, it was apparent from the train ride studies reported in Chapter 4 that targets (with their introspective gaze and their lethargic demeanour) were experiencing some form of physiological shut-down (see Baumeister & DeWall, in press). However, this shut-down was not reflected

in the results of the self-reported health scales. This lack of consistent significant findings may be due to several reasons. First, targets of ostracism may have used face-saving strategies as a means of repairing the effects of ostracism. However, this is not entirely a satisfactory explanation as targets did report lower primary needs on the post-study questionnaire. Another possible reason is that participants' somatic changes during the train ride may not have been as salient as changes to their primary needs. In other words, maladaptive physiological changes may have been occurring (i.e., heightened blood pressure, accelerated heart rate) yet they may have been too subtle to be discerned by the participant. Therefore, one potential advantage of explicit physiological measurement is that it provides an objective and continuous record of the effects of ostracism on specific physiological systems and hence does not rely on the participant to perceive these changes and record them retrospectively on a scale.

Thus, the present study aimed to examine the physiological effects of social ostracism (specifically, cyberostracism). Although the effects of ostracism could be examined on a variety of physiological systems (e.g., endocrine or immune systems), the present study focused on the cardiovascular system. This system was selected for a number of reasons. Most importantly, there has been extensive research conducted on the effects of social support on the cardiovascular system. In a meta-analysis of research examining the relationship between social support and physiological processes, Uchino et al., (1996) found that 57 of the 81 studies reviewed examined the cardiovascular system. This focus on cardiovascular functioning stems primarily from an effort to understand factors that contribute to, and ameliorate, cardiovascular disorders such as coronary heart disease (CHD)—the leading cause of death in the USA (Rankin-Esquer, Deeter, Froelicher, & Taylor, 2000; Uchino et al., 1996). According to Uchino et al., examining the relationship between social support and cardiovascular functioning is important because of its “implications for both the

development and maintenance of CHD" (p. 489). The present study would expand this extensive literature base by examining whether being ignored in the virtual presence of others (rather than social isolation) is a factor that negatively impacts on cardiovascular functioning.

Although there are several recent theories and models that propose physiological consequences of social behaviour (e.g., Blascovich & Tomaka, 1996; Cacioppo & Tassinary, 1990; Pennebaker, 1990), the most relevant framework from which to assess the short-term cardiovascular responses to social ostracism appears to be the Biopsychosocial Motivation Model (e.g., Blascovich & Tomaka, 1996). The Biopsychosocial model postulates two distinct constructs— *challenge* and *threat* – that arise in response to environmental demands (Tomaka, Blascovich, Kibler, & Ernt, 1997). Each construct has different psychological and physiological components. Challenge occurs when an individual perceives that they have sufficient (or almost adequate) resources to meet the demands of the situation. At the physiological level, challenge is characterised by *adaptive* autonomic and endocrinologically controlled cardiovascular responses that provide the individual with the necessary energy to cope with the situation at hand. Specifically, activation of the sympathetic adrenal medullary (SAM) axis takes place during challenge, leading to increased cardiac performance (operationalised as cardiac output— CO) and decreased vascular resistance (operationalised as total peripheral resistance— TPR). Overall, this pattern of responding ensures that blood vessels in the circulatory system do not constrict, thereby allowing blood to flow freely throughout the body (Blascovich, Mendes, Hunter, Lickel, & Kowai-Bell, 2001; Papillo & Shapiro, 1990).

Conversely, threat is thought to occur when an individual perceives that they lack sufficient resources, or the ability, to deal with the demands of the situation (Tomaka et. al., 1997). At the physiological level, threat results in *maladaptive* autonomic

and endocrinologically-controlled cardiovascular patterns that, if prolonged, may be extremely dangerous and possibly fatal. More specifically, during threat, the SAM axis is activated (just as in challenge), however decreases in vascular resistance do not occur as they are inhibited by the activation of the pituitary adrenal cortical axis (PAC). Overall, this pattern of responding leads the blood vessels in the circulatory system to constrict, thereby hampering blood flow (Blascovich et al., 2001).

Does ostracism lead to challenge or threat? According to the model of ostracism, being ignored, excluded, and/or rejected is universally and fundamentally aversive, resulting in a loss of primary needs and detrimental physiological effects (although the nature of these physiological effects are not specified). Therefore, on the basis of previous ostracism research, it seems probable that individuals who are exposed to ostracism will perceive the situation as aversive, possibly beyond their capacity to cope, and hence will exhibit maladaptive physiological changes characteristic of threat rather than challenge. However, it may also be the case that while ostracism may lead to maladaptive physiological responses, there are factors (such as the identity of the source) that may moderate this effect, and thus determine whether or not individuals perceive the situation as challenging or threatening. Another factor to consider is that the challenge/threat situation in this study differs from those used by Blascovich and his colleagues. Specifically, Blascovich and his colleagues typically describe challenge/ threat in responses to goal-relevant activities (e.g., giving a speech, performing a difficult task). In this study, it is likely that the *experience* of being ostracised will lead participants to show challenge/threat responses rather than the *activity* that participants perform (i.e., a simple game of virtual ball-toss over the Internet). Hence, it is unknown whether the predictions of the Biopsychosocial model will extend to this experimental situation.

Although pairing ostracism with cardiovascular measurement will permit determination of the physiological effects of being excluded and ignored, the recording of various cardiovascular reactions will place restrictions on the type of paradigm that can be used to induce ostracism. Boisterous paradigms that involve excessive movement (such as the ball-tossing game or the train ride), or speaking (such as the conversation paradigms) are less suited for concurrent physiological measurement. Thus, the present experiment used an Internet paradigm, specifically Cyberball— a cyber analogue of the ball-tossing paradigm (e.g., Williams, Cheung, & Choi, 2000; Williams, Govan, et al., 2002).

There are several advantages to using an Internet paradigm to assess the cardiovascular effects of ostracism. First, Cyberball involves no conversation and very little movement to play the game, thus it minimises movement artefact in the cardiovascular measurement. Second, unlike the train ride paradigm, it does not require the presence of real sources or confederates as they are computer generated. Thus, the paradigm is simple to conduct, yet it is just as effective as laboratory paradigms that use confederates to induce ostracism. That is, previous research conducted on the Cyberball paradigm suggests that targets who are ignored during the game experience the same pattern of threatened needs as typically seen in laboratory paradigms where targets and sources engage in face-to-face interaction (Williams, Govan et al., 2002).

Finally, using an Internet paradigm will allow this study to have real-world applications. As of January 2001, there were 350 million users of email worldwide with the number expected to double each year (Rendleman, 2001). Despite the fact that the Internet has the ability to foster and maintain relationships across the globe, research has found that individuals who use the Internet often perceive that they are being ignored (Rintel & Pittam, 1997). No doubt, many of these episodes of ostracism are intentional (e.g., choosing not to reply to an email because you are angry with the

sender, or leaving a chatroom to avoid the lecherous advances of a dubious chatroom inhabitant). However, in a medium where communication is under the control of technology (i.e., servers, computers, and software) rather than solely the protagonists, there are infinite opportunities to be unintentionally ignored (e.g., not replying to an email because the server is down, or suddenly disappearing from a chatroom because the Internet connection drops out). Regardless of whether or not the instances of ostracism are real or simply perceived, the sheer number of Internet uses means that this medium has the potential for ostracism on a mammoth scale. The extent of ostracism possible over this medium dictates the necessity for further research into cyberostracism. The present study would not only add to the past literature that has examined the psychological effects of cyberostracism, but will also expand this literature by elucidating the physiological price of cyberostracism.

Thus, in the present experiment, participants were either ignored or included during the Cyberball game while their cardiovascular responses were monitored. Participants played the game with two other players whose identity was manipulated. Specifically, targets were told that they were playing Cyberball with either two computer-generated players or two human players prior to the start of the game. If the identity of the source is an important component in determining the aversiveness of ostracism, then targets who are ostracised by two human players should report lower levels of primary needs and, physiologically, exhibit more threat-type responses than targets who are ostracised by two computer generated players or targets who are included in the game. If the identity of the source is not important—rather, the very act of ostracism is aversive enough to induce deleterious psychological and physiological effects—then targets who are ostracised by humans and computers should report equally lower levels of primary needs and threat patterns of cardiovascular responding when compared to targets who are included in the game.

Method

Participants and Design

Eighty first-year undergraduates enrolled in introductory psychology at the University of New South Wales were randomly assigned to a 2 (inclusionary status: inclusion vs. ostracism) X 2 (source identity: computer generated vs. university students) between-subjects design experiment in return for course credit. Due to technical difficulties with the computers and Internet, and problems attaining reliable physiological measures from some participants, only sixty-two participants (20 males, 42 female, M age = 19.9, SD = 2.7) were included in the final analysis (ns shown in Table 5.1)⁸.

Materials

Ostracism manipulation. The study was conducted on four versions (one per condition) of an Internet website, <http://psyberball.psy.unsw.edu.au/gcr/> (no longer active), modified from those created by Williams, Cheung, and Choi (2000). The websites were written in Hypertext Markup Language (HTML), with software written in PERL to collect and store data. Software packages CorelDRAW and PHOTO-PAINT as well as GIF animator were used to create graphics and animation, respectively.

Each website began with a Cyberball cover page (see Appendix M for an outline of the coverpages in the Cyberball game). This cover page explained that the basic purpose of the study was to examine the effects of mental visualisation. In the human players condition, the cover page informed participants that the study was a collaborative venture between three universities and that the participant would be

⁸ Degrees of freedom may vary in Experiment 4.1 and 4.2 due to occasional missing data.

playing against two other students. In the computer players condition, the cover page informed participants that they would be playing against two computer generated players. The cover page also provided the basic instructions for playing the game (i.e., clicking NEXT to progress to the next page, not pressing refresh or reload).

The cover page was followed by a webpage asking participants to complete their demographic details (student number, date of birth, and sex), then by a webpage that provided further instructions on how to play the game.

There were two versions of the Cyberball game— ostracism and inclusion. In both games, participants were presented with animated figures of Player 1 and Player 2. The participant was represented on screen by an animated depiction of a hand. In all conditions, the game began by one of the players throwing the ball to the participant. The participant was then asked to indicate to whom they would like to throw the ball to by double clicking on the appropriate icon at the bottom of the screen (Player 1 or Player 2). The hand then threw the ball across the screen to the appropriate player. Each trial was followed by randomly generated positive or negative feedback about the throw (“it was a good throw,” or “it was a bad throw” respectively). In the ostracism condition, the participant received the ball twice and was then completely excluded from the game (i.e., they did not receive the ball ever again). In the inclusion condition, the participant randomly received the ball approximately 30% of the time. In both conditions, the game lasted 40 trials (approximately 6 minutes).

At the end of the game, the website instructed the participant to inform the experimenter that they had finished. This webpage was then followed by the post-study questionnaire.

Dependent measures. The post-study questionnaire used in this experiment was modified from those used in previous cyberostracism research (see Williams et al., 2002). The questionnaire consisted of three sections assessing the effect of the

Cyberball game on the four primary needs, ancillary variables, and health (stress/arousal). Participants were asked to answer the questions according to how they felt during the Cyberball game. They were asked to answer as honestly as possible as there were no right or wrong answers and all responses would be confidential. Unless otherwise stated, all questions were rated on 9-point scales (where 1 = not at all, and 9 = very much so).

To assess the *four primary needs*, participants were asked to rate the extent to which the Cyberball game affected their sense of: belonging ("I felt poorly accepted by the other participants," "I felt as though I had made a "connection" or bonded with one or more of the participants during the Cyberball game," "I felt like an outsider during the Cyberball game"), control ("I felt that I was able to throw the ball as often as I wanted during the game," "I felt somewhat frustrated during the Cyberball game," "I felt in control during the Cyberball game"), self-esteem ("During the Cyberball game, I felt good about myself," "I felt that the other participants failed to perceive me as a worthy and likeable person," "I felt somewhat inadequate during the Cyberball game"), and meaningful existence ("I felt that my performance [e.g., catching the ball, deciding whom to throw the ball to] had some effect on the direction of the game," "I felt non-existent during the Cyberball game," "I felt as though my existence was meaningless during the Cyberball game").

Two *ancillary variables* were also examined whereby participants were asked to rate the extent to which they felt angry ("I felt angry during the Cyberball game"), and how much they enjoyed the game ("I enjoyed playing the Cyberball game"). There was also an open-ended question at the end of the questionnaire: "What factors made you decide whom to throw the cyberball to?"⁹

⁹ This question was not systematically analysed, rather it provided (in conjunction with participants' comments during the debrief) qualitative statements to support (or refute) the self-report and physiological findings of the current study.

To assess the *health-related effects* of the Cyberball game, the Stress-Arousal Adjective Checklist (SACL; Mackay, Cox, Burrows, & Lazzerini, 1978; modified by King, Burrows, & Stanley, 1983) was given to participants. This scale was also used in the second train ride experiment (Chapter 4). On the SACL, participants were asked to rate 20 words— 10 relating to stress, 10 relating to arousal— on a four point scale (++ = definitely yes, + = slightly yes, ? = not sure or don't understand, and — = definitely not).

The questionnaire also contained two inclusionary status manipulation checks— “To what extent were you included by the other participants during the game?” and a 9-point bipolar scale (“accepted/ rejected”). The experimenter performed a verbal manipulation check assessing source identity at the end of the study prior to debriefing.

Physiological measures. Physiological measures were taken with a SORBA CIG-1000™ impedance cardiograph (SORBA Medical Systems, Inc). This machine provides a non-invasive measure of cardiac output (which is calculated by examining the changes in transthoracic electrical impedance [Z_o]). It also automatically assesses and calculates several other cardiovascular measures, including those used by the Biopsychosocial model— heart rate (HR), cardiac output (CO), total peripheral resistance (TPR), and pre-ejection period (PEP).

To obtain these measures, electrodes were placed on four sites— the centre of the forehead (electrode 1), the left side of the base of the neck (electrode 2), the left mid-axillary line at the level of the xiphoid process (electrode 3), and the left mid-axillary line in the mid-pelvic bone region, (electrode 4; see Figure 5.1 for electrode placement) as specified by the manufacturer. A 500 μ A signal at 50kHz was applied to the two outer electrodes (1 and 4), and changes in voltage detected at the inner

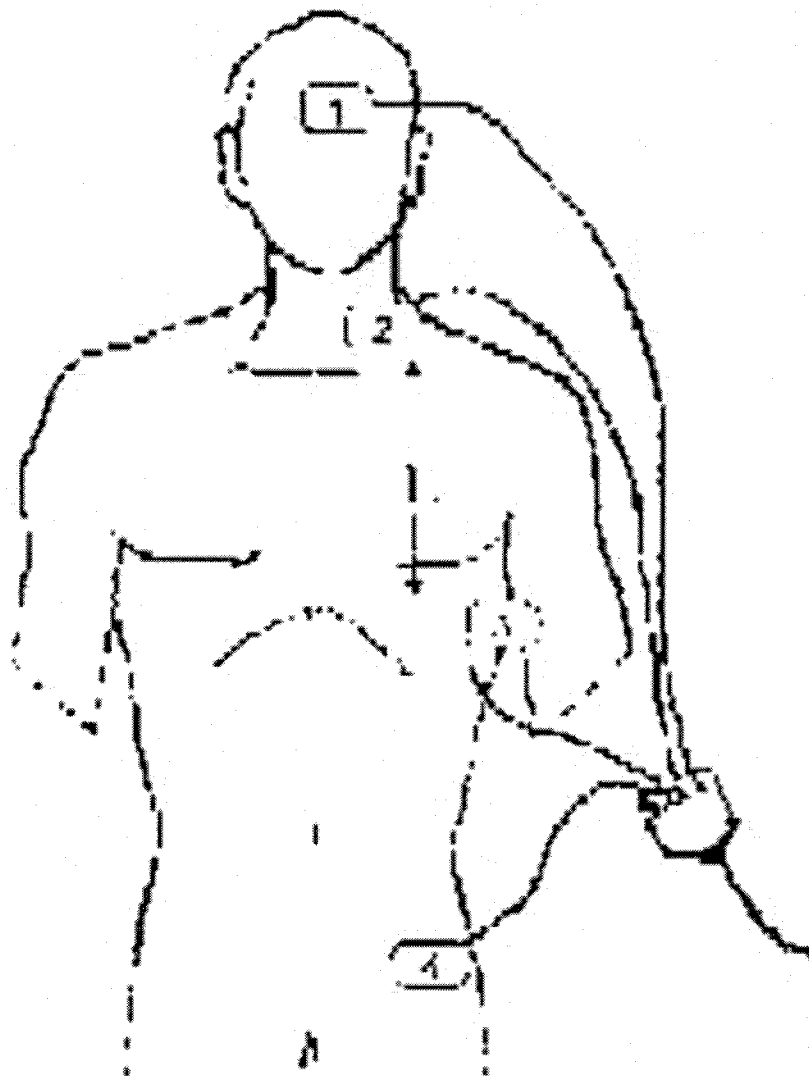


Figure 5.1: Electrode Placement for the SORBA CIC-1000 Impedance Cardiograph (SORBA Medical Systems, Inc, 1996)

electrodes (2 and 3), which represent changes in impedance. All equipment complied with health and safety regulations.

To prepare the sites, the experimenter cleaned the areas with Nu-prep gel on cotton gauze, then rinsed and dried the sites. The electrode was then placed on the clean site. After all four electrodes were placed on the participant, three measures were taken— height, weight, and thoracic length. Thoracic length was taken as the distance between the second and third electrodes along the sternum. These three measures were entered into the SORBA unit to calculate stroke volume and cardiac output.

To assess blood pressure (BP), a Dynapulse 2000A (clinical version 3.40)TM self-inflating, non-invasive blood pressure cuff was placed over the brachial artery of the participants' non-preferred arm. The BP cuff was interfaced with the SORBA unit, so that the SORBA unit automatically displayed the BP information and calculated cardiovascular variables that derived from this information (such as TPR). This BP system did not continuously measure blood pressure— instead, it took readings approximately every three minutes.

Procedure

Participants signed up for an experiment ostensibly examining “Mental Visualisation and the Internet.” Upon arrival, participants were shown into a 2.5 X 4m room that adjoined a larger laboratory. This room contained a prep area (table and chair) and an experimental area (a 1m desk situated in one corner of the room with a Phillips 690 AX Intel Pentium II MMX computer and comfortable chair with arm rests; see Appendix N for photos of the experimental area and equipment). This room was ventilated and kept at a constant temperature and level of illumination. Participants were seated in the prep area as the experimenter explained the purpose and procedure of the study. All of the experimenter's comments followed a script that was modified according to each condition (see Appendix O for script).

Participants in all conditions were informed that the purpose of the study was to examine the effects of mental visualisation on the cardiovascular system. They were informed that they would be using their mental visualisation skills during a game of Cyberball— a simple Internet version of toss that they would be playing with two other players. The contents of the experimenter's introductory comments then differed according to the source identity condition. For participants in the human players condition, the experimenter went on to explain that this study was a collaborative venture with two local universities (University of Sydney and Macquarie University), thus the two other players would be from these universities. To add authenticity to the cover story, participants in the human players conditions were told that the experimenters from these universities had rung just prior to the participants' arrival in order to confirm that their participants had arrived and that they were currently setting up their own physiological equipment (GSR and EKG, respectively). Participants in the computer players condition were also told that the study was a collaborative venture between the three universities, however, the two other universities were unable to find participants for this testing session, thus the participant would be playing Cyberball with two computer-generated players. In actuality, all participants played Cyberball with computer-generated players.

In all conditions, the experimenter then explained that the participant would be required to mentally visualise throughout the Cyberball game. They were encouraged to visualise all aspects of the game as vividly as possible (e.g., the place where they were playing such as a park or beach, the type and colour of the ball, the way their arm would move as they threw or caught the ball, etc). The experimenter stressed that as the purpose of the study was to examine the effects of mental visualisation, it was their visualisation that mattered during the game, not their performance (particularly as the game was not competitive).

In order to add authenticity to the scenario and to ensure full engagement in the source identity manipulation, participants in the human players conditions were then told to visualise the other players as clearly as possible, including determining whether the other two players were male or female. Conversely, care was taken to ensure that participants in the computer players condition did not visualise the other players as human. Rather, they were encouraged simply to imagine “throwing the ball to the computer players that you see on the screen. Do not imagine that you are playing with real people.”

The experimenter then explained the physiological measures that would be taken during the game, pointing out on a diagram the four electrode sites and the blood pressure cuff site (see Figure 5.1). Participants were informed that they would be able to view their physiological results at the end of the study.

Once the experimenter had answered any questions about the procedure, participants were asked to complete a consent form (see Appendix P). After the participant completed the consent form, the electrode sites were cleaned and the electrodes and blood pressure cuff were attached. Measures such as height, weight, and thoracic length were taken and entered into the SORBA unit. After the participant was prepped, the experimenter directed the participant’s attention to the computer screen displaying the appropriate Cyberball website.

The experimenter asked participants to read through the cover page instructions and complete their demographic variables when instructed. The experimenter then informed participants that the BP cuff would inflate for the first time. The experimenter carefully explained the inflation process, informing participants of what they could expect to feel as the cuff inflated so that they would not be alarmed when the BP measure was taken. The experimenter then left the room in order to begin

measurement. Once the first BP measure was taken, the experimenter returned to the room, ensured that the participant was comfortable and wished to continue participating in the study, and made any necessary adjustments to the electrode or BP cuff placement.

Participants were then informed that there would be a ten-minute rest period during which physiological baseline measures would be taken. In the human players condition, the experimenter stated that before the baseline measures were completed, the experimenter would call the other universities to make sure that all of the participants were ready to play the game.

Participants were told that they would begin playing the game after the rest period. The experimenter explained that when the game ended, a screen would appear asking them to inform the experimenter that they had completed the game. To do this, the participant was instructed to knock lightly on the wall separating the test room from the area where the experimenter would be monitoring the cardiovascular equipment.

After ensuring that the participant had no questions about the procedure, the experimenter left the test room and began monitoring the cardiovascular measures. The experimenter marked the rest period from the first BP measure taken after the experimenter left the participant to the end of the third BP measure (approximately 10 minutes). In the human player conditions, the experimenter made a call to one of the other universities. This fake phone call helped to establish the cover story that this experiment was a collaborative venture between the three universities. During this conversation, the experimenter ostensibly asked the experimenter at the other university how their physiological readings were going, as well as asking the sex of their participant (consistent with the cover story that they would be asking the participant for their opinions on the sex of each of the other players). None of the participants

expressed scepticism about the veracity of this phone call during the debrief session after the experiment.

After the baseline period, the experimenter entered the test room and asked the participant to start the game. Participants were reminded that they were to visualise during the game as vividly as possible. Participants in the human players condition were asked to try to determine the sex of the other players during the game, whereas those in the computer players condition were reminded that they were not playing the game with other humans, and were reminded to visualise playing with the computer-generated figures present on the screen.

After approximately six minutes, the game ended and the participant would knock on the adjoining wall. The experimenter would acknowledge the knock and ask the participant to press "NEXT" and proceed to the post-study questionnaire.

Debriefing. After the participants indicated that they had finished the questionnaire, the experimenter entered the test room and removed the electrodes. The experimenter asked participants about their thoughts/feelings during the study, and performed a verbal manipulation check by asking participants whether they had played the game with university students or computer players. The experimenter then went on to ask those in the human player condition whether they had guessed the sex of the other players.

After participants gave their responses, they were then thoroughly debriefed about the aims of the study. Participants in the ostracism conditions were told that they were randomly assigned to be ostracised during the game and that they were not ignored because of their personal characteristics or any of their previous actions. They were also told in detail about previous ostracism research so that they could put their own experiences during the game into perspective. Participants who believed that they were playing with university students were told that the players were computer

generated, and the experimenter explained why this subterfuge was necessary to attain the aims of the study. Participants were encouraged to talk about their experiences during the game, and ask questions about the theory or methodology.

After the experimenter had answered all questions, participants were shown their physiological responses generated throughout the experiment on the SORBA cardiograph. The experimenter explained changes in their cardiovascular responses during the game and answered any questions that participants had about the measures. The participants were then thanked and given course credit for participating in the study.

Results

Two-way analyses of variance (ANOVAs) were conducted on each of the variables to analyse the data.¹⁰ The means and standard deviations for all variables can be seen in Table 5.1.

The effects of inclusionary status and source identity: Self-reported effects

Manipulation checks

There were two manipulation checks assessing inclusionary status. Participants in the ostracism condition reported that they felt significantly less included and more rejected than participants in the inclusion condition, (smallest F was for rejection, $F(1, 57) = 24.3, p < .0001$). This suggests that participants correctly perceived that they were included or ostracised during the game.

To assess the source manipulation, a verbal manipulation check was carried out at the end of the study prior to debriefing. All but two participants correctly identified whether they played the game with computer or human players. The two aberrant

¹⁰ Selected F s are presented in this chapter. Complete ANOVAs and follow-up analyses for this chapter are presented in Appendix S

participants (both in the human players condition) reported having played the game with two computers rather than two humans. The game had malfunctioned during their participation (a factor that may have led them to realise that they could not have been playing with two humans). Consequently, they were excluded from analysis.

The four primary needs

The items assessing the four needs were reverse scored where necessary and the internal consistency of the items assessing each need were examined. Cronbach's alpha co-efficients for each need were as follows: belonging = .74; control = .72; self-esteem = .70; and meaningful existence = .66. The co-efficients suggested a reasonable level of internal consistency for each primary need, thus the average for the items assessing each need were used in the analysis.

Main effects: Overall, there were several main effects for inclusionary status such that participants who were ostracised during the game reported lower levels of belonging, control, self-esteem, and meaningful existence than did participants who were included in the game (smallest F was for self-esteem, $F(1, 57) = 11.1, p < .001$). However, there were no significant main effects for source identity on primary needs (all $F_s < 1, ns$).

Interactions: There were no significant interactions between inclusionary status and source identity for primary needs (largest F was for control, $F(1, 57) = 1.4, p = .24$).

Ancillary variables

Main effects: There were significant main effects for inclusionary status such that participants in the ostracism condition reported feeling angrier and enjoyed the game less than did participants who were included in the game (smallest F was for anger, $F(1, 58) = 8.2, p < .01$). However, there were no significant main effects for source identity on the ancillary variables, (all $F_s < 1, ns$).

Table 5.1.

Experiment 4.1: Means and standard deviations (in parenthesis) of self-report variables (all scales from 1 = not at all to 9 = very much so unless otherwise stated).

	Source			
	Human		Computer	
	Inclusion (n = 18)	Ostracism (n = 15)	Inclusion (n = 17)	Ostracism (n = 12)
Fundamental Needs ^a				
Belonging	6.4 (1.5)	3.4 (2.1)	6.5 (1.7)	3.7 (2.3)
Control	6.4 (1.7)	3.2 (1.6)	5.8 (1.7)	3.8 (1.9)
Self-esteem	7.1 (1.2)	5.6 (2.1)	6.9 (1.1)	5.5 (2.1)
Meaningful Existence	6.8 (1.4)	3.8 (1.8)	6.5 (1.5)	3.7 (1.7)
Ancillary Variables				
I enjoyed playing the Cyberball game	4.9 (2.4)	2.8 (2.0)	4.5 (2.2)	2.9 (2.5)
I felt angry during the Cyberball game	1.8 (1.6)	2.1 (1.5)	1.2 (.39)	3.3 (2.5)
Manipulation Checks				
To what extent were you included by the participants during the game?	7.1 (1.6)	2.7 (2.0)	6.1 (1.8)	2.8 (2.1)
Rejected – accepted ^b	6.8 (1.5)	4.0 (2.1)	6.2 (1.9)	4.2 (2.2)
Health Variables ^c				
Stress	1.1 (1.1)	1.3 (1.2)	1.2 (1.9)	1.8 (2.5)
Arousal	4.8 (1.9)	2.8 (2.1)	4.5 (3.1)	4.0 (2.9)

^a Each fundamental need score represents an average of three questions.

^b This was a 9 point scale with rejected –accepted as anchors.

^c Stress and arousal scores were calculated using the Stress/Arousal Adjective Checklist (Mackay, Cox, Burrows, & Lazzerini, 1978; modified by King, Burrows & Stanley, 1983)

Interactions: There was a significant interaction between inclusionary status and source identity for anger, $F(1, 58) = 4.7, p < .05$. Follow up analyses revealed that when participants were playing with human players, they reported similar levels of anger regardless of whether they were included or ostracised, $F < 1$. However, when participants were playing with computer players, they were significantly angrier when they were ostracised than when they were included, $F(1, 27) = 11.3, p < .01$. There was no significant interaction between inclusionary status and source identity for enjoyment of the game, $F < 1, ns$.

Stress and arousal

Main effects: There were no main effects for inclusionary status or source identity on stress or arousal (largest F was for arousal, $F(1, 56) = 3.4, p = .069$).

Interactions: There were no significant interactions between inclusionary status and source identity for either stress or arousal, (largest F was for arousal, $F(1, 56) = 1.3, p = .26$).

The effects of inclusionary status and source identity: Physiological measures

Cardiovascular variables

In order to assess the physiological consequences of inclusionary status and source identity, two sets of cardiovascular variables were assessed:

a) *Challenge/Threat indices:* In accordance with Blascovich and his colleagues (e.g., Blascovich, Mendes, et al., 2001; Mendes, Blascovich, Major, & Seery, 2001; Mendes, Blascovich, Lickel, & Hunter, 2002) three variables were used to assess Challenge/Threat: CO (cardiac output— the amount of blood pumped out of the left ventricle by the heart, calculated as heart rate x stroke volume), TPR (total peripheral resistance— the overall level of resistance to blood flow that occurs as a result of constriction to the blood vessels in the vascular network, calculated as dyne-second x cm^{-5}), and PEP (pre-ejection period— a time interval measure of myocardial

contractility, calculated as time (sec) from the beginning of electrical systole [the Q wave of the ECG] to the beginning of contraction; SORBA Operator's Manual CIC-1000, 1996). Because an increase in PEP indicates a decrease in contractility, PEP was transformed to VC (ventricular contractility) by multiplying PEP by -1 (so that an increase in PEP = an increase in ventricular contractility) to assist interpretation (see Blascovich et al., 2001). In addition to these challenge/threat indicators, HR (heart rate) was also measured in order to determine engagement during the game.

b) *Blood Pressure indices*: In recent studies, Blascovich and his colleague have begun to supplement examination of the three challenge/threat variables with blood pressure (e.g., Mendes et al., 2002). Thus, in this study, SP (systolic pressure—the maximum pressure exerted in the artery following each heart beat; Papillo & Shapiro, 1990), DP (diastolic pressure—the minimum pressure exerted in the artery following each heart beat; Papillo & Shapiro, 1990), and MAP (mean arterial pressure—average pressure during the cardiac cycle, calculated as $DP + 1/3 SP$; Papillo & Shapiro, 1990) were also assessed.

Scoring and analysis

The cardiovascular variables were examined in accordance with the recent multi-step analytic strategy proposed by Blascovich and his colleagues (e.g., Blascovich, Mendes, et al., 2001). First, *baseline differences* were examined to determine if there were any differences between the experimental groups during the rest period. Second, *engagement in the game* was assessed by examining whether heart rate (HR) was significantly higher during the game than during baseline for each experimental group. Finally, *Challenge/Threat* was assessed using two analytic approaches—one exploring *relative differences* (between the experimental groups), the other *absolute differences* (within each experimental group) in key cardiovascular variables (i.e., CO, TPR, and VC).

In all of the studies conducted by Blascovich and his colleagues, mean scores for all variables are calculated for every minute of the rest and task period. Such a minute-by-minute analysis is possible in these studies because a continuous blood pressure monitor is used. Although the impedance cardiograph used in this study continually assesses the various cardiovascular variables measured, the blood pressure monitor used does not continually assess blood pressure— instead it takes readings every 3 minutes. Thus, in this study, the average scores for each cardiovascular variable were calculated for each 3-minute interval. Therefore, the baseline period consisted of three intervals (because the baseline period lasted approximately 10 minutes), however, only the second interval was used in subsequent analysis because the physiological measures taken during the other intervals tended to be noisy due to the fact that participants were still becoming accustomed to the physiological equipment (i.e., during the first interval), or were anticipating the onset of the game (i.e., during the third interval). The Cyberball game consisted of two intervals (because Cyberball lasted approximately 6 minutes), however the first interval was not examined because participants in the ostracism condition were both included and excluded during this interval, whereas in the second interval participants were fully included or ostracised according to their experimental condition. Thus, only the data from the second interval of the game were used in all subsequent analyses.

Baseline differences. The second interval of the rest period was analysed to determine if there were any initial differences between the experimental groups (the experimental groups are abbreviated as follows: participants who were ostracised by human players = Human-Ostracism; participants who were included by human players = Human-Inclusion; participants who were ostracised by computer players = Computer-Ostracism; participants who were included by computer players = Computer-Inclusion). Averages for the challenge/threat and BP variables were

calculated for the second rest interval, and two-way ANOVAs¹¹ were then conducted on each of these variables to assess whether there were any baseline differences in cardiovascular activity between the experimental groups prior to any experimental manipulations.

Main effects: There were no significant main effects for inclusionary status (Challenge/Threat variables: all $F_s < 1$, *ns*; BP variables: largest F was for DP, $F(1, 55) = 2.0$, $p = .16$), or source identity (Challenge/Threat variables: all $F_s < 1$, *ns*; BP variables: largest F was for MAP, $F(1, 55) = 1.1$, $p = .296$) for any of the cardiovascular variables.

Interactions: There were also no significant interactions between inclusionary status and source identity for any of the cardiovascular variables (Challenge/Threat variables: largest F was for CO, $F(1, 55) = 1.3$, $p = .265$; BP variables: all $F_s < 1$, *ns*).

Thus, there were no significant differences between the experimental groups during the second interval of the rest period (henceforth to be known as *baseline*), suggesting that the groups were equivalent initially.

Engagement during the game. According to the Biopsychosocial model, challenge or threat can only be experienced during motivated performance situations. To assess whether participants were motivated and engaged while playing Cyberball, analyses were conducted to determine whether HR during the game significantly differed from baseline.

HR reactivity was calculated by subtracting the average HR during baseline from the average HR during the game for each participant. Thus, a positive score would indicate that the participant experienced a higher HR during the game than

¹¹ Blascovich and his colleagues typically analyse baseline differences by performing a MANOVA on the three cardiovascular indicators of challenge/threat. In this study, however, the addition of several cardiovascular variables combined with the fairly small and unequal cell sizes meant MANOVA would prove to be unnecessarily conservative (Tabachnick & Fidell, 1989). Thus, throughout the study, two-way ANOVAs rather than MANOVAs were conducted on each of the variables.

during baseline, and a negative score would indicate that the participant experienced a lower HR during the game than during baseline. Within-subject *t* tests were then conducted on HR reactivity scores for each experimental group to determine whether HR significantly differed from zero (means and standard deviations for each experimental group are presented in Table 5.2).

From Table 5.2, it is apparent that participants in the Human-Inclusion, Computer-Inclusion and Computer-Ostracism groups all showed negative HR reactivity, suggesting that they were less engaged during the game than during baseline. However, this decrease in HR was only significant for those in the Human-Inclusion ($t(16) = 3.3, p = .005$), and Computer-Ostracism conditions ($t(11) = 3.0, p = .013$). Participants in the Human-Ostracism condition showed an increase in HR reactivity, though this was not significant, $t < 1, ns$.

Blascovich et al. would interpret the lack of significant increase in HR during the game from baseline as an indication that the task (i.e., Cyberball) is not a motivated performance situation, and hence not suitable for inducing either challenge or threat. Yet it is possible that the decrease in HR (particularly the significant decrease in HR reactivity demonstrated by those in the Human-Inclusion and Computer-Ostracism conditions) could be indicative of stress-type responses. That is, rather than being less engaged in the game, participants may actually be finding the game upsetting or stressful, hence their heart rate lowers due to higher vascular resistance (i.e., higher levels of TPR and BP—Slane, personal correspondence, 31/08/02). This possible alternative explanation for lower HR will be further examined by investigating the pattern of TPR (see Challenge/Threat) and BP.

Challenge/Threat. To assess whether participants experienced challenge or threat during the Cyberball game, reactivity scores (i.e., average for the game – average for the baseline) were calculated for each of the cardiovascular variables. These

reactivity scores were then used to assess (i) relative patterns and (ii) absolute differences in challenge/threat. The *relative patterns* analytic approach examines relative differences in CO, VC, and TPR between the experimental groups. In this approach, challenge and threat are differentiated primarily by significant differences in CO and TPR such that participants exhibiting a challenge pattern have higher levels of CO and lower levels of TPR than those exhibiting a threat pattern of responding. In terms of VC, challenge tends to result in higher levels of VC than threat. However, according to Blasovich et al., relative differences in VC are not always observed; hence, VC differences are not necessary to differentiate between challenge and threat patterns.

The *absolute differences* analytic approach examines whether levels of each cardiovascular variable during the game significantly differs from baseline for each experimental group. A challenge pattern would be indicated by significant increases from baseline in VC and CO and a significant decrease from baseline in TPR (i.e., \uparrow CO, \uparrow VC, \downarrow TPR), whereas a threat pattern would be indicated by an increase in VC, no change or a decrease in CO, and no changes or an increase in TPR from baseline (i.e., \emptyset/\downarrow CO, \uparrow VC, \emptyset/\uparrow TPR, where \emptyset = no change). As with challenge, VC tends to be the less reliable measure, that is, although VC is predicted to increase during threat, there have also been instances where VC has decreased during evaluative situations (Mendes, personal correspondence, 30/08/02).

Challenge/threat variables: (i) Relative differences: Two-way ANOVAs were conducted on the reactivity scores of each challenge/threat variable (CO, VC, and TPR) to assess whether there were any relative differences in challenge and threat for each experimental group (see Table 5.2 for means and standard deviations).

Main effects: There were no significant main effects for inclusionary status (largest F was for CO, $F(1, 55) = 1.4$, $p = .245$), or source identity (all F s < 1 , ns) for any of the variables.

Table 5.2.

Experiment 4.1: Mean reactivity scores (i.e., game – baseline) for each cardiovascular variable (standard deviations in parenthesis)¹²

	Source			
	Human		Computer	
	Inclusion (n = 17)	Ostracism (n = 15)	Inclusion (n = 15)	Ostracism (n = 12)
Engagement Measure				
HR	↓ -2.1** (2.7)	.71 (3.3)	-1.0 (5.1)	↓ -2.4* (2.8)
Challenge/Threat Indices				
CO	↓ -.36* (.59)	-.037 (.56)	-.27 (.66)	↓ -.25* (.31)
VC	-.0014 (.009)	.0014 (.004)	.0008 (.007)	-.0013 (.004)
TPR	↑ 86.6* (136.3)	26.67 (93.4)	10.4 (119.8)	↑ 74.3* (113.7)
Blood Pressure Variables				
SP	2.2 (8.4)	2.3 (4.4)	-.20 (9.8)	2.3 (9.0)
DP	1.2 (8.1)	↑ 3.3* (5.7)	-2.3 (6.3)	.25 (6.2)
MAP	1.6 (6.0)	1.5 (4.6)	-2.3 (6.5)	1.1 (5.2)

Note: HR = heart rate (beats per minute); CO = cardiac output (litres per minute); VC = vascular contractility (i.e., pre-ejection period x -1; milliseconds); TPR = total peripheral resistance (dyne-second x cm⁻⁵); SP = systolic blood pressure (mm Hg); DP = diastolic blood pressure (mm Hg); MAP = mean arterial pressure (mm Hg).

Symbols represent absolute reactivity. Legend: ↑ indicates a significant increase from baseline; ↓ indicates a significant decrease from baseline. * p < 0.05; ** p < 0.01

¹² The physiological data of 3 participants was discarded (one in the human-inclusion condition, two in the computer-inclusion condition) because of participants' actions during (i.e., movement, coughing) or just prior to the study (i.e., ingestion of a stimulant).

Interactions: There were no significant interactions for either VC or CO (largest F was for VC, $F(1, 55) = 1.8, p = .186$). However, there was a significant interaction for TPR, $F(1, 55) = 4.0, p < .05$. Although the greatest increases in TPR levels from baseline were shown by participants who were included by humans or ostracised by computers, follow-up simple effects analyses were not significant (Human-Ostracism vs. Human-Inclusion: $F(1, 31) = 2.0, p = .16$; Computer-Ostracism vs. Computer-Inclusion: $F(1, 25) = 2.0, p = .17$).

(ii) Absolute differences: Within-subject t tests were conducted to assess absolute challenge and threat patterns of reactivity for each experimental group. The results can be seen in Table 5.2.

Participants in the Human-Inclusion condition demonstrated a threat pattern, with a significant decrease in CO ($t(16) = 2.6, p < .02$), an increase in TPR ($t(16) = 2.6, p < .02$), and a non-significant decrease in VC ($t(16) = -.62, p = .542$) from baseline.

The same pattern of results was found for participants in the Computer-Ostracism condition, specifically, a significant decrease in CO ($t(11) = 2.8, p < .02$), increase in TPR ($t(11) = 2.3, p < .05$), and a non-significant decrease in VC ($t(11) = -.94, p = .37$).

Participants in the Human-Ostracism and Computer-Inclusion conditions showed (non-significant) patterns of response during the game that could not be classified as either challenge or threat (Human-Ostracism: CO: $t(14) = .26, p = .799$; VC: $t(14) = 1.3, p = .23$; TPR: $t(14) = 1.1, p = .29$; Computer-Inclusion: CO: $t(14) = 1.6, p = .14$; VC: $t(14) = .40, p = .695$; TPR: $t(14) = .34, p = .74$).

Blood pressure variables. (i) Relative patterns: Two-way ANOVAs were conducted on the reactivity scores of each BP variable (SP, DP, and MAP) to assess whether there were relative differences in blood pressure for each experimental group.

Main effects: There were no main effects of inclusionary status (largest F was for DP, $F(1, 55) = 1.8, p = .189$), or source identity (largest F was for DP, $F(1, 55) = 3.4, p = .069$) for any of the BP variables.

Interactions: There were no interactions for any of the BP variables (largest F was for MAP, $F(1, 55) = 1.4, p = .25$).

(i) Absolute differences: Within-S t tests were conducted to assess absolute challenge and threat patterns of reactivity for each experimental group. According to Mendes, Blascovich, Lickel, and Hunter (2002), a BP pattern consistent with challenge would be a decrease in SP, DP, and MAP (compared to baseline), whereas a BP pattern consistent with threat would be an increase in SP, DP, and MAP (compared to baseline). The results can be seen in Table 5.2.

From Table 5.2, it is apparent that participants in the Human-Ostracism, Human-Inclusion, and Computer-Ostracism conditions all showed an increase in BP variables compared to baseline. However, this increase was only significant for participants in the Human-Ostracism condition who showed a significant increase in DP ($t(14) = 2.2, p = .04$) and a marginally significant increase in SP ($t(14) = 2.1, p = .058$) from baseline. Participants in the Computer-Inclusion condition were the only group to show a decrease in the BP from baseline, however this decrease was not significant for any of the BP variables (largest t was for DP, $t(14) = 1.4, p = .17$).

Discussion

Previous researchers have suggested that the act of being ignored or rejected has a universally aversive effect on the thoughts, feelings, and behaviours of all targets (e.g., Baumeister & Leary, 1995; Williams, 2001). But is ostracism so powerful a phenomenon that any act of rejection or exclusion will be detrimental to targets' psychological and physiological functioning? The present study examined this question by exploring the impact of a minimal ostracism experience—specifically, being ignored

over the Internet by a computer. If targets who were ignored by a mere machine reported similarly low levels of the four primary needs as did targets who thought they were being ignored by human players, then this would provide evidence that the power of the ostracism experience transcends moderating factors such as source identity—a factor that targets of long-term ostracism identified as important in determining the overall aversiveness of the ostracism experience (see Chapter 2). If, however, targets who were ignored by a computer reported less aversive impact to their primary needs than did targets supposedly ignored by humans, then the identity of the source would be shown to play an important role in the ostracism experience. Unlike previous ostracism research that has focused predominantly on examining only the psychological effects of ostracism, the role of source identity was explored in the present experiment through both self-reports and physiological (cardiovascular) measurement in order to obtain a more comprehensive understanding of the effects of ostracism.

Self-report measures: Findings and Implications

In terms of self-reported effects, the present experiment found that being ostracised was more detrimental to all four primary needs than being included. In accordance with previous ostracism research (see Williams, 2001), targets who were ostracised during the Cyberball game reported lower levels of belonging, control, self-esteem, and meaningful existence than did targets who were included during the game. Moreover, targets who were ostracised also reported feeling angrier and enjoyed the game less than targets who were included. However, being ostracised did not significantly affect self-reported stress and arousal. This is interesting in view of the physiological findings whereby some groups (e.g., those who were ostracised by computer or human players, or included by human players) showed cardiovascular signs of stress-type responses (i.e., increases in TPR or blood pressure; to be discussed further below). This lack of congruence between the physiological and self-report

findings suggests that potentially detrimental physiological changes may be consciously imperceptible in such situations.

Although being ostracised adversely affected targets in accordance with previous ostracism research, the identity of the source had no effect on primary needs, enjoyment of the game, or stress and arousal. This seems to contradict both anecdotal evidence as well as the interview data reported in Chapter 2. The targets of ostracism in the interview study strongly asserted that the identity of the source phenomenologically altered the experience of ostracism. However, the observed ineffectiveness of source identity as a moderating factor of the effects of ostracism in the present experiment is consistent with other laboratory research that has found that the effects of ostracism on primary needs were not influenced by situational factors (e.g., ingroup/outgroup status) or individual differences (e.g., self-esteem; see Williams, Cheung, & Choi, 2001). The findings of these studies seem to indicate that the ostracism experience overwhelms all other factors. Similarly in the present experiment, regardless of whether the source was a student or computer, animate or inanimate, the act of ostracism was equal and apparently all-powerful.

The general lack of self-reported differences when playing Cyberball with computers or human players is also congruent with research conducted on the “mindless” way in which humans interact with computers. According to Nass and his colleagues (e.g., Moon & Nass, 1998; Nass & Moon, 2000), humans “mindlessly apply social rules and expectations to computers” (Nass & Moon, 2000, p. 81). In a series of studies, Nass and his colleagues demonstrated that people tend to use many of the same tactics and biases evident in human interactions to human-computer interactions (e.g., gender biases, prejudicial responses). In one study, participants performed a simple task on a computer, and were then asked to evaluate the computer’s performance. They were asked to perform this evaluation in one of three ways; on the

computer they had worked with, on another identical computer, or on a paper and pencil questionnaire. Nass and Moon (2001) found that the evaluations were significantly more positive when participants completed the evaluation on the original computer (i.e., when the computer asked participants about itself). According to Nass and Moon, the tendency for people to give more insincere positive feedback to a computer when it asks about itself is indicative of the fact that people tend to extend the social nicety of politeness to computers, even though humans remain cognizant of the fact that computers are machines and are hence not entitled to the same considerations as humans.

In view of the research of Nass and his colleagues, the lack of effects for source identity in the present experiment is not surprising. In accordance with their research, it is possible that participants did extend the same courtesies to computer players that they did to human players (e.g., ensuring that they threw the ball equally to both players) and hence were equally affected when ignored by either computers or humans. However, this explanation does not adequately explain why participants ostracised by computer players reported feeling significantly angrier than participants who played with human players. Moreover, in contrast to participants who had been ignored by humans, many of the participants who had been ignored by computer players expressed their anger and outrage quite vocally to the experimenter during the debriefing session. Their distress at being ignored by computer players seemed to stem from the basic assumption that the computer is a tool to serve humans and hence a computer should not deliberately act to distress or alienate them. Being ignored by a computer was, for one participant, "the ultimate betrayal (because) it is supposed to do what I say!" Similarly, another participant (who was a computer programmer), stated that he had felt incredibly frustrated and angry during the game because "the computer is supposed to serve me. It's not supposed to reject me." It is possible that being ignored by a

computer violates our general assumptions about computer-human relations. When playing against humans, it is not beyond the realm of expectations that the other human players will favour one player over the other, because people display emotions, biases, and inconsistencies. But computers are without emotion, biases, or inconsistencies—they are here to serve humans. It seems that when computer players ostracise, they violate these assumptions of fairness. This in turn thwarts participants' expectations, and leads to anger.

If the “mindless” interaction between humans and computers does not completely explain the results of the present experiment, is it possible that source identity did not moderate the effect of ostracism because participants did not follow the instructions properly, and thus did not visualise playing with the appropriate source? There was no formal manipulation check assessing the source identity manipulation in the post-study questionnaire. Instead, a comprehensive verbal manipulation check was used to assess whether participants had followed the correct source manipulation during the Cyberball game. During the debriefing, participants were asked to describe what they were visualising during the Cyberball game (i.e., where they had visualised playing the game and the players with whom they had played the Cyberball game). All participants who had played with human players had vividly visualised the two student players. They had all assigned a gender, physical characteristics, and personal qualities to each player. For instance, one participant wrote in the comment section at the end of the questionnaire: “Player 1 is definitely a girl from Macquarie uni. She was a lot more relaxed than the guy from Sydney though her throws are really lousy.” During the debrief, all participants who played against human players asked the experimenter the gender of the players (which was allegedly discussed during the bogus phone call to the other universities participating in the experiment) in order to ascertain whether their visualisation had been correct. All participants who played with human players

expressed surprise when they learned that they had been playing with computer-generated players. The only participants who had guessed that they had been playing with computer-generated players were the two whose Cyberball game had crashed due to problems with the server (as previously stated, the data of these participants was lost due to problems with the computer or the Internet).

It may be argued that because there was no formal manipulation check for source identity in the post-study questionnaire, the results could be due to demand characteristics. However, the experimenter's verbal manipulation check during the debrief session, coupled with the complexity of the results, particularly the physiological findings (where each experimental group showed a distinct physiological pattern of responding during the game—discussed further below), would seem beyond the scope of mere demand characteristics. Nevertheless, in the next experiment (Experiment 4.2) acknowledged this shortcoming and incorporated a formal manipulation check for source identity in the post-study questionnaire.

Physiological Measures: Findings and Implication

The self-report measures suggested that source identity does not moderate the effects of ostracism. But what of the physiological responses to ostracism? Overall, there was some evidence that source identity did moderate the physiological effects of ostracism because each experimental group showed different patterns of cardiovascular responding during the Cyberball game. This contradicts the self-report findings whereby there was little evidence to suggest that the identity of the source moderated the impact of ostracism. Thus, although participants' conscious (self-report) responses to being ignored by a computer or human did not differ, they nevertheless experienced imperceptible differences in physiological functioning according to whether the source was a human or a computer.

Although each experimental group showed different cardiovascular responses during the game, difficulties arose in trying to interpret the nature of these responses according to Blascovich's Biopsychosocial model. The Biopsychosocial model classifies cardiovascular responses to an active coping task according to two constructs. The first construct, challenge, occurs when an individual perceives that they have the resources and ability to meet the demands of the situation (characterised by adaptive cardiovascular responses, such as an increase in blood flow and decreases in vascular resistance). The second construct, threat, occurs when the individual believes that they have neither the resources nor the ability to meet the demands of the situation (characterised by maladaptive cardiovascular responses, such as an increase in vascular resistance).

In the present experiment, only two of the groups—those who had been ostracised by computer players and those who had been included by human players—showed physiological patterns that could be interpreted according to the challenge/threat constructs of the Biopsychosocial model. Specifically, when challenge/threat indices were examined, participants who were included by human players or ostracised by computer players showed threat-type cardiovascular patterns during the game—that is, their cardiovascular performance indicated that they found the situation stressful, struggling to adequately meet the demands of the Cyberball game. Moreover, when relative differences in cardiovascular variables between the groups were examined, participants who were included by humans or ostracised by computers showed significantly higher levels of TPR (an important physiological indicator of threat) during Cyberball compared to those who were ostracised by humans or included by computers respectively.

Why would Cyberball be a threatening situation for participants in these two conditions? Participants who were ostracised by computer players typically reacted to

Cyberball with anger—in fact, participants in this group reported feeling angrier during the game than all other participants. They also expressed this anger (coupled with incredulity) in the open-comment section of the questionnaire and during the debrief session. Thus, in view of the fact that these participants had been faced with a situation that was fairly novel (after all, as one participant stated, the computer is supposed to serve humans, not reject and exclude them), it is not surprising that they displayed cardiovascular responses indicative of threat.

If anger and distress during an unfamiliar situation (being ostracised by a computer) leads to threat, then why would being included by humans during Cyberball also lead to the same cardiovascular response? One possible reason for this result is the sense of responsibility participants in this condition took upon themselves to ensure an equitable distribution of throws to each player. Participants in this condition often reported that they were worried about inadvertently ostracising one of the other players during the Cyberball game. For instance; “I just tried to even things up;” “I threw the ball to the person who didn’t throw it to me so that the ball was thrown in a circle. I thought about changing directions, but I wanted to see what the others would do, so I continued throwing in a circle (or triangle);” “Whoever threw the ball to me I threw it back to them. The male (Player 2) kept on throwing it to me so I continued to do the same. Then I felt bad to the female (Player 1) so I started throwing the ball to her;” “I wanted to be fair and give both of them (Player 1 and 2) a go;” “I tried to distribute evenly amongst participants however I think that I tended to throw towards player 2 because they caught the ball more.” In contrast, participants who were included by computer players described less detailed visualisations during Cyberball (“I just imagined it throwing it to the monitor;” “I played the game with the two computer icons on the screen”), and were generally unworried about making sure that the game was fair and equitable (“It didn’t matter who I threw it to, it was just the computer”).

Thus, it is possible that the effort of trying to keep the game fair and inclusive (and hence avoid ignoring one of the other players), may have led participants who were included by computers to exhibit threat-type responses.

Although participants who were included by humans or ostracised by computers both showed signs of threat during the Cyberball game, the physiological patterns exhibited by those in the remaining groups were more difficult to interpret according to the Biopsychosocial model. That is, participants who were included by computers or ostracised by humans showed physiological patterns indicative of neither challenge or of threat. In recent research, Blascovich and his colleagues (i.e., Blascovich & Mendes, 2000; Blascovich, Mendes et al., 2000) suggest that there are particular situations that will result in neither challenge or threat appraisals. Typically, these situations are those where the demands of the situation greatly outweigh resources, or resources greatly outweigh demands. Yet does this explanation clarify the physiological findings for participants in these two experimental groups? Participants who were included by computers showed no significant physiological changes during the game compared to baseline. Moreover, they were the only group to show a decrease (albeit not significant) in blood pressure. These physiological findings suggest that being included in a game of Cyberball by two computer players may represent a situation where participants' resources exceed the demands of the situation— after all, it is possible that the idea of playing a simple game of catch with two computer generated players may not be particularly stimulating for some.

But is this also the case for participants who were ostracised by human players? These participants also showed no significant changes in the cardiovascular indicators of challenge or threat from baseline. Yet they were the only group to show a significant increase in blood pressure during the Cyberball game— and hence supported the findings of Stroud et al. (2000) who also reported that being social excluded (during the

YIPS) led to increased blood pressure. This suggests that being ostracised by human players was physiologically stressful, yet the mechanisms underlying this response may have been very different than those underlying the threat response seen in those who were ostracised by computers or included by humans. For example, during the debrief session, participants who were ostracised by computers were very vocal in their outrage at being ostracised by a mere computer. In contrast, participants who were ostracised by human players tended to be very quiet during the debrief session. When questioned about their feelings during the game, participants who were ostracised by humans reported that they had been distressed at being ostracised during the game, yet they rarely expressed anger or outrage to the extent of those who had been ostracised by computer players.

The quiet demeanour of those ostracised by human players brings to mind the general signs of numbness exhibited by those ostracised during the train rides in Chapter 4 (see Baumeister & DeWall, in press). Those who were ostracised during the train ride also reported in the post-study questionnaire that they experienced lower levels of arousal and higher levels of stress during the ride. In the present experiment, participants who were ostracised by humans showed physiological signs of less arousal (i.e., no change in heart rate) yet higher levels of stress (i.e., elevated blood pressure) during Cyberball compared to baseline. It is possible that the physiological results of those ostracised by humans represent a first step in understanding the physiological signature of such numbness/lethargy (that is, the physiological responses that underlie numbness/lethargy) evident in those ostracised by humans.

Overall, although two groups showed patterns of physiological responding that are in accordance with the Biopsychosocial model (i.e., those who were ostracised by computers or included by humans), the other two groups did not (i.e., those who were included by computers or ostracised by humans). Although the current experiment

provided an important first step in examining the cardiovascular effects of ostracism, the fact that the physiological findings of the present study are difficult to interpret using the Biopsychosocial model seems to suggest that pairing this form of ostracism (i.e., Cyberball) with the Biopsychosocial model may not have been the optimum way of examining the physiological effects of ostracism.

There are several possible reasons why this may be the case. The first is that the Cyberball task itself may be not be sufficient to induce challenge/threat distinctions. The nature of what constitutes a challenge/threat inducing task has evolved through Blascovich et al.'s research, however recent articles have suggested that challenge/threat appraisals occur only in situations perceived to be "goal relevant to the performer, require instrumental cognitive performances, and are active rather than passive" (Mendes et al., 2002, p. 939). In this instance, goal relevance is defined as situations where a successful outcome is important for wellbeing or personal growth (Blascovich & Mendes, 2000), or where performance quality may impact on self-worth (Mendes et al., 2000; Wright & Kirby, 2003). It is apparent that Cyberball— a game where there are no winners and where the participant's performance (i.e., if the throw is bad or good) is not directly under their control— may not meet the requirements of goal relevance (as defined by Blascovich and his colleagues). Future ostracism research that desires to use Cyberball in conjunction with the Biopsychosocial model, could increase goal relevance by adding an evaluative or competitive aspect to the game. Questionnaire items directly assessing challenge and threat appraisals during the game should also be added to assess whether participants perceive that they have the necessary resources to meet the demands of the Cyberball game.

A second reason as to why pairing the Cyberball game with the Biopsychosocial model may not be the most appropriate means of examining the physiological effects of ostracism concerns the nature of the model itself. In a recent review of the

Biopsychosocial model studies conducted by Blascovich and his colleagues, Wright and Kirby (2003) highlight the fact that Blascovich et al., often have difficulty in supporting their own proposed pattern of challenge and threat indices. For instance, they cite one study (Tomaka, Blascovich, Kelsey, & Leitten, 1993) where a challenge response is described as an increase in VC and CO and a decrease in TPR, whereas in another study (Tomaka, Palacios, Schneider, Colotla, Concha, & Herrald., 1999), challenge is described as an increase in VC, decrease in CO, and a strong increase in TPR. There are similar discrepancies when reporting the cardiovascular patterns of threat—for instance, in one study (Tomaka et al., 1993) a threat response was described as a small increase in CO, VC, and TPR, whereas in another study (Tomaka et al., 1999), threat was characterised by decreases in CO, and increases in both VC and TPR. It is understandable that models such as the Biopsychosocial model must undergo considerable revision and refinement in order to best reflect empirical findings and the underlying theory. However, discrepancies in what constitutes challenge and threat make it exceedingly difficult to strongly predict and interpret physiological data according to the Biopsychosocial model at present.

In addition to theoretical inconsistencies as to what constitutes challenge and threat, another problem encountered by the Biopsychosocial model is the type of physiological equipment used to assess the parameters of the model may inadvertently affect the findings. Blascovich et al. (2001) state that different instrumentation (i.e., using a non-continuous versus a continuous blood pressure monitor) will influence cardiovascular data (particularly variables such as VC and TPR, as they are affected by repeated pressure of tissue under the blood pressure cuff). Hence, different laboratories (particularly those that use non-continuous blood pressure monitors such as that used in this experiment) may not find the same pattern of VC, CO, and TPR changes during challenge and threat as those found by Blascovich and his colleagues (who use a

continuous blood pressure monitor). Again, this suggests that there may be difficulties interpreting physiological findings of studies such as this one according to the Biopsychosocial model.

The problems encountered with using the Biopsychosocial model to interpret the data, coupled with the fact that Cyberball may not be a sufficiently evaluative task to elicit either challenge or threat, seem to suggest that a new approach is necessary to examine the cardiovascular effects of ostracism. As it has been a primary aim of the current research project to investigate aspects of ostracism that are relevant to real-life instances of ostracism, the next step in investigating the physiological effects of ostracism may be to conduct the study in the real world rather than the laboratory. Several researchers have used this approach— that is, conducting field studies to supplement or extend the findings of laboratory studies— to examine various complex social phenomena. One such example is the research conducted by Cacioppo and his colleagues to examine loneliness. In order to examine the health-related effects of loneliness, Cacioppo and his colleagues (e.g., Cacioppo, Hawkley, Crawford, Ernst, Burleson, Kowalewski, et al., 2002) first began investigating the effects of loneliness on task performance and cardiovascular functioning in the laboratory. In a series of studies, Cacioppo et al., (2002) observed that lonely young people had higher TPR and lower CO, during both rest and during various tasks (including coping tasks), as well as age-related increases in resting blood pressure, compared to non-lonely adults. According to Hawkley, Burleson, Berntson, and Cacioppo (2003), these findings led to the hypothesis that lonely people would exhibit chronically elevated TPR and CO during day-to-day life. Rather than continue to examine the phenomenon in the laboratory, Cacioppo and his colleagues decided to directly test this hypothesis by conducting a field study on lonely and non-lonely individuals (Hawkley et al., 2003). In this field study, participants were asked to complete a diary assessing their current social

and behavioural state, at nine random times during the day (the time of each entry signified by a watch alarm provided by the experimenter). While participants completed the diary entries, cardiovascular measures (i.e., heart rate, pre ejection period, respiratory sinus arrhythmia, and stroke volume) were taken via an ambulatory impedance cardiograph. According to the researchers, the assessment of concurrent physiological and self-report measures “permitted asking questions about the dynamic relationships among cardiovascular measures, events, and cognitions” (p. 108).

Although loneliness and ostracism are very different phenomena, the approach taken by Cacioppo and his colleagues to assess loneliness could easily be adapted to examine the social and cardiovascular responses to ostracism in the real-world. Future research that wished to further examine the physiological effects of ostracism should mirror the approach of Hawkey et al. and begin to examine the day-to-day physiological functioning of targets (and sources) of long-term episodes of ostracism to determine whether ostracism leads to higher levels of TPR (as seen in the present study in those who were ostracised by computers) and possible chronic elevations in blood pressure (indicated by the higher levels of blood pressure in those who were ostracised by humans). Such research would begin to clarify the assertions of targets of long-term episodes of ostracism concerning the deleterious effects of being excluded and ignored on health and overall wellbeing, as well as providing an opportunity to examine more comprehensively the moderating effect of factors such as source identity. Moreover, a field approach may begin to uncover the physiological costs (or benefits) of being a source of long-term ostracism.

Thus, although there is much research still to be done to determine the cardiovascular effects of ostracism, the physiological findings of this study (albeit far from conclusive), are suggestive of the physical price of being excluded or ignored, and provide an important first step in understanding the cardiovascular responses to

ostracism. Although there is considerable scope for future research examining the physiological effects of ostracism, the present experiment accomplished several aims. Primarily, a minimal group ostracism paradigm (i.e., being ostracised by computer players) was devised in order to empirically assess whether the power of ostracism overpowers moderating factors (specifically, source identity). Yet can the ostracism experience be minimised still further? That is, in addition to the identity of the source, can the impact of another moderating factor also be manipulated so as to further assess the power of ostracism? To explore this issue, Experiment 4.2 examined the extent to which source identity and the causal clarity of the ostracism episode (i.e., whether there was a clear, external cause for why the target was being ostracised) moderated the effects of ostracism

Experiment 4.2: The Effects Of Causal Clarity And Source Identity On Primary Needs And Self-Reported Health During Ostracism

According to Williams (2001), one of the defining features of ostracism is its ambiguity. Unlike other forms of aversive interpersonal interaction such as physical or verbal abuse, ostracism is "... cloaked in relative mystery..." (Williams & Zadro, 2001; p.27), and "an easy text to misread" (as described in one of the quotations that began this chapter). In the interviews with targets and sources of long-term ostracism, many targets stated that they did not know why they were being ostracised by the source. Regardless of whether targets tried to berate, beg, bargain, or buy their way out of the situation, sources often steadfastly refused to inform the target why they were being ostracised.

The causal ambiguity of ostracism forces targets to generate a reason as to why they are being ostracised. Some targets may choose to attribute the cause externally, possibly blaming the source or the situation. Other targets, however, attribute the cause

of ostracism internally, blaming their own actions or traits. By generating an external attribution for ostracism, the target absolves themselves of any responsibility for the act. However, by generating an internal attribution for ostracism, targets suffer potentially debilitating effects to their primary needs as they force themselves to acknowledge that the ostracism is solely their responsibility and, moreover, that aspects of their personality are potentially so loathsome that they deserve to be rejected or ignored by others.

The model of ostracism asserts that targets' attributions for ostracism play an important role in determining the effect of ostracism on primary needs. However, there has only been one study to date that has specifically examined the effects of this dimension of ostracism. Ezrakhovich et al. (1998) included or excluded female participants from a warm-up conversation activity prior to performing a group task. The reason for their ostracism was either clear (they arrived late for the experiment) or unclear (no information was given as to why they were being excluded). Ezrakhovich et al. found that when there was no causal clarity, participants who were ignored worked harder in the group task, ostensibly to help them to regain primary needs threatened when they were ostracised (e.g., a sense of belonging and self-esteem) and to attain group acceptance. According to Ezrakhovich et al., a clear reason for ostracism relieved targets of the need to generate a possibly derogatory set of self-attributions for being excluded and ignored, thereby mitigating the effects of ostracism.

From the Ezrakhovich et al. study, it is apparent that the effects of ostracism are reduced when the cause of ostracism is clear. Yet does causal clarity always reduce the aversive effects of being ostracised? In the Scarlet letter study (Williams, Bernieri, et al., 2000), five colleagues agreed to participate in a week-long study whereby they were each the target for one day. In this study, causal clarity was high— they all agreed to participate in the study, each knowing the day that they would be ignored. Yet the fact

that they had an external attribution for being ostracised did not stop many of the participants from attributing the ostracism internally. During their day as the target, many of the participants became paranoid that they were being ignored for reasons other than the study (e.g., that the others secretly did not like them), with one colleague wondering if the rest of his colleagues would still be hostile toward him even after his day as a target had finished. This study demonstrated that even when the cause of ostracism is explicit, and not in any way personal (i.e., a scientific endeavour), targets may still perceive the ostracism to be causally unclear and damaging to their primary needs.

Thus, Experiment 4.2 examined whether providing an explicit, causally clear reason for ostracism reduced its aversiveness. In this experiment (primarily a replication of Experiment 4.1), participants were either included or ostracised from the Cyberball game by two human players or two computer generated players. In addition, the causal clarity of the ostracism was manipulated. In the causally clear condition, participants were informed that the players (whether human or computers) were playing Cyberball according to a script given to them by the experimenter. This script instructed the players to whom they were to throw the ball every time it was their turn to play. These players thus had no control over their actions. In the causally unclear condition, participants were informed that the players were throwing the ball according to their own free will (or, in the case of computer players, random generation) and hence could throw the ball to whomever they pleased. Thus, participants in the causally clear conditions could externally attribute their ostracism to the script rather than attribute the ostracism internally, whereas participants in the causally unclear condition were forced to generate a reason as to why they were being ignored. If ostracised individuals know that the reason they are not being thrown the ball has nothing to do with them personally and yet still report lower levels of all four needs, then this would suggest that

it is the perception of one's own ostracism, not one's understanding of it, that is immediately threatening.

Experiment 4.2 also modified some of the measures used in Experiment 4.1. One potential problem with Experiment 4.1 was that participants were not asked to indicate on the post-experimental questionnaire whether they believed they were playing the game with humans or computers. Although their perceptions were assessed with a formal verbal manipulation check during the debrief session, it is possible that experimenter bias may have influenced their answers. Thus, although implausible, it is possible that participants simply did not attend to the instruction about who they were playing the ball game with, hence the lack of significant main effects or interactions with the human/computer manipulation on the self-reported needs. Although the significant interaction found on the measure of anger (in an unexpected direction), argues against this criticism that participants were not attentive to the human/computer manipulation, it is however possible that this interaction was spurious.

Therefore, in Experiment 4.2, explicit self-report manipulation checks were used to supplement the verbal manipulation checks used in Experiment 4.1. Also, additional ancillary variables were used to assess other aspects of the Cyberball experience (i.e., whether source identity and causal clarity led to hurt feelings).

Method

Participants and Design

One hundred and twenty undergraduates enrolled in introductory psychology at the University of New South Wales were randomly assigned to a 2 (inclusionary status: inclusion vs. ostracism) X 2 (source identity: computer generated vs. university students) X 2 (causal clarity: scripted vs. unscripted) between-subjects design experiment. Participants volunteered to take part in the experiment in exchange for course credit. As in the previous experiment, there were difficulties with the Internet

game (in this instance a virus). Thus, the data from only 77 participants (30 males, 47 females, M age = 19.6 years, SD = 1.9) were included in the statistical analysis.

Cardiovascular measures were also taken (as in the previous experiment). However, due to the computer virus and subsequent disruptions (i.e., the participant standing up or speaking to inform the experimenter of the problems with the Internet), much of the physiological data attained was either lost or corrupted. As there were insufficient remaining participants in each condition to conduct the necessary analysis, the physiological measures were discarded.

Materials

Ostracism manipulation. The experiment was conducted on eight versions (one per condition) of an Internet website, <http://psyberball.psy.unsw.edu.au/hos/> (no longer active). These websites were identical to those used in Experiment 4.1 except for modifications to the coverpages to accommodate the causal clarity manipulation (see Appendix Q for modified coverpages). In the scripted conditions, the coverpage reminded participants that the other players (whether computer generated or human) would be playing the game according to a script, and hence their actions were not spontaneous. In the unscripted condition, participants were reminded that the game was spontaneous and the players were free to throw the ball to whomever they chose (in the case of the computer generated players, this spontaneous action was explained by saying that the players would be throwing the ball randomly). In all conditions, participants were reminded that they were free to throw the ball to whomever they chose.

Dependent measures. The questionnaire was essentially the same as that used in Experiment 4.1, with a few modifications. As Experiment 4.1 did not have explicit manipulation checks for all independent variables, questions were added to assess source identity ("Did you play the Cyberball game with two students from Macquarie

and Sydney University, or 2 computer generated players?") and causal clarity ("Was the sequence of throws by Player 1 and Player 2 scripted/pre-programmed or spontaneous?") in addition to the two questions used in Experiment 4.1 to assess inclusionary status. One additional ancillary variable was added to examine whether the manipulations led participants to feel emotionally hurt ("My feelings were hurt during the game").

Procedure

Experiment 4.2 was essentially a replication of Experiment 4.1 with additional instructions provided to accommodate the clarity manipulation. As in the previous experiment, participants signed up for a study examining "mental visualisation and the Internet." Participants were shown into the same experimental room used in the previous experiment, consisting of a prep area and an experimental area.

The first part of the study was conducted using the same experimenter script as the previous experiment—that is, participants were informed that the study was a collaborative venture between three universities in order to assess the effects of mental visualisation and the Internet using a game called Cyberball (see Appendix R for script). Participants were then informed as to whether they were playing Cyberball with two students or two computer-generated players in accordance with the source identity condition. Unbeknownst to the participants, players in all conditions were computer generated.

In all conditions, the experimenter went on to describe that the aim of the exercise was to mentally visualise the Cyberball game as vividly as possible. At this point, Experiment 4.2 differed from Experiment 4.1 by modifying the causal clarity of the player's actions. In the causally clear conditions, participants were informed that the players would be performing the game according to a script. Participants who were playing Cyberball with human players were told that the students would have no choice

but to throw the ball according to how they were instructed (i.e., their actions were not spontaneous). Similarly, participants playing computer-generated players were told that the computer was pre-programmed to throw the ball in a particular sequence (i.e., the throws would not be spontaneous/random). In the causally unclear condition, participants were informed that the players would be playing the game spontaneously. Participants who were playing Cyberball with human players were told that they and the other students could throw the ball to whomever they chose. Participants playing with computer-generated players were told that the computer was throwing the ball randomly and that they were free to throw the ball to whomever they choose. In all conditions, participants were instructed on how to play the game, and how to signal to the experimenter that the game had finished (knocking on the wall). Participants were then asked to complete a consent form (the same as that used in the previous experiment) if they still wished to participate in the study. As in the previous experiment, the experimenter prepped the participant for physiological measures, attaching the electrodes of the impedance cardiograph to the recommended sites. The experimenter then directed the participant to read through the Cyberball coverpage and complete their demographic variables.

Participants in the human players condition were informed that the experimenter would be calling the other two universities to inform the other experimenters that they were ready to begin. The call followed the same script as used in Experiment 4.1. After the call was made, the experimenter entered the experimental area and told the participants that they should begin the game. They also reminded participants of the source identity manipulation. In the human players condition, participants were reminded to imagine playing the game with two students, whereas in the computer condition, participants were reminded to imagine playing the game with the two computer-generated players on the screen. The experimenter also reminded

participants of the clarity manipulation; participants in the causally clear condition were reminded that the other players would be throwing the ball according to a script, whereas participants in the causally unclear condition were reminded that the players would be throwing the ball according to their own free will. The experimenter then left the room and began monitoring the participant during the rest period. After 10 minutes, the experimenter informed the participant to begin the game.

After the participants completed the game, they were directed to complete the post-study questionnaire.

Debriefing As in the previous experiment, the experimenter enacted a verbal manipulation check, asking participants to state whether they had played the game with two human players or two computers, and whether or not the game had been scripted or unscripted.

The experimenter then fully debriefed participants, ensuring that they were aware that they were randomly assigned to conditions. Participants in the ostracism condition were carefully debriefed about all aspects of the game, and were given extra information about the nature of ostracism. Those in the human player conditions were informed that the players were computer generated and were made aware of why this subterfuge was necessary. Those in the scripted condition were informed that the game had been randomly generated unless they were in the ostracism condition. All participants were encouraged to talk about their thoughts and feelings during the game. After answering any remaining questions, participants were then thanked and allocated their course credit

Results

Three-way ANOVAs were conducted on each of the dependent variables to analyse the data. The means and standard deviations for all variables can be seen in Table 5.3.

Table 5.3

Experiment 4.2: Means and standard deviations (in parenthesis) of variables in (all scales 1 = not at all to 9 = very much so, unless otherwise stated).

	Source							
	Human				Computer			
	Inclusion		Ostracism		Inclusion		Ostracism	
	Scripted (n = 12)	Unscripted (n = 8)	Scripted (n = 7)	Unscripted (n = 11)	Scripted (n = 9)	Unscripted (n = 10)	Scripted (n = 9)	Unscripted (n = 11)
Fundamental Needs ^a								
Belonging	5.8 (1.5)	6.3 (2.0)	3.6 (1.9)	2.8 (1.2)	5.8 (1.6)	6.4 (1.4)	3.0 (1.4)	2.7 (1.3)
Control	5.8 (1.6)	6.8 (2.2)	2.7 (.90)	3.2 (1.5)	4.7 (.98)	5.5 (2.3)	2.9 (.96)	3.2 (1.6)
Self-esteem	6.9 (1.0)	7.6 (1.3)	6.1 (1.7)	5.1 (1.9)	6.3 (2.1)	7.7 (1.6)	4.5 (1.7)	5.4 (1.4)
Meaningful existence	6.1 (1.6)	7.6 (1.1)	2.8 (1.4)	3.6 (2.1)	5.7 (1.4)	6.2 (1.3)	3.7 (1.8)	3.7 (1.3)
Ancillary Variables								
I felt angry during the Cyberball game	1.8 (1.8)	2.0 (2.1)	2.1 (1.4)	2.8 (1.8)	2.2 (1.5)	1.0 (.00)	4.0 (2.2)	4.0 (2.2)
I enjoyed playing the Cyberball game	4.6 (2.3)	6.6 (1.8)	3.3 (1.5)	3.0 (1.7)	5.1 (1.8)	5.2 (2.2)	3.3 (2.2)	3.5 (1.8)
My feelings were hurt during the Cyberball game	2.2 (2.4)	1.1 (.35)	1.1 (.38)	3.2 (2.2)	2.1 (1.8)	1.2 (.42)	4.3 (2.7)	3.0 (2.2)

Table 5.3 continued.

	Source							
	Human				Computer			
	Inclusion		Ostracism		Inclusion		Ostracism	
	Scripted (n = 12)	Unscripted (n = 8)	Scripted (n = 7)	Unscripted (n = 11)	Scripted (n = 9)	Unscripted (n = 10)	Scripted (n = 9)	Unscripted (n = 11)
Manipulation checks								
To what extent were you included by the participants during the game?	6.2 (1.5)	6.9 (2.0)	2.4 (.53)	2.6 (1.5)	5.3 (1.7)	6.0 (1.9)	2.2 (.44)	2.6 (.69)
Rejected – accepted ^b	6.3 (1.8)	6.9 (2.2)	4.4 (2.1)	4.2 (2.0)	6.3 (1.9)	5.7 (2.6)	3.4 (2.1)	3.5 (1.9)

^a Each fundamental need score represents an average of three questions.

^b This was a 9 point scale with rejected –accepted as anchors.

Manipulation checks.

There was a significant main effect for inclusionary status, such that participants in the ostracism condition reported that they felt less included and more rejected than participants in the inclusion condition, (smallest F was for rejection, $F(1, 69) = 25.6, p < .0001$).

Unlike the previous experiment that only used self-report manipulation checks to assess inclusionary status, the present experiment used self-report manipulation checks to additionally assess source identity and causal clarity. The manipulation checks for source identity and causal clarity were forced choice questions asking participants to indicate whether they played with humans or computers, and whether the players threw spontaneously or according to a script. Examination of the data revealed successful

manipulation, with only 2% of participants not correctly identifying the identity of the players, and 4% of participants not correctly identifying the causal clarity manipulation.

However, it became apparent during debriefing that the results of the manipulation check did not fully reflect the nature of participants' experiences during the game. Specifically, during debriefing, several participants in the human players condition stated that they believed that they were playing the game with two students, however when completing the manipulation check, they realised that there was the possibility that were actually playing against computers. Thus, now aware of the possibility that they *could* have been playing with computers, these participants retrospectively construed that the players must have been computer generated and answered accordingly.

Separate analyses were conducted using all participants and excluding those that did not correctly answer the manipulation check. However, there were no differences in the results for these two samples. Thus, in view of the fact that a) there were so few participants who incorrectly answered the manipulation checks, b) there was a discrepancy between the self-report and the verbal manipulation checks for some of these students, and c) the results did not vary when these participants were included or excluded from the sample, all participants were included in the reported statistical analysis.

The self-reported effects of ostracism, source identity, and causal clarity on primary needs, ancillary variables, and stress/arousal

The four primary needs. As in Experiment 4.1, the items assessing each need were reverse scored where necessary and the internal consistency of the items assessed. Cronbach's alpha co-efficients for each need were as follows: belonging = .71; control = .80; self-esteem = .76; and meaningful existence = .69. The co-efficients suggested a

reasonable level of internal consistency for each need, thus the average for the items assessing each need were used in the analysis.

Main effects: As in the previous experiment, there were several significant main effects for inclusionary status on the four needs such that participants who were ostracised reported lower levels of belonging, control, self-esteem, and meaningful existence than participants who were included in the game, (smallest F was for self-esteem, $F(1, 69) = 25.2, p < .0001$).

There were no significant main effects for source identity on the primary needs (largest F was for control, $F(1, 69) = 2.2, p = .15$). However, there was a general trend such that participants who played the game with humans reported higher levels of all four needs than participants who played with computer players,

In terms of causal clarity, there was a single marginally significant main effect for meaningful existence such that participants who believed the game was unscripted (and hence had a lower level of causal clarity) reported higher levels of meaningful existence than participants who believed the game was scripted (and hence had higher levels of causal clarity), $F(1, 69) = 3.9, p = .052$.

Two-way Interactions: There was a marginally significant interaction between inclusionary status and source identity for meaningful existence, such that regardless of the identity of the source, participants who were included reported higher levels of meaningful existence than those who were ostracised, however, this difference was greater for those who with played human players, $F(1, 69) = 4.0, p = .051$. No other two-way interactions for the remaining needs were significant.

Three-way interactions: There were no significant three-way interactions for any of the four needs, $F_s < 1, ns$.

Ancillary variables. Main effects: There were several main effects for inclusionary status on the ancillary variables. Specifically, participants who were ostracised reported

feeling angrier, more hurt, and enjoyed the game less than participants who were included in the game, (smallest F was for hurt feelings, $F(1, 69) = 8.3, p < .005$).

In contrast, there were no significant main effects for source identity on the ancillary variables, (largest F was for hurt feelings, $F(1, 69) = 3.0, p = .088$). Nor were there any significant main effects for causal clarity on the ancillary variables, (largest F was for enjoyment, $F(1, 69) = 1.2, p = .277$).

Two-way interactions: There was a significant two-way interaction between inclusionary status and source identity for anger, $F(1, 69) = 5.0, p = .028$. Follow up analyses revealed that participants who played with humans reported similar levels of anger regardless of whether they were ostracised or included, $F(1, 36) = 1.3, p = .26$, whereas participants who played with computer players reported feeling significantly angrier when ostracised compared to when included, $F(1, 37) = 18.8, p < .0001$. Indeed, participants who were ostracised by computer players reported feeling angrier than all other participants. No other two-way interactions were significant.

Three-way interactions: There was a significant three-way interaction for hurt feelings, such that when the game was scripted (i.e., causal clarity was high), participants who were ostracised by the computer reported feeling more hurt, whereas participants who were ostracised by human players reported feeling less hurt than participants who were included in the game. In the unscripted condition (i.e., causal clarity was low), however, participants who were ostracised reported feeling more hurt than those who were included during the game regardless of whether they were ostracised by humans or computers, $F(1, 69) = 4.0, p < .05$. There were no other significant three-way interactions.

Stress and arousal. Main effects: There were significant main effects for inclusionary status on both stress and arousal such that participants who were

ostracised reported higher levels of stress and lower levels of arousal than participants who were included, (smallest F was for arousal, $F(1, 69) = 5.1, p < .03$).

There were no significant main effects for source identity on either stress or arousal, ($F_s < 1$). Nor were there any significant main effects for causal clarity, (largest F was for arousal, $F(1, 69) = 2.1, p = .15$).

Two-way interactions: There were no significant two-way interactions for arousal. However, there was a significant two-way interaction between source identity and causal clarity on stress such that higher levels of stress were reported by those who played humans when the game was unscripted, and computers when the game was scripted, $F(1, 69) = 4.3, p < .04$.

Three-way interactions: There were no significant three-way interactions for arousal or stress (largest F was for stress, $F(1, 69) = 1.6, p = .22$).

Discussion

Is ostracism so powerful a phenomenon that it overwhelms all moderating factors? The aim of the current experiment was to investigate this question by replicating and expanding upon the previous experiment to determine whether source identity and causal clarity moderate the effects of ostracism.

Overall, the results of Experiment 4.2 replicated the findings of the previous experiment. Once again, being ostracised resulted in lower self-reported levels of all four needs compared to being included. Ostracised participants also reported feeling angrier, more hurt, and enjoyed the game less than participants who were included in the game. In terms of self-reported health, participants who were ostracised reported higher levels of stress and lower levels of arousal than those who were included.

Overall, these findings replicate not only those of Experiment 4.1, but of previous ostracism research that has demonstrated that ostracism is more aversive than being included (see Williams, 2001). More importantly for the present investigation however,

ostracism by computers was just as unpleasant as ostracism by humans. That is, just as in the previous experiment, participants who were ostracised during Cyberball reported similarly low levels of the four primary needs, regardless of whether they were ostracised by humans or computers. There was, however, a marginally significant interaction between source identity and inclusionary status for meaningful existence, whereby participants who were included reported higher levels of meaningful existence, particularly if playing with human players. It is not surprising that playing humans would have a greater impact on meaningful existence, as participants may have felt that the game had more purpose than if they were simply playing with computer-generated players.

As with the primary needs, source identity typically did not moderate the effect of ostracism as assessed by the ancillary variables. There was, however, a significant interaction between source identity and inclusionary status for anger, whereby participants who were ostracised by a computer reported feeling angrier during the game than the other participants. This replicates the findings of the previous experiment whereby participants who were ostracised by computers also reported feeling angrier than the other participants. Participants who were ostracised by computers also responded in a similar manner during the debrief session as those participants who were ostracised by computers in Experiment 4.1. That is, they were quite vocal in expressing their distress and outrage at being ostracised by a computer (“I couldn’t believe a computer wouldn’t let me play!”; “I was surprised how disturbed I got that a computer was ignoring me during the game... it’s not like I was even that interested in playing”). The consistency of the findings across studies (and the inclusion of a manipulation check in the current experiment) provides strong evidence that there is something unique about being ostracised by a computer that invokes our anger. Why it is so provocative is open to speculation. It may simply be that being ostracised by a

computer represents a novel situation to which we have no existing pattern of response, yet would novelty alone account for significantly higher levels of anger? Or it may be that being excluded and ignored by a computer during Cyberball simply represents another situation where a computer has failed to comply with the demands (and thereby fulfil the expectations) of its human operator. That is, just as we are angered when our computer fails to open an important document or perform a command, becomes infected with a virus, or just plain crashes, being ostracised by a computer may represent yet another instance when the computer lets us down and thereby incurs our wrath. It may also be that being ostracised by a computer counters our beliefs about the acceptable behaviour of subservient objects (or even people) towards us— if it is the case that a computer “is meant to serve us,” then it is understandable that we become angry when it fails to respect our authority and perform its duty. Nevertheless, the fact that being ostracised by a machine upsets participants suggests that the very act of ostracism is inherently aversive, regardless of the source.

Although the current experiment aimed to replicate Experiment 4.1 by examining the aversiveness of a minimal form of ostracism— being ostracised by a computer— it also aimed to minimise the ostracism experience still further by manipulating the causal clarity of the ostracism episode. Specifically, if the primary needs that are threatened by ostracism require some higher-level interpretation of the ostracism event, then it would be predicted that providing participants with an external reason for why they were being ostracised (i.e., they were ostracised because the game was scripted/programmed) rather than allowing them to generate an internal attribution (i.e., they were ostracised because of some aspect of their personality), it would eliminate the negative impact of ostracism. If, however, ostracism is so powerful a phenomenon that it overpowers the moderating effects of all other factors, then the

fundamental needs will be affected without cognitive intervention, and causal clarity will play a minimal role in moderating the effects of ostracism.

Overall, the results suggest that, as with source identity, causal clarity had little effect on moderating the impact of ostracism. In terms of the primary needs, there was only a single marginally significant effect for causal clarity such that participants who believed the game was unscripted reported higher levels of meaningful existence than those who believed the game to be scripted. In retrospect, it is not surprising that those participants who were playing a game where each player was free to throw the ball to whomever they chose (or that each throw was random, in the case of the computer players) would believe that they had more of an impact on the direction of the game compared to players who believed that the sequence of throws was predetermined, and hence they personally had the opportunity to make very little impact on the game.

In addition to the marginally significant main effect for meaningful existence, there was only other significant effect for causal clarity—a three-way interaction between the independent variables for hurt feelings. Specifically, when interacting with human players, participants reported higher levels of hurt feelings only when they were ostracised by two players who had free choice as to whom they could throw the ball. Participants who played with computer players, however, reported more hurt feelings when they were ostracised, regardless of whether or not the computer game had been scripted. This result may suggest that when playing with humans, having an external reason for being ostracised may lead participants to take the act of ostracism less personally (i.e., feel less hurt). Yet, when ostracised by a computer, having some form of external justification for being ignored does not seem to moderate the effect of ostracism. This finding seems to suggest that a minimal form of ostracism, being excluded and ignored by a computer, has the power to hurt and anger us even when the act is given an external cause—that the computer has been preprogrammed to respond.

Thus, once again, it appears that ostracism, *per se*, is felt immediately as a negative and depleting experience. Participants' initial reactions to a short exposure to ostracism were not affected by two factors that would generally be regarded as rendering the ostracism experience meaningless: being ignored and excluded by a computer, and knowing that the players were told (or programmed) not to throw the ball to them. Instead, within minutes, feelings of belonging, control, self-esteem, and meaningful existence are reduced, simply because the participants were not thrown a ball while playing a relatively meaningless game that had no winners or losers, with players who they do not know and will not meet.¹³

General Discussion

Many ostracism researchers have suggested that the potentially debilitating costs of being excluded or ignored have led us to become exceptionally sensitive to all forms of ostracism, to the point where our responses to any act of exclusion may in fact be hardwired (see Eisenberger et al., 2003). Although there has been some research examining factors that may moderate the effect of ostracism (e.g., individual differences such as self-esteem, Williams, Cheung, & Choi, 2000; the identity of the source of ostracism, Williams, Govan et al., 2002), the studies have typically shown that the power of ostracism typically overrides any moderating effects of the variables investigated. For instance, after conducting a series of studies that failed to show consistent effects for the role of several moderators of ostracism, Williams, Govan et al. (2002) stated:

"our attempts to cross the ostracism inclusion manipulation with potential moderators failed to reduce the impact of ostracism. This could mean that ostracism is so powerful that it overrules factors that would seem reasonable to influence one's attributions for, and hence discounting of, the ostracism. Our cyberostracised participants were just as likely to be negatively affected regardless of

¹³ It is possible that participants viewed the scripted conditions as an attempt to ostracise them by the experimenter. Although no measures were taken to explicitly address this possibility, this suggestion would lead to an expectation of stronger effects under the scripted conditions (for human or computer sources), which were not found.

whether the ostracisers were friends or strangers to each other, belonged to the same social category, held similar or dissimilar attitudes to each other, or held different attitudes from the participant.” (p. 76).

Thus, rather than continue in the vein of Williams et al. and try to demonstrate the importance of moderating factors, the current study took a different approach by attempting to determine how minimal the ostracism act can be to still elicit aversive psychological effects. In order to strip ostracism to its core elements, two factors that were identified in the interviews (conducted in Chapter 2) as important moderators of ostracism—the identity of the source and the causal clarity of the ostracism episode—were manipulated such that their impact on the ostracism episode would be fundamentally reduced. The moderating effect of source identity was examined by manipulating whether participants were ostracised by human or computer players, whereas the moderating effect of causal clarity was examined by manipulating whether participants were told that the game was scripted/pre-programmed (hence high causal clarity). Thus, the power of ostracism could be empirically assessed by determining whether aversive psychological consequences arise during the most minimal forms of ostracism (i.e., when ostracised by a computer and when the reason for ostracism is explicit). The findings of the present study—that five minutes of ostracism lowers primary needs regardless of whether the target is ostracised by a human or a computer, or if an explicit explanation is given as to why the target is being ostracised—strongly suggest that ostracism is such an important warning signal that individuals are pre-cognitively attuned to its employment on them. For primates, and many other species (see Williams, 2001), ostracism means death. For humans, it surely signals the potential for difficult times ahead, possibly loss of contact and care from important others, loss of resources, and (in extreme cases), death. Hence, it appears that even the slightest hint of ostracism, in the present case by a computer, is enough to trigger emotional reactions that will activate coping strategies to increase one’s subsequent inclusion.

The present study demonstrated that the identity of the source and the causal clarity of the ostracism episode were generally ineffectual in moderating the effects of ostracism— findings that are in direct contrast to those of the interviews (Chapter 2), whereby targets consistently stated that the identity of the source played an important role in the ostracism experience. How can these apparently contradictory findings from the laboratory studies and the interviews be reconciled?

One possible way of explaining these seemingly incongruent findings may lie in the way in which ostracism is conceptualised and assessed in these two forms of research. Typically, in laboratory studies, the ostracism period lasts approximately five minutes. Moreover, the effects of the ostracism manipulation are assessed immediately afterward (i.e., through self-reports or behaviours). However, in the interviews, targets described periods of ostracism that lasted days, months, even years, and assessment of the ostracism event (i.e., the interview— a retrospective self-report measure) took place either during the ostracism episode or long after it had occurred. According to Williams (2001), laboratory studies (such as the present experiment) examine the *short-term* effects of ostracism. However, it is possible that 5-minute episodes of ostracism are only sufficient to examine the *immediate* effects of ostracism. By testing the effects of a five-minute episode of ostracism immediately after the ostracism manipulation, it is possible that the power of the phenomenon overwhelms all moderating factors, leading targets to universally respond in the same manner (i.e., lower primary needs, low arousal, and physical signs of numbness and impaired cognitive functioning). However, in the interviews, targets are describing either the effects of an ostracism episode that may be still taking place (i.e., concurrent effects), or the ongoing effects of an ostracism episode that has long since ended or has not yet been adequately resolved (i.e., reverberatory effects). With episodic or prolonged periods of ostracism, it is possible that the initial shock of being excluded and ignored begins to subside and moderating factors (i.e.,

situational factors or individual differences) come into play, thereby dictating how the target responds to the ostracism episode, the coping mechanisms that they employ, and the long-lasting reverberatory effects that continue even after the ostracism episode ceases.

The emerging importance of moderating factors during the concurrent phase is also suggested by the physiological findings of the present study. Specifically, each group showed a different pattern of cardiovascular responding during the Cyberball game. Although far from conclusive, this suggests that even if the target is not consciously acknowledging the importance of source identity in the initial phase of ostracism, source identity is moderating the effect of ostracism on an unconscious or physiological level. The different patterns of physiological responding to ostracism will have important ramifications for the ongoing effects of ostracism during the concurrent and reverberatory phases (i.e., ongoing maladaptive physiological responses to ostracism will have potentially detrimental effects, such as heart disease, or chronically elevated blood pressure). Although examining the physiological effects of ostracism during the concurrent and reverberatory phases would yield considerable information about the ongoing physiological price of ostracism on targets, it is well beyond the ethical and practical considerations of laboratory-based paradigms.

If it is the case that laboratory-based paradigms can only assess the immediate effects of ostracism, then the effects of moderating variables may only be evident if modifications are made to these paradigms. One possible modification is the length of the ostracism episode. Whereas 5-minutes of ostracism may potentially only yield initial effects, extending the length of the ostracism episode may allow time for moderating variables such as individual differences to be revealed (such as is evident in the interview data). However, although extending the ostracism episode will probably yield more information about the importance of moderating variables, it may be difficult to

achieve in a laboratory setting. Further, there would be serious ethical issues involved in prolonging the ostracism session to the extent that moderating variables come into play.

A second potential modification to typical laboratory-based studies would be to extend the period of time between the ostracism episode and the assessment (i.e., the post-study questionnaire). Most of the ostracism studies to date test the effect of ostracism immediately after the episode (i.e., through self-reports and/or behaviours). But if the period between ostracism and testing is increased, it may give time for individual differences and coping mechanisms to come into play. For instance, in the present study, immediate assessment of the effects of ostracism yielded no differences in primary needs for participants who had been ostracised by computers or by humans. However, if participants had been given another questionnaire assessing primary needs after a longer time interval (e.g., an hour later), it is possible that moderating variables, such as individual differences, would predict who would still be adversely affected by ostracism even an hour after the episode had ceased (e.g., those with high social anxiety; see Boland, Zadro, & Richardson, 2003). Extending the interval between ostracism and assessment may also help to uncover whether the negative psychological effects of being ostracised by humans during a Cyberball game persist longer than those of being ostracised by a computer.

Thus, according to the new model of ostracism (introduced in Chapter 2 and discussed further in the General Discussion), the power of being excluded and ignored overwhelms all other moderating factors immediately after the target perceives that they are being excluded and ignored (i.e., the initial phase of ostracism), whereas if the ostracism continues (i.e., the concurrent phase of ostracism), moderating factors such as source identity may play a more prominent role in determining the psychological and health-related effects of being ignored. Examining ostracism using experiential

categories (such as initial and concurrent phases) rather than temporal categories (the short and long term distinctions of the model of ostracism) represent a new way of interpreting previous (often contradictory) ostracism findings and shaping future ostracism research.

For instance, although the model of ostracism suggests the importance of moderating factors in determining the effects of ostracism, laboratory research has found that these factors typically do not influence the aversiveness of the ostracism experience. If the previous findings are interpreted according to the new model, then 5-minute periods of ostracism represent the initial phase of ostracism. During this initial phase, the ostracism sensitivity threshold (OST) is triggered, thereby setting in motion a complex set of instinctive, evolutionarily adaptive (and thus probably hardwired), set of cognitive, emotional, behavioural, and physiological responses. Thus, typical ostracism research tends to test the functioning of this automatic response. It is thus unsurprising that there were no differences reported between those who had been ostracised by computers and humans— during the initial phase, the act of ostracism itself is paramount. To see the effect of moderators (such as situational variables or individual differences), future research must either extend the period of ostracism or the period between ostracism and assessment.

IMPLICATIONS OF THE FINDINGS FOR THE CURRENT RESEARCH PROJECT

Overall, the present study contributed to the current research project— and supplemented past ostracism research— in a number of ways. First, although many ostracism researchers have discussed the power of ostracism, the present study attempted to empirically test whether any form of ostracism, regardless of how minimal, would still lead to a deleterious effect on the four primary needs. To do so, a minimal ostracism paradigm was developed that used an ostracism baseline

manipulation (i.e., being ostracised by a computer) to assess whether other factors (specifically, source identity and causal clarity) are important determinants of the aversiveness of ostracism. This minimal paradigm may be further modified by future researchers who are motivated to find an ostracism situation that involves ignoring and exclusion but that is so minimal as to not inflict emotional damage. However, based on the present findings, it appears that this search for the necessary and sufficient conditions for ostracism, at least when measured during or soon after the ostracism, may be difficult or impossible, if even being ostracised by a computer is sufficient to activate strong reactions.

In addition to providing a new paradigm, the current study also supplemented the findings of past ostracism research by examining the physiological as well as the psychological effects of being ostracised. In general, previous ostracism research has focused on examining the effects of ostracism on psychological functioning (for exceptions, see Eisenberger et al., 2003; Stroud et al., 2000). Research that has examined the physiological effects of ostracism has tended to focus on physical ostracism in animals (e.g., Raleigh & McGuire, 1986), or social isolation in humans (e.g., Uchino et al., 1996). By examining the physiological effects of being ignored in the actual or virtual presence of others, the present study represented a first step in delineating the patterns of cardiovascular responding that result from every-day episodes of ostracism, such as being ignored during a conversation. The results suggest that although there is no consistent pattern of cardiovascular responding during ostracism, targets of ostracism (whether by a human or computer) do exhibit signs of maladaptive physiological responses (i.e., elevated TPR and DP). However, unlike the self-report data where targets ostracised by humans and computers both reported similar levels of primary needs, the physiological data suggests that source identity does have an impact on the nature and severity of cardiovascular responses to ostracism. In

fact, each group showed a different cardiovascular signature during the game—in some groups, Cyberball led to cardiovascular patterns indicative of threat (i.e., those who had been included by humans or ostracised by computers), or signs of stress including elevated blood pressure (i.e., those who had been ostracised by humans), whereas for others (i.e., those who had been included by computer players), the game induced little change from baseline. Although interpretation of the results was hampered by inconsistencies in the group responses and with the Biopsychosocial model, the results nevertheless suggested that ostracism leads to complex changes in the cardiovascular system that are not consciously perceptible (hence the discrepancy between self-reports and physiological findings). It is evident that more research needs to be conducted to further explore the nature of the physiological (e.g., cardiovascular, immune functioning, facial coding, etc) responses to ostracism.

Finally, the current research has real-world applications as it furthers our understanding of social interactions in cyberspace. Rintell and Pitman (1997) have found that despite the view that cyberspace brings people together, many perceive that they are being ignored over cyberspace. The current study indicates that not only is it aversive to be ignored in cyberspace, but the identity of the source is unimportant. Thus, regardless as to whether the target is being ignored by a stranger in a chatroom, or is excluded from a friend's mailing list, their primary needs will be threatened.

Yet, what is even more cause for concern are the preliminary physiological findings that even 5 minutes of ostracism over the Internet is enough to trigger maladaptive cardiovascular responses—responses that, if prolonged, can lead to suppressed immune functioning, illness and (in extreme cases) death (e.g., Hawkley et al., 2003). As the cyber medium is filled with potential ostracism situations—intended or unintended—this findings is particularly disconcerting, particularly to those who are exceptionally vulnerable to ostracism and who are using the Internet as a means of

supplementing their social bonds (i.e., those who are lonely, socially isolated, or perpetually ignored). Again, further research is necessary to extend the current findings and further explore the physiological parameters of a phenomenon that affects so many, both in and out of the cyber realm.

CHAPTER 6

General Discussion

*Speech is human, silence is divine, yet also brutish and dead:
therefore we must learn both arts."*

Thomas Carlyle (1795 - 1881)

Ostracism is all around us. It permeates every facet of society in a multiplicity of ways every single day. Every aspect of our day-to-day lives contains the potential for ostracism—for instance, in the workplace, our colleagues may deliberately or inadvertently fail to answer our emails, or may exclude us from social gatherings after work; in the home, our loved ones may punish us for some misdemeanour by leaving the room when we enter and refusing to meet our gaze over the dinner table; even in public transport, we may sit in such close proximity to a fellow passenger that we are forced to spend the entire journey uncomfortably wedged against one another, yet we will sit in silence and act as though we are travelling alone. Thus, it seems that regardless of whether ostracism is socially sanctioned or personally devastating, being excluded and ignored is a fundamental part of our social existence.

The many types of ostracism that we encounter in our day-to-day lives, either as targets or sources, suggest the complexity of the phenomenon. One wonders whether much of this complexity is lost when ostracism is examined in a laboratory setting. In laboratory-based paradigms, ostracism researchers are typically forced to examine aspects of ostracism in isolation. Although this approach has led to many interesting findings and insights, there is the possibility that researchers are examining aspects of ostracism that bear very little resemblance, or relevance, to ostracism in the real-world. If this is the case, then there is the distinct possibility that the laboratory-based findings will have very little applicability to ostracism experiences outside of the laboratory.

Thus, in order to maximise the relevance of the current research project to ostracism in the real-world, I took a different approach than previous researchers by first examining ostracism from the perspective of real-life targets and sources in order to determine areas of ostracism that have real-world relevance, but that have not yet received extensive empirical attention. These issues were then more systematically explored in laboratory-based studies using a multi-method approach. The research project began first with a qualitative technique to identify aspects of ostracism in need of further investigation (i.e., interviews in Chapter 2), and then employed progressively more empirical methods in each subsequent chapter (i.e., questionnaires in Chapter 3; a role-play paradigm in Chapter 4; and a laboratory-based paradigm supplemented by physiological measurement in Chapter 5) in order to explore various real-life ostracism issues initially identified as needing further investigation. The results of the empirical studies that were derived from the interviews both replicated and expanded the findings of previous ostracism research. Moreover, the findings of these studies not only supplemented the current model of ostracism, but also led to the development of a new model of ostracism (presented in Figure 6.1). The results of these empirical studies are briefly reviewed below.

A BRIEF REVIEW OF THE EMPIRICAL FINDINGS OF THE CURRENT RESEARCH PROJECT

Ostracism researchers have often stated the ubiquity of ostracism, emphasising that all of us, at one time or another, will be targets and sources of ostracism (e.g., Williams, 2001). But are some people more likely than others to be targets and/or sources of ostracism? Williams's (1997/2001) model of ostracism elucidates several factors that may act as antecedents of ostracising others (e.g., individual differences, situational forces), however, to date, there has been no quantitative research to investigate the role of antecedents in predicting the propensity to be either a source or a

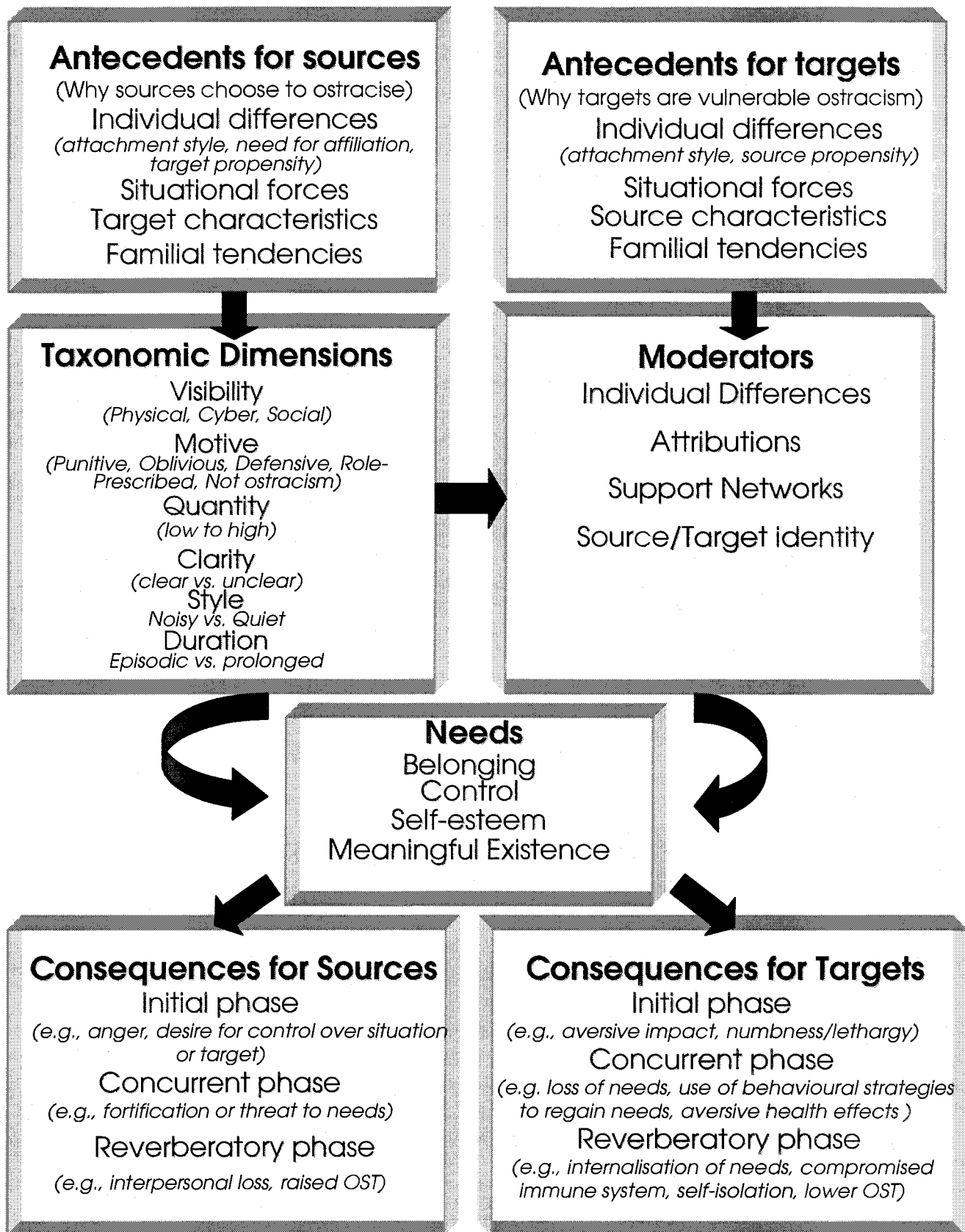


Figure 6.1: The New Model of Ostracism

target of ostracism. Thus, the current research project examined the role of specific individual differences as antecedents for sources and targets of ostracism (i.e., attachment style, need for affiliation, desire for control, locus of control, self-esteem, death anxiety, and stubbornness). Overall, the findings suggest that individual differences play only a small role in predicting the likelihood that someone will be a source of ostracism (i.e., those who had a low need for affiliation or an insecure attachment style reported that they were more likely to be sources), or a target of ostracism (i.e., those who had a preoccupied attachment style reported that they were more likely to be targets). In fact, the personality trait that best predicted the propensity to be a source was the propensity to be a target—a trait not listed in Williams's model as a potential antecedent for ostracism.

By systematically examining whether specific individual differences act as antecedents of ostracism, the current research project demonstrated that some people are more likely to be either targets or sources of ostracism. But rather than simply examining the factors that *precede* ostracism, the current research project also investigated the psychological and health-related processes that occur *during* ostracism. For instance, one of the most fundamental findings of Williams and his colleagues is that being ostracised by others (whether from an activity, a conversation, or from being a member in a group) is far more aversive than being included; that is, targets of ostracism typically report lower levels of all four primary needs compared to targets of inclusion. The current research project replicated such previous research by demonstrating that regardless of whether participants were tested on a simulated train ride (Chapter 4), or a game of Cyberball (Chapter 5), targets of ostracism generally reported lower levels of the four primary needs than targets of inclusion. Moreover, when ancillary variables were also assessed, targets of ostracism also reported feeling angrier, enjoyed the game less, and stated that their feelings were more hurt than those

who were included (Chapter 5). Targets of ostracism also reported more aversive health-related effects than those who were included regardless of the paradigm used to induce ostracism. Specifically, targets of ostracism reported higher levels of anxiety (Chapter 4), more stress, and lower levels of arousal (Chapter 5) than those who were included.

The results of these studies provided support for previous ostracism research that being excluded and ignored leads to more aversive psychological and health-related effects compared to being included (see Williams, 2001). But what about *ostracising*? How does ignoring and excluding others affect primary needs compared to including others? Previous ostracism research has typically focused on targets of ostracism (for an exception, see Ciarocco et al., 2001). However, because of the nature of the train ride—a paradigm that allowed simultaneous examination of both targets and sources (Chapter 4)—the current project was able to expand on previous research by also examining ostracism from the perspective of sources. The results suggest that although targets of ostracism reported lower levels of primary needs during ostracism compared to those who were included, sources of ostracism reported *higher* levels of primary needs (i.e., belonging, control, and self-esteem) than sources of inclusion during the train ride. Although it seems unusual that performing an act of social conflict would result in higher primary needs than social inclusion, the fortification of needs as a result of ostracising sheds some light on why individuals continue to use exclusionary tactics even at the expense of their personal relationship with the target.

The results of the current research project suggest that the experience of ostracism—whether being ostracised, or of ostracising others—differs substantially from social inclusion. Yet, does ostracism also differ from other forms of social conflict? Although Williams (1997, 2001) has often described ostracism as a unique form of interpersonal conflict, there have been no empirical studies that compare the

effects of ostracism to other forms of conflict. Thus, the current research project compared the effects of ostracism to that of argument for both targets and sources (Chapter 4). Overall, the train ride studies provided evidence that for both targets and sources, ostracism was unique from argument. Specifically, targets of ostracism typically reported lower levels of the primary needs than targets of argument. Sources of ostracism, however, typically reported higher levels of the primary needs than sources of argument. Moreover, when targets and sources were compared within each form of social conflict, targets of ostracism reported significantly lower levels of all four needs compared to sources of ostracism, whereas targets of argument reported significantly lower levels of *selected needs* compared to sources of argument (i.e., self-esteem in Experiment 3.1, and belonging and control in Experiments 3.2 and 3.3). Ultimately, the findings of the train ride studies suggest that ostracism may be construed as a more effective form of interpersonal conflict (at least from the perspective of sources) than arguing, as it simultaneously fortifies the primary needs of sources while lowering the primary needs of targets.

Thus, the current research project demonstrated that ostracism is unique from both social inclusion and other forms of social conflict (i.e., argument). For targets, being ostracised is a more aversive experience than social inclusion or arguing. Yet will ostracism always be a universally aversive experience for targets? Or can the aversive nature of the ostracism experience be moderated? Although the model of ostracism outlines several factors that may moderate the effects of ostracism (e.g., individual differences, attributions), the findings of the empirical studies have been mixed as to whether these factors can actually influence the effects of ostracism on targets (e.g., Lawson Williams & Williams, 1998; Williams, Govan, et al., 2002). The current research project also examined the effects of moderating factors—specifically, the identity of the sources and causal attributions— but did so by minimising their importance so as to

examine the power of ostracism. That is, if the very act of ostracism is adverse enough to induce deleterious psychological effects, then targets should report lower levels of the primary needs regardless of the identity of the source, or the causal attributions for ostracism. Even minimal acts of ostracism (e.g., being excluded and ignored by a computer during a game a Cyberball that has been pre-programmed) should still lead to deleterious psychological and somatic effects. The results of Chapter 5 provide empirical evidence that the power of ostracism supersedes moderating factors as neither the identity of the sources, or causal attributions, influenced the deleterious effects of the ostracism experience. However, there is some suggestion that these moderators may play a role in determining the *physiological* effects of ostracism. Although the physiological results were far from reliable, there was still evidence to suggest that source identity and causal attributions influenced the effects of ostracism on an unconscious level, because participants in each group exhibited different physiological patterns in response to the Cyberball game. However, the most important point is that the self-report and physiological findings suggest that ostracism is such a powerful signal that even being ignored by a computer can activate strong reactions.

Thus, the current research project provided empirical evidence for the power and uniqueness of ostracism when compared to social inclusion and arguing. Moreover, by demonstrating that the power of ostracism supersedes moderating factors such as the identity of the source and causal attributions, the current project provided strong evidence for a very primitive and automatic adaptive sensitivity to even the slightest hint of social exclusion.

CONTRIBUTION OF THE CURRENT RESEARCH PROJECT TO THE OSTRACISM LITERATURE

In addition to replicating and expanding the findings of previous ostracism research, the current research project has contributed to the current ostracism literature

in a number of ways. First, it has examined aspects of ostracism that have been identified as important in real-life experiences of ostracism but which have been ignored (or have received little empirical investigation) in previous ostracism research. Second, the current research project has developed new ways of investigating ostracism. There are presently many paradigms used to induce ostracism in the laboratory, ranging from conversation paradigms (where the target is ignored during a conversation), to cyber paradigms (where the target is excluded or ignored over the Internet). In the current project, a new paradigm—the train ride—was added to the existing repertoire of laboratory-based ostracism paradigms. As a role-play paradigm, the train ride can be used to investigate almost all aspects of the model of ostracism from the perspective of targets and sources. Moreover, the current research project also modified an existing ostracism paradigm—Cyberball—to create a minimal ostracism paradigm (i.e., comparing the effects of being ostracised by computer players and human players), thereby providing a means of examining whether the power of ostracism supersedes moderating factors (e.g., the identity of the sources, causal attributions).

Third, in addition to creating new paradigms to induce ostracism, the current research project modified the way in which the effects of ostracism are assessed. Specifically, the studies in the present project have attempted to compliment existing self-report measures assessing the psychological effects of ostracism (e.g., primary need-threat) with questionnaires assessing somatic effects (e.g., stress and arousal scales) or direct physiological measures (e.g., cardiovascular variables such as blood pressure, total peripheral resistance, etc) in order to attain a more complete picture of the effects of ostracism on both the body and mind.

Finally, the current project has resulted in the development of a new model of ostracism which will hopefully act as a framework for future ostracism research.

Although it retains the basic theoretical underpinnings of Williams's model, the new

model differs from Williams's model in two important ways: a) it examines the nature of ostracism from the perspective of both targets and sources; and b) it elucidates the effects of ostracism on both targets and sources using experiential (i.e., the initial phase, the concurrent phase, and the reverberatory phase) rather than temporal dimensions (i.e., immediate, short-term, and long-term effects). The new model of ostracism will be outlined further below.

A NEW MODEL OF OSTRACISM

The findings of the current research project have not only shed light on aspects of ostracism that have been ignored in prior ostracism research, they have also provided an opportunity to test Williams's model of ostracism. The model of ostracism is, for the most part, a theoretical model. As such, many sections of the model have not yet been empirically assessed. The current research project investigated various aspects of the model using both quantitative and qualitative methods. Overall, the interviews provided the most insight into the complexity of real-life experiences of ostracism, and hence provided the impetus for most of the changes to the model. As a result of the findings of the interviews, and the subsequent empirical studies, sections of the model were modified, others sections were added, and a new model of ostracism was developed.

Overall Structure Of The Model

As previously stated, aside from the antecedents section (which is from the perspective of sources), Williams's model elucidates the experience of ostracism from the perspective of targets. Despite its bias toward targets, the model has served admirably as a framework for laboratory research, primarily because most laboratory research has also typically focused on investigating targets of ostracism. It is not then surprising that when the current research project attempted to examine the experiences of *both* targets and sources, the model proved to be an inadequate framework to either

predict or interpret the findings for sources. Even for targets, the model failed to adequately predict aspects of the ostracism experience (e.g., factors that may act as antecedents for targets).

The model's inability to adequately predict or interpret many of the present findings mainly stems from an inherent structural flaw—it rigidly assigns aspects of ostracism (i.e., antecedents, moderators, reactions, etc) as being relevant to *either* targets or sources. Yet the findings of the current project (specifically, Chapters 2, 3, and 4) suggest that sections of the model that focus solely on either targets or sources could actually be seen from both perspectives—for instance, although the model focuses on the effect of ostracism on targets' four primary needs, it became apparent from the interviews and the train rides that the primary needs of sources were also affected during ostracism. Similarly, although the model only presents antecedents that lead sources to ostracise others, the interviews suggested that there may also be antecedents that lead targets to be more susceptible to being ostracised.

Thus, the new model of ostracism has modified Williams's model (to be referred to as Williams's model or the *previous* model) in a number of ways. First, it examines the ostracism experience from the perspective of both targets and sources. As can be seen from Figure 6.1, the new model of ostracism outlines antecedents, moderators, and reactions (termed *consequences* in the new model of ostracism) for both targets and sources. Second, in addition to adding new sections to the previous model (i.e., antecedents for targets, moderators for sources, and reactions for sources), the findings of the current research project have enabled existing sections of Williams's model to be expanded (i.e., the taxonomic dimensions, antecedents, moderators), or reconfigured (i.e., the reactions sections). In the following sections, each component of the previous model (i.e., taxonomic dimensions, antecedents, moderators, threatened

needs, and reactions) will be discussed according to whether the findings of the present study suggested *support* for the previous model or *modifications* to the model.

Taxonomic Dimensions

Support for Williams's model.

The previous model classifies ostracism according to four taxonomic dimensions: visibility, motive, quantity, and clarity. Overall, the current research project found ample support for these dimensions. In terms of visibility, the targets and sources of long-term ostracism interviewed in Chapter 2 described instances of ostracism that were cyber (e.g., being ignored over email), physical (e.g., walking out of the room when the target was present), or social (e.g., refusing to acknowledge comments or questions) in nature. The interviews also yielded instances of ostracism that differed in terms of their motive (although most instances were perceived as punitive ostracism), quantity of ostracism (ranging from low to high levels of ignoring and rejection), and clarity (ranging from low to high levels of clarity).

Modifications to Williams's model.

In addition to supporting the taxonomic dimensions described by the previous model, the findings of the interviews also suggested the need for two additional taxonomic dimensions of ostracism. The first dimension is the *duration* of the ostracism period. It became apparent from the interviews that the duration of the ostracism experiences described by targets and sources could be classified into two categories—prolonged or episodic. Prolonged ostracism refers to a single episode of ostracism that persists over several hours, weeks, days, or even years, whereas episodic ostracism refers to when targets are repeatedly exposed to multiple instances of ostracism by the same source throughout their relationship. Typically, ostracism research to date has focused on examining the effects of a single ostracism episode (of a very short duration) rather than repeated instances of ostracism (i.e., episodic ostracism).

Although we have yet to compare the effects of being exposed to single or repeated bouts of ostracism, many of the targets of long-term ostracism who were interviewed reported that both forms of ostracism were detrimental to their overall health and wellbeing.

The second new taxonomic dimension suggested by the interviews is *style* of ostracism (i.e., the manner in which the ostracism was executed). From the interviews, it was apparent that there were two overall styles of ostracism—noisy and quiet. Noisy silence refers to instances when the source supplements not speaking to the target with flamboyant gestures, non-verbal behaviours, and occasional utterances designed to convey to the target that they are being ignored (e.g., “I’m not talking to you”). In contrast, quiet silence occurs when the source no longer acknowledges the target’s existence, thereby ceasing, or curtailing, all verbal and non-verbal communication with the target. Quiet silence can be broadly divided into four sub-categories; holding-back (when the source is literally too angry to speak to the target), tuning-out (when the source chooses to focus on another thought or activity rather than acknowledge the target), shutting-down (a defensive mechanism that occurs when the source is under extreme emotional stress and needs time to process the situation), and cutting-off (when the source no longer wishes to acknowledge that the target exists).

Thus, the new model of ostracism maintains the general structure of the taxonomic section as outlined in the previous model, but modifies the section by including two new dimensions (i.e., duration of ostracism, style of ostracism) that arose during the interviews with targets and sources of long-term ostracism.

Antecedents

Support for Williams’s model

Although the antecedents section of the previous model has received the least empirical attention from ostracism researchers, it has nevertheless undergone the most

revisions. In the most recent version of Williams's model (Williams, 2001), three antecedents as to why sources choose to ostracise are presented— individual differences, role/ relational differences, and situational demands. The findings of the current research project (specifically, the interviews in Chapter 2, and the personality questionnaires in Chapter 3) represent a first-step in systematically investigating the antecedents of ostracism. The interviews and personality questionnaires provided support for the antecedents outlined in the recent versions of Williams's model. That is, sources described various individual differences (e.g., stubbornness, low need for affiliation), situational demands (e.g., peer pressure), and role differences (e.g., being angry with a higher status colleague) that led them to use ostracism.

Modifications to Williams's model

Modifications Pertaining to Sources. The interviews also suggested some possible modifications to the antecedents section of the previous model. For instance, the individual differences section could incorporate the various personality traits of sources that arose during the interviews (e.g., perpetual versus sporadic use of ostracism, stubbornness, quiet temperament), and the personality traits assessed in Chapter 3 (i.e., attachment style, need for affiliation, and propensity to be a target).

As well as suggesting needed modifications to the antecedents section, the interviews also revealed several potential antecedents for ostracising that are not evident in the model. One such antecedent is *familial tendencies*. All of the targets and sources who were interviewed stated that the way in which their family dealt with conflict had a profound impact on their own choice of interpersonal conflict style. For instance, whereas some sources deliberately used silence so as not to perpetuate the verbal or physical abuse that they received while growing up, others stated that they came from "a long line" of ostracisers, and hence continued the patterns of silence and exclusion that they had experienced as a child.

In addition to familial tendencies, another potential antecedent as to why sources choose to use ostracism is *target characteristics*. Many of the targets and sources who were interviewed stated that some targets possessed personal characteristics that made them more likely to be ignored and excluded. Although some of these characteristics were negative in nature (i.e., the target was in some way physically, mentally, or morally offensive to society), others targets were ostracised because of positive personal characteristics (e.g., good debating skills), or because they admitted a pre-existing vulnerability to ostracism (and hence were ignored by the source during the next conflict). It seems that once sources realise that the target will respond to being ostracised, forms of ignoring and exclusion become the favoured form of interpersonal conflict.

Modifications Pertaining to Targets. Overall, these changes to the antecedents section represent only slight modifications to the existing structure of the model. However, as previously stated, the model would benefit by representing the ostracism experience from the perspective of both targets and sources. Thus, the new model of ostracism includes an antecedent section for targets to compliment the existing antecedent section for sources. The antecedents section for targets parallels that for sources, as it was apparent from the interviews that the factors that led sources to use ostracism also led targets to be more likely to be ostracised (i.e., individual differences, situational forces, familial tendencies, and source characteristics). Specifically, the interviews with targets of long-term ostracism, and the personality questionnaires in Chapter 3, suggested several *individual differences* that made targets more vulnerable or susceptible to ostracism (e.g., a previous history of being ostracised that left them fearful of rejection, preoccupied attachment style, propensity to be a source of ostracism). In addition to individual differences, *situational forces* also played a role in determining the likelihood of being a target of ostracism (e.g., role differences— targets

stated that they were ignored in the workforce by those in a position of power), as did *familial tendencies*, with many of the targets who were interviewed stating that receiving the silent treatment from their family as a child led them to be more susceptible to ostracism in adulthood. Finally, *source characteristics* may also play a role in determining whether targets are likely to be ostracised. That is, some sources may possess certain qualities or traits that may lead them to use ostracism rather than other forms of interpersonal conflict regardless of anything the target may do or say (e.g., people who are not good debaters, those who can not handle confrontation, those who are proud rather than penitent about their use of ostracism, etc).

Thus the new model outlines four antecedents for sources— specifically, individual differences (e.g., insecure attachment style, low need for affiliation, propensity to be a target), situational forces (including role differences and social pressures), familial tendencies, and target characteristics. The model also acknowledges the role of targets in the commencement of ostracism by presenting four antecedents for targets— individual differences (e.g., preoccupied attachment style, propensity to be a source of ostracism), situational forces (including role differences and social pressures), familial tendencies, and source characteristics. The inclusion of an antecedents section for targets represents a considerable modification to the previous model, however the inclusion of this section better reflects ostracism in the real world.

Moderators

Support for Williams's model.

According to Williams's model, the effects of ostracism on targets may be moderated by two factors: individual differences and attributions. There was strong support for these claims in the interview data (albeit limited support in the laboratory). That is, many of the targets who were interviewed described how individual differences influenced the negative impact of the ostracism episode. Specifically, targets who

already suffered from low levels of affiliation, control, self-esteem, or sense of purpose reported that being ostracised compounded their fragile self-view and led to ongoing psychological distress. Several of the targets interviewed also described how attributions moderated the effects of ostracism. That is, those who attributed the cause of ostracism to internal factors (i.e., self-blame) tended to experience more aversive effects to their primary needs and physical wellbeing than targets who attributed the cause of ostracism to external factors (i.e., blamed the source or the situation).

Modifications to Williams's model.

Modifications Pertaining to Targets. In addition to attributions and individual differences, the findings of the interviews also suggested two additional factors that may also moderate the effects of ostracism. One factor is the identity of the source (i.e., *source identity*). Specifically, targets of long-term ostracism stated that the aversive impact of the ostracism episode varied according to whether the source was a loved one (i.e., the effects of ostracism were more aversive) or an acquaintance (i.e., the effects of ostracism were less aversive). Although the identity of the source may seem like an obvious moderating factor, the findings of the Cyberball study presented in Chapter 5 failed to find that the identity of the source influenced the aversive effects of ostracism. In that study, targets reported lower levels of all four primary needs regardless of whether they were playing against computers or humans. However, the physiological findings of that study (albeit not as reliable as the self-reports), suggested that source identity may moderate physiological responses to ostracism. In addition, source identity may play a more important role in determining the effects of ostracism in the real-world (where ostracism is conducted by loved ones and may last indefinitely) than during five minutes of ostracism in a laboratory setting (where the target is ostracised briefly ostracised by a stranger).

Another potential moderator that was suggested by the interviews is *support networks*. Specifically, many of the targets who were interviewed stated that the effects of ostracism, although uniformly devastating, were easier to bear when one had a strong support network of family and friends through which one could possibly regain a sense of belonging, self-worth, and purpose. Although members of the support network cannot replace the bond that has been severed by silence, they can assist the target to realise that they are worthy of acknowledgement, and thereby may help to buffer many of the aversive psychological and physiological effects of being ignored.

Modifications Pertaining to Sources. The addition of factors such as support networks and source identity represent modifications to the moderators section of the previous model. However, the interviews also provided evidence that the structure of the model needs to be modified to include a moderators section for sources. The new moderators section for sources parallels the moderators section of targets, as there was evidence from the interviews that the factors that moderated the effects of being ostracised also moderated the effects of ostracising others (i.e., individual differences, attributions, the identity of the target, and support networks). Specifically, many of the sources who were interviewed described *individual differences* that made ostracising the target easier and hence reduced any aversive effects of ostracising. For instance, sources of long-term ostracism who described themselves as enjoying solitude generally stated that their primary needs were unaffected when they ignored others. Similarly, sources' attitude toward ostracising also moderated the effects of ostracising such that sources who were proud of using ostracism tended to report fortification rather than loss of primary needs, whereas those who were penitent tended to report lower needs (particularly self-worth), as a result of ostracising the target.

Several of the sources who were interviewed also described how *attributions* moderated the effects of ostracising. Specifically, sources reported feeling less guilty or

apologetic when they could make an external attribution for ostracising the target (e.g., the target had committed some misdemeanour against the source) compared to when they made an internal attribution (e.g., the source acknowledged that they had committed the misdemeanour against the target). Moreover, having an external attribution often made sources less likely to stop the ostracism episode without some show of contrition by the target (e.g., an apology or gift).

The findings of the interviews also suggested that the identity of the target (i.e., *target identity*) is also a potential moderating variable for sources. Almost all of the sources interviewed stated that it was more difficult, and aversive, to ignore a loved one as opposed to a stranger or acquaintance. The identity of the target may also affect the duration of the ostracism episode, as some sources stated that they could not bear to ignore their family members for longer than a few days, whereas they could ignore a work colleague or an acquaintance indefinitely if given sufficient cause.

Finally, *support networks* may also play a role in moderating the effects of ostracising. The support of friends or family allows sources to maintain primary needs (e.g., belonging) that may be severed while the source ostracises the target. Moreover, active support in conducting the ostracism episode— that is, when others join the source in ostracising the target— may also alleviate any negative effects of ostracism by reducing personal responsibility for the act, as well as forging stronger bonds between sources as a result of jointly ostracising the target. Although supportive friends or loved ones would not replace the needs lost by ostracising the target, their support nevertheless would ensure that the source feels the loss of the target's company less keenly than if they were socially isolated.

Thus, unlike the previous model, which presented moderators only for targets of ostracism, the new model includes moderators sections for both targets and sources. Each section includes moderators that were presented in the previous model (i.e.,

individual differences, attributions), as well as moderators that were suggested by the interviews (i.e., the identity of the target/source, and social support). The inclusion of a moderators section for sources represents a considerable modification to the previous model, however, having moderators sections for both targets and sources better reflects real-life instances of ostracism.

Threatened Needs

Support for Williams's model.

The previous model postulates that being ostracised affects four primary human needs: belonging, control, self-esteem, and meaningful existence. The current research project found strong support for this section of the model. That is, regardless of whether targets recounted real-life stories of ostracism, or were ignored during a train ride or during a game of Cyberball, they uniformly reported a loss of these four primary needs.

Modifications to Williams's model.

The current research project did not find any evidence that any of the four needs should be excluded from the model. Nor was there evidence to suggest the inclusion of other needs. However, the threatened needs section of the previous model currently pertains only to targets. There is evidence from the interviews (Chapter 2) and the train rides (Chapter 4) that the needs of sources are also affected (both threatened and fortified) during ostracism. Thus, in the new model, the title of this section was changed from *threatened needs* to simply *needs*, thereby allowing for possible threat and fortification of needs. This allows the needs section of the new model to pertain to both to targets and sources, and thereby presents a more balanced view of the ostracism experience that is more relevant to ostracism in the real world.

Reactions

Support for Williams's model

In the previous model, targets' reactions to ostracism are classified according to three temporal stages (i.e., classified according to the length of the ostracism episode): immediate effects, short-term effects, and long-term effects. According to these classifications, laboratory-based ostracism paradigms (such as the train ride and Cyberball) examine the short-term effects of ostracism (Williams, 2001). Typically, these effects include the loss of the four primary needs, deleterious physiological responses, and emotional, cognitive, and behavioural strategies to regain these needs. In accordance with the predictions of the model, targets in the current research project reported a loss of all four primary needs, whether they were ignored during a train ride or a game of Cyberball. Target of ostracism in the Cyberball game also displayed some evidence of maladaptive physiological (cardiovascular) functioning.

Modifications to Williams's model

Modifications Pertaining to Targets. According to the previous model, if the ostracism episode becomes long-term, the threatened primary needs become internalised, leading to a chronic loss of bonds, low self-worth, learned helplessness, and loss of purpose. However, it became apparent from the interviews that the previous model did not adequately describe the effects of long-term ostracism on real-life targets and sources. Further, the effects of ostracism on real-life targets and sources could not be adequately classified using the temporal parameters of the previous model (i.e., the short-term /long-term distinctions). There were a number of reasons why the short-term/long-term framework was not appropriate for classifying the effects of ostracism. First, the previous model does not define what constitutes short and long-term ostracism. Although laboratory studies can easily define a period of ostracism as short-term (typically 5 minutes), real life episodes of ostracism are far more variable in

duration. The previous model does not define at what point (days, weeks, months) ostracism in the real world can be classified as long-term.

Second, the temporal distinctions of the previous model make predictions about the effects of prolonged episodes of ostracism on the four primary needs, but what of episodic ostracism? Episodic ostracism consists of several incidents of ostracism (of variable duration) conducted by the same source(s) over an extended period of time. According to the temporal distinctions of the previous model, each incident would be classified as short-term ostracism, and hence the model would predict that the target is experiencing lower levels of the primary needs in accordance with the short-term effects of ostracism. Yet, the findings of the interviews suggest that the cumulative effects of such repeated exposure to ostracism on the four primary needs are better reflected by the model's predictions concerning the long-term effects of ostracism (i.e., internalisation of the threatened needs). For instance, many targets (particularly those who were exposed to episodic ostracism) stated that they had experienced thoughts, feelings, and behaviours indicative of internalised need-threat after only a short episode of ostracism. According to the previous model, this result is not possible as the internalisation of primary needs can only occur after long-term ostracism. Thus, the current parameters of Williams's model cannot accurately predict the effects of episodic ostracism on targets.

Finally, the previous model uses an objective measure—duration of the ostracism episode—to predict targets' responses to ostracism. However, the interviews suggest that target's perceptions of ostracism duration differ from the actual duration of the episode. Many of the targets who were interviewed felt as though their ostracism episodes lasted far longer than their actual duration and reported experiencing thoughts and feelings indicative of long-term exposure to ostracism. Hence, targets' *perceptions* of

the ostracism duration may be a better predictor of the effects of ostracism than the current short-term/long-term classifications of the previous model.

Taken together, the data of the present project, especially the interview data, show that the previous model does not adequately describe the impact of ostracism. This is primarily because the model views the severity of ostracism to increase only over time (hence the short/long-term distinctions). However, the effects of ostracism differ not only as a function of time, but also as a function of the individual's *experience* with ostracism. For example, participants who have been repeatedly exposed to ostracism show internalisation of threatened needs regardless of the duration of the ostracism episode, whereas people who have less experience with ostracism may show less deleterious effects on the four primary needs. Thus, rather than continue to describe the effects of ostracism using temporal dimensions, the new model classifies the effects of ostracism according to three experiential dimensions or phases: the initial phase, the concurrent phase, and the reverberatory phase. The *initial phase* refers to the changes in targets' behaviour, affect, cognitions, somatic systems, and interpersonal relationships (termed initial responses) that occur *immediately* after the target perceives that they are being ignored or excluded (e.g., anger, changes in mood, and physiological signs of arousal or shock). During the initial phase, the power of ostracism is paramount, and our responses to being excluded or ignored tend to be based on our prior ostracism experiences (whether dismay, anger, disbelief, shock, or pain).

The *concurrent phase* refers to changes in targets' behaviour, affect, cognitions, somatic systems, and interpersonal relationships (termed concurrent responses) that occur throughout the *duration* of the ostracism episode. In this phase, the initial shock of being ignored has begun to dissipate and other factors, such as potential moderators, begin to influence targets' responses to ostracism. In addition to the loss or internalisation of the four primary needs during ostracism, the interviews also revealed

a range of concurrent effects that are not evident in the previous model. These included the detrimental effects of ostracism on health (i.e., symptoms indicative of suppressed immune functioning), and on interpersonal relationships (i.e., between the target and the source, and between the target and other members of society). The interviews also provided evidence that during the ostracism period, targets employed several behavioural strategies to cope with the aversive consequences of being ostracised. The strategies identified by the interviews were: seeking clarity, forgiveness seeking, discussion, ingratiation, abuse, defensive ostracism, mediation, acceptance, and resignation. The success of each strategy differs according to each ostracism situation, and all may ultimately fail if the source no longer wishes to continue their relationship with the target (see Chapter 2).

The third experiential dimension of the new model is the *reverberatory phase* of ostracism. The reverberatory phase refers to changes in targets' behavioural, affective, cognitive, somatic, and interpersonal relationships (termed reverberatory responses) that *persist* even when the ostracism episode has ceased, influencing all aspects of the target's life. These effects include: the internalisation of threatened needs, ongoing physical problems and ailments that the target perceives as having been caused or exacerbated by ostracism, the loss of relationships (e.g., divorce from the source of ostracism), and the inability to form new bonds with others due to a fear of being rejected or ignored.

Moreover, when examining the interviews with targets of repeated and prolonged ostracism, it became apparent that many of the reverberatory responses to ostracism arose, at least in part, from changes in targets' ostracism sensitivity threshold (OST). That is, the OST represents an innate, adaptive mechanism by which people recognise when they are being excluded and ignored. The detection of imminent or actual rejection is vital to survival in social beings such as humans, and early detection

of exclusion allows us to take steps to be re-included in the group. However, it was apparent from the interviews that targets who have been exposed to episodic or prolonged episodes of ostracism have a lowered OST— that is, they become excessively attuned to signs of ostracism, often seeing the possibility of rejection in situations that are benign.

Repeated or prolonged exposure to ostracism also affects the OST by accelerating the target's responses to ostracism. That is, although targets generally experience the same sequence of effects as a result of ostracism (i.e., initial distress and somatic dysfunction as the target realises they are being excluded, followed by a threat to the four primary needs, and eventual internalisation of the threatened primary needs), targets who have had extensive prior exposure to ostracism will experience the same sequence of effects in an accelerated cascade, thereby leading to internalisation of the threatened primary needs even after short episodes of ostracism. Thus, a dysfunctional OST leads targets to experience ongoing psychological, somatic, and interpersonal distress that will reverberate through all segments of their life.

Modifications Pertaining to Sources. By classifying the effects of ostracism according to experiential dimensions (i.e., initial, concurrent, and reverberatory phases) rather than temporal dimensions (i.e., immediate, short-term, and long-term effects), the new model of ostracism has substantially modified the reactions section of the previous model. However, the findings of the current research project suggest that this section could be modified still further— specifically, by adding another reactions section for sources of ostracism.

As previously stated, the previous model of ostracism is generally focused on targets of ostracism. To provide a balanced view of ostracism from the perspective of targets and sources, the new model of ostracism proposes a reactions section for sources that parallels that for targets, consisting of an initial phase, a concurrent phase,

and a reverberatory phase. As with targets, the *initial phase* of ostracising encompass behavioural, affective, cognitive, somatic, and interpersonal responses that occur as soon as they the source begins to ostracise the target (e.g., emotional responses such as anger and the accompanying physiological signs of arousal). The *concurrent phase* refers to changes to the sources' behaviour, cognitions, affect, somatic systems, and interpersonal relationships that occur while the source ostracises the target. The findings of the current research project have indicated that sources report changes to their four primary needs during the concurrent stage, however, these changes are not as predictable as those reported by targets. Specifically, although targets typically report lower levels of the four primary needs after ostracism, sources tend to report both threat and fortification to their primary needs (particularly a fortification of the need for control; see Chapters 2 and 4).

As with targets, the concurrent responses reported by sources of ostracism were not limited to changes in the primary needs. For instance, several of the sources interviewed reported health-related effects of ostracising (typically, physiological symptoms associated with stress or anger), although, unlike targets, few sources stated that these somatic effects were debilitating or potentially life-threatening. In addition to health-related effects, another concurrent effect reported by sources was their use of behavioural strategies while giving the silent treatment. Although targets used strategies to cope with ostracism, sources used strategies, such as *dispetti*, to exacerbate the effects of ostracism on targets.

Sources also experience a *reverberatory phase*— that is, changes in behaviour, affect, cognitions, somatic systems, and interpersonal relationships that persist even after the ostracism episode has ended. Although targets of long-term ostracism reported consistent reverberatory effects, the reverberatory effects of ostracising (particularly on primary needs and health) were far less consistent. The most reliable

reverberatory effect for sources was to their interpersonal relationship with the target. Many sources stated that they lost control over the ostracism episode— that is, after ignoring the target for a prolonged period, the act of ostracising the target became easier, almost automatic, to the point where they could not bring themselves to end the ostracism episode, even if they desired. As a result, sources' relationship with the target deteriorated to the point of estrangement. Ironically, although sources lost important relationships because of their ostracism behaviour, the success of the tactic often made them continue to use ostracism in other relationships, even though they knew the potential interpersonal cost.

The nature of the reverberatory responses reported by sources, such as the loss of relationship with the target, and the gradual automation of the act of ostracising led to the idea that there may be an ostracism sensitivity threshold for *ostracising* just as there is for being ostracised. The OST for ostracising seems to operate in two ways. First, after repeatedly using ostracism, sources seem to experience the effects of ostracism in an accelerated manner. That is, in general, sources initially report feeling anger or discomfort (or possibly even guilt) at the onset of ostracism. These negative feelings then tend to decline as the ostracism episode continues, potentially giving way to more positive responses including fortification of the primary needs. However, after repeatedly using ostracism, sources' experience this progression of responses to ostracising in an accelerated cascade, such that perpetual sources experience little or no period of discomfort at the onset of ostracism. Instead, they typically report positive feelings (i.e., fortification) almost as soon as they begin to ostracise the target.

The second way that the OST seems to operate for sources is that as their experience at ostracising others increases, the higher their OST for ostracising becomes. That is, in addition to becoming progressively less adversely affected by the act of ostracising, the heightened OST also has the effect of diminishing the source's

sensitivity toward the target during the ostracism period, making them impervious to the targets' suffering, and thereby allowing sources to continue the ostracism episode indefinitely.

Thus, it can be seen from Figure 6.1 that the new model contains reaction sections (now termed *consequences* of ostracism) for both targets and sources that outline the effects of ostracism in terms of experiential (i.e., the initial phase, the concurrent phase, and the reverberatory phase) rather than temporal dimensions. As with the previous sections, the inclusion of a reactions/consequences section for sources represents a significant departure from the previous model, yet is a necessity if the thoughts, feelings, and actions of sources in response to ostracism are to be acknowledged.

Overall, it is apparent that the findings of the current research project (particularly the interview data) have provided the basis for a model of ostracism that not only maintains the core elements of the previous model (i.e., the taxonomic dimensions, antecedents, moderators, needs, and reactions), but also builds upon this framework by examining ostracism from the perspective of both targets and sources. Because much of the new model is based on the findings of the interview data, it is highly relevant to ostracism in the real-world. However, as it is qualitatively driven, there is the necessity for future ostracism researchers to empirically assess the new model, and thereby continue to refine its parameters, with the ultimate goal of creating a functional and cohesive working model of the experience of ostracism.

REAL-WORLD APPLICATIONS OF THE CURRENT RESEARCH

The conceptualisation of a new model of ostracism based on the experiences of real-life targets and sources may help to inspire future researchers to examine aspects of ostracism that are relevant to the real-world. It was the primary aim of the current

project to examine facets of ostracism that were relevant to real-world experiences, but do the findings of the present studies have real-world applications?

One possible application of the current findings is in the clinical field. For instance, several targets of long-term ostracism who were interviewed (Chapter 2) stated that they had tried therapy as a means of coping with prolonged ostracism. In all instances, targets reported that they left therapy prematurely, as the therapist could not comprehend the devastation that the silent treatment was having on their lives. Even if such an assertion is purely the perception of these targets (it is doubtful that all therapists would be so insensitive to the plight of their patients), they all reported that the therapeutic advice they received did not alleviate the deleterious effects of ostracism. To be fair to the therapists, the nature of ostracism is still so little understood, that it would make treatment difficult. In fact, although therapeutic strategies currently exist to modify various forms of aversive interpersonal behaviour (e.g., arguing, physical abuse), to date, there are no therapeutic strategies that have been designed to specifically address the problem of prolonged or episodic silence, for either targets or sources. Thus, based on the findings of the interviews, therapeutic interventions are currently being designed to assist both targets and sources of ostracism. The preliminary investigation will focus on treating couples who have been using the silent treatment. Couples rather than solitary targets or sources have been chosen for the initial study as they provide the opportunity to further examine (and potentially treat) the ostracism situation from the perspective of both targets and sources.

Although therapeutic interventions specifically tailored to treat ostracism will assist many targets and sources of ostracism, such interventions will only be able to help those targets and sources who seek them out. Unfortunately, many targets of prolonged ostracism stated that they could not engage in therapy, as they were fearful

that the source would find out (and hence would subject the target to further ostracism). Moreover, many of the most affected targets generally do not venture out of their homes, as they fear further rejection from others. Thus, the targets who are in most need of therapeutic assistance are probably those who are least likely to get it. How then, can we help those targets (and sources) who cannot access therapy? The answer may lie online. Currently, an Internet support site for targets and sources is in the design phase. It will allow targets and sources from all over the world to discuss their own experiences with ostracism, take part in discussions with ostracism researchers, access literature about ostracism, and have the opportunity to participate in ostracism studies to further our knowledge about the phenomenon. For targets who have isolated themselves from the world, this Internet support site may provide an opportunity to form ties with people such as themselves who have also been debilitated by this "social disease."

In addition to clinical applications, the findings of the current project may also have educational applications. In view of the tragic events that took place at Columbine High School (USA), where two students open-fired on their teachers and fellow students as a form of retaliation for years of being rejected and ignored by their peers (see Leary, Kowalski, Smith, & Phillips, 2003), it is imperative that children be taught about the consequences of ostracism to both those who ostracise and those who are ostracised. But how can the potentially devastating effects of ostracism be conveyed in a meaningful and engaging way?

One possible way of teaching students about the nature of ostracism is to use the train ride paradigm as a teaching tool. There are several reasons why the train ride would be an effective means of educating students about the nature of ostracism. First, participants of various age groups find the train ride engaging and personally meaningful. To date, train ride demonstrations have been conducted with adults,

university students, high school students, and primary school students, all of whom reported that they were actively involved during the role-play. Second, recent evaluations of the train ride as a teaching demonstration found that it was a more successful method of teaching students about the power of ostracism than other teaching tools (Zadro & Williams, 2003).

Specifically, Zadro and Williams (2003) asked students to compare the effectiveness of the train ride demonstration to other teaching methods (i.e., a class discussion, lecture, and assignment) as a tool in educating them about aspects of ostracism. Students reported that the train ride demonstration provided better insights into being a target and a source of ostracism than the other teaching methods. Moreover, when class tutors (i.e., teaching assistants) were asked to evaluate the effectiveness of the train ride as a teaching method, they also reported that the train ride provided students with a better insight into being a target and source of ostracism. The train ride not only allowed students to attain a better understanding of the nature of ostracism, students also rated the train ride as their preferred means of learning about ostracism compared to a class discussion, lecture, or assignment about ostracism. Tutors also reported that they would rather use the train ride as a means to teach students about ostracism than the other teaching methods.

Thus, the train ride represents an engaging means of educating students of a variety of ages first-hand about the power of ostracism. Recently, the train ride was chosen to appear as a class demonstration in the teaching manual (Bolt, 2001) that accompanies the Myers (2001) *Psychology* textbook. It is hoped that inclusion in this teaching manual will influence educators to use this demonstration to illustrate the negative repercussions of ostracism in a classroom setting, as the events of Columbine High have shown that the importance of showing students the potentially debilitating effects of ostracism on peers is paramount.

Overall, it seems that the findings of the present study have real-world applications in the clinical and educational fields. It is hoped that future research will continue to investigate aspects of ostracism that are relevant in the real-world in order to help understand, and possibly one day alleviate, the deleterious outcomes of being excluded and ignored in everyday life.

CONCLUSIONS

Ostracism, in its many forms and facets, permeates all of our relationships and almost every aspect of our lives. With a phenomenon so ubiquitous, research into its nature and its social, physical, and economic cost is vital. It is the role of ostracism researchers to ensure that they continue to explore aspects of this phenomenon that are of relevance in the real world. Moreover, it is the responsibility of these researchers to inform others in the community of their findings in order to change the common perception that “silence is golden.” For otherwise, our innate fear of being excluded and rejected, coupled with the rise of an increasingly automated and impersonal society, will ensure that ostracism will continue to exert a significant personal, social, and economic toll—the extent of which has still to be fully explored.

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Ostracism:
Empirical Studies Inspired by
Real-World Experiences of
Silence and Exclusion

Volume II

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B. Sc. (Psychology) Hons.

January 2004

In fulfilment of the requirements for the degree of Doctor of
Philosophy at the
University of New South Wales

Appendices

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Chapter 2: Study 1—Interviews with Targets and Sources of Long-term Ostracism

Appendix A: Participant Information Sheet and Consent Form



School of Psychology

PARTICIPANT INFORMATION STATEMENT

The Silent Treatment

You are being asked to participate in a research project that explores the nature of the silent treatment. You will be asked a series of questions in a structured interview about your experiences as a giver, receiver, or observer of the silent treatment. This interview will take place on either the phone or in person. In both cases, with your permission, the interview will be taped. If you have chosen to have the interview in person, you will also be asked permission to have the interview videotaped.

Our aim is to learn as much as possible about how and why people give the silent treatment, as well as how different people react to the silent treatment over long periods of time

Any information that is obtained in connection with this study and that can be identified with you will **remain confidential** and will be disclosed only with your permission or except as required by the law. If you give us your permission by signing this document, we plan to present and publish the results to national and international conferences and journals. In any publications, information will be provided in such a way that **you cannot be identified**.

Complaints may be directed to the Ethics Secretariat, University of New South Wales, SYDNEY 2052 AUSTRALIA (phone 9385 4234, fax 93856648, email: ethics.sec@unsw.edu.au).

If you decide to participate, you are free to withdraw your consent and to discontinue at any time without any negative consequences.

If you have any questions, we expect you to ask us. If you have any additional questions later, Dr. Williams (9385 3521) will be happy to answer them.

You will be given a copy of this form to keep.

CONSENT FORM

The Silent Treatment

You are making a decision whether or not to participate. Your signature indicates that you have decided to participate in the interview after having read the information provided above. Your signature also indicates that you will allow the interview to be **taped**.

Signature of participant

Please PRINT name

Date

Signature(s) of investigators(s)

Please PRINT name

For participants who have an interview in person

You are now making an additional decision to allow the interview to be **videotaped** for the purposes of coding (*optional*):

Name (please print)

Signature

Date

REVOCATION OF CONSENT

I hereby wish to WITHDRAW my consent to participate in the research proposal described above and understand that such withdrawal WILL NOT lead to negative consequences.

Signature of participant

Date

Please PRINT name

Appendix B: Background Questionnaire

Background Questionnaire for Targets

Background Questionnaire for Sources

Background Questionnaire for Targets

Background Information

Please fill out the following questions. If, for any reason, you do not wish to provide an answer to any of the questions, just leave it blank.

Age: _____

Occupation: _____

Current relationship status (please tick the appropriate box):

single ☐

married ☐

engaged ☐

divorced ☐

de-facto ☐

separated ☐

widowed ☐

other (please specify) _____

Do you have children (please tick)? yes ☐ no ☐

If so, please list their ages:

Religious affiliation (e.g., Catholic, Muslim, Jewish): _____

Ethnic background (e.g., Italian, Greek, Australian): _____

What is your birth order (e.g., eldest, youngest)? _____

What is the size of the family you were born into (including parents)? _____

Who gave you the silent treatment? _____

How long did you receive the silent treatment? _____

How old were you when it started? _____

Background Questionnaire for Sources

Background Information

Please fill out the following questions. If, for any reason, you do not wish to provide an answer to any of the questions, just leave it blank.

Age: _____

Occupation: _____

Current relationship status (please tick the appropriate box):

single ☐

married ☐

engaged ☐

divorced ☐

de-facto ☐

separated ☐

widowed ☐

other (please specify) _____

Do you have children (please tick)? yes ☐ no ☐

If so, please list their ages:

Religious affiliation (e.g., Catholic, Muslim, Jewish): _____

Ethnic background (e.g., Italian, Greek, Australian): _____

What is your birth order (e.g., eldest, youngest)? _____

What is the size of the family you were born into (including parents)? _____

Who did you give the silent treatment to? _____

How long did you give the silent treatment? _____

How old were you when it started? _____

Appendix C: The Structured Interview Protocols for Targets and Sources

The Structured Interview Protocol for Targets

The Structured Interview Protocol for Sources

INTERVIEW—TARGETS

Free Recall In your own words, tell me what happened?

***prompt:** What happened next?
And then?*

Specific Questions Now, let's see if we can get a little more specific...

Motive Why do you believe that you were given the silent treatment?

*Quantity;
temporal,
partial/
complete* Were you given the silent treatment continuously for the whole time, or just at specific times (e.g., when ____ was mad at you)?

In the periods when ____ was giving you the silent treatment, did he/she speak to you at any time?
(ask about eye contact)

How did you communicate with ____ while he/she was giving you the silent treatment?

Did you ever communicate through someone else/intermediary?

Do you think that others know that
_____ has been giving /gave you the
silent treatment?

contagion Did they join in?

Was____ giving anyone else the
silent treatment at the same time
(other members of the family, other
co-workers)?

oasis Did you speak to anyone else about
receiving the silent treatment?

**Action,
Affect
Cognition** Now, think back to when you first
started receiving the silent
treatment....

1.Early In the early stages, how did____ give
you the silent treatment?

a) *source* For instance, did he/she go out of
their way to show you that he/she
was ignoring you?

(i)action Did____ show his/her displeasure in
other ways in the early stages?

(ii)affect
and
cognition What do you think____ was **feeling**
and **thinking** in the early stages?

b) *target* How did you react at first to being
given the silent treatment?

(i)action

prompt: Did you try to provoke___to
get a reaction? How did this work?

Did you try giving___the silent
treatment?How did this work?

(ii)affect
and
cognition

What were you **feeling** and **thinking**
in the early stages?

2.Later

Now, did things change at all after
continued use?

a) *source*

Did___ change the way in which
he/she was giving you the silent
treatment?

(i)action

Did ___show his/her displeasure in
other ways as time went on?

(ii)affect
and
cognition

What do you think___is **thinking**
and **feeling** after all this time?

b)*target*

How have you reacted to being
given the silent treatment after all
this time?

(i)action

prompt: Have you tried to
provoke___to get a reaction?
How did this work?

*Have you tried giving the silent
treatment? How did this work?*

(ii)affect
and
cognition

What are you **feeling** and **thinking**
after being given the silent treatment
for so long?

If silent
treatment
stopped

What made___ stop giving you the
silent treatment?

How do you feel now that you are no
longer been given the silent
treatment?

Personal

Do you think that the silent treatment
has affected your relationship with
___? If so, how?

How do you think receiving the silent
treatment has affected your
relationship with others?

Has this experienced changed you in any way? If so, how?

**Effects:
health and
social life**

Target
(i)health Do you think getting the silent treatment has affected your health in any way? If so, how?

(ii)social
life Do you think that getting the silent treatment affected your social life in any way?
If so, how?

Source
(i)health Do you think giving you the silent treatment has affected_____ health?
If so, how?

(ii)social
life Do you think giving you the silent treatment has affected_____ social life?
If so, how?

Propensity
(i)to be ostracised Throughout your life, have you often **received** the silent treatment from others?

Other than____, who else gave you the silent treatment?

Did anyone in your family use the silent treatment (i.e. your parents)?

Have you received the silent treatment since this episode? If so, from whom?

(ii) to ostracise

Are you aware of any time when____has used the silent treatment on others? What about as a child?

Did anyone in____family use the silent treatment (i.e. their parents)?

Why do you think____used the silent treatment as opposed to other ways to express displeasure?

Is it possible that ____continued to give you the silent treatment because they found it difficult to stop, rather than from any anger toward you?

target use of silent treatment

Do you **use** the silent treatment (for long periods of time)?

Tell me a little about that?

Retrospect and advice Looking back on the events, would you have done things differently? How?

How would you advise others who were thinking of using the silent treatment?

How would you think of advising others who are getting the silent treatment?

The Model Now, tell me how the silent treatment

(i) in the **early** stages affected

a) Your sense of belonging.

What about in the later stages?

b) Your sense of control.

What about in the later stages?

c) Your self-esteem.

What about in the later stages?

d) your sense of purpose in this life.

What about in the later stages?

e) how angry you were.

What about in the later stages?

f) the need to apologise.

What about in the later stages?

Finishing up Now, we've come to the end of the interview. Is there anything that you'd like to add or change?

INTERVIEW—SOURCES

Free Recall In your own words, tell me what happened?

***prompt:** What happened next?
And then?*

Specific Questions Now, let's see if we can get a little more specific...

Motive Why did you give_____ the silent treatment?

Quantity;
temporal,
partial/
complete Did you give_____ the silent treatment continuously for the whole time, or just at specific times (e.g., when you were mad at_____)?

In the periods when you were giving_____ the silent treatment, did you speak to him/her at any time?

How did you communicate with _____ while were giving him/her the silent treatment?

Did you ever communicate through someone else/intermediary?

Do you think that others know that you are/were giving /gave_____ the silent treatment?

contagion Did they join you in giving_____the silent treatment?

Were you giving anyone else the silent treatment at the same time (other members of the family, other co-workers)?

oasis Did you speak to anyone else about giving_____ the silent treatment?

**Action,
Affect
Cognition** Now, think back to when you first started giving_____ the silent treatment....

1.Early In the early stages, how did you give_____ the silent treatment?

a) *source* For instance, did you go out of their way to show him/her that you were ignoring them?

(i)action

Did you show your displeasure in other ways in the early stages?

(ii)affect
and
cognition

What were you thinking and feeling in the early stages?

b)target

How did____react at first to being given the silent treatment?

(i)action

Prompt: *Did they try to provoke you to get a reaction? How did this work?*

Did they try giving you the silent treatment? How did this work?

(ii)affect
and
cognition

What do you think ____was thinking and feeling in the early stages?

2.Later

Now, did things change at all after continued use?

a) source

Did you change the way in which you were giving____ the silent treatment?

(i)action

Did you show your displeasure in other ways as time went on?

(ii)affect
and

What are you thinking and **feeling** after all this time?

cognition

b)target How has _____ reacted to being given
the silent treatment after all this time?

(i)action **Prompt:** *Have they tried to provoke
you to get a reaction?
How did this work?*

*Have they tried to give you
the silent treatment?
How did this work?*

(ii)affect What do you think____is thinking and
and **feeling** after receiving the silent
cognition treatment for so long?

If silent What made you stop giving the silent
treatment treatment?
stopped

How do you feel now that you are no
longer giving the silent treatment?

Personal Do you think that the silent treatment has affected your relationship with ____? If so, how?

How do you think giving the silent treatment has affected your relationship with others?

Has this experienced changed you in any way? If so, how?

**Effects:
health
and
social life**

(i)health Do you think giving the silent treatment has affected your health in any way? If so, how?

(ii)social
life Do you think that giving the silent
treatment affected your social life in
any way?
If so, how?

Source
(i)health Do you think receiving the silent
treatment has affected_____ health?
If so, how?

(ii)social
life Do you think receiving the silent
treatment has affected_____ social
life?
If so, how?

Propensity
(i)to
ostracise Throughout your life, have you often
given the silent treatment from
others?

Did anyone in your family use the
silent treatment (i.e. your parents)?

Other than_____, who else have you
given the silent treatment to?

Have you given the silent treatment
since this episode? If so, whom have
you ostracised?

Why do you think you used the silent
treatment as opposed to other ways
to express displeasure?

Is it possible that you continued to give you the silent treatment because you found it difficult to stop, rather than from any anger you felt toward _____?

(ii) target's propensity to be ostracised

Are you aware of any other time that _____ has been given the silent treatment? What about as a child?

(if they say "yes") Why do you think people give _____ the silent treatment?

sources use of silent treatment

On average, how often would you say that you **receive** the silent treatment now for long periods of time?
What about as a child?
Tell me a little about that?

Retrospect and advice

Looking back on the events, would you have done things differently?
How?

How would you advise others who were thinking of using the silent treatment?

How would you think of advising others who are getting the silent treatment?

What would make you stop giving someone the silent treatment?

The Model

Now, tell me how giving the silent treatment

(i) in the **early** stages affected

a) your sense of belonging
What about in the later stages?

b) your sense of control
What about in the later stages?

c) your self-esteem
What about in the later stages?

d) your sense of purpose in this life
What about in the later stages?

e) how angry you were
What about in the later stages?

f) the need to apologise
What about in the later stages?

Finishing up

Now, we've come to the end of the interview. Is there anything that you'd like to add or change?

Appendix D: Sample letters from Targets and Sources

Sample Letters from Targets

Sample Letters from Sources

Sample Letters from Targets

Dear Dr. Kipling Williams,

In answer to your request in Woman's Day for "Silent treatment" sufferers to contact you. I am 25 years old. I have a 3 year old daughter and my fiance is 38. I am pretty shy and have always been a loner. In high school, the other students thought me weird and never spoke to me. I tell you in all honesty that at one stage they refused to speak to me for 153 days, not one word at all doctor. That was a very low point for me in my life and on the 153rd day, I swallowed 29 Valium pills. My brother found me and called an ambulance. When I returned to school, the kids had heard the whole story and for a dew days they were falling over themselves to be my friend. Sadly, it didn't last. They stopped talking to me again and I was devastated. I stopped talking myself then. I figured that it was useless to have a voice if no-one listened. Please keep in mind doctor, that my life was not very happy. My parents sent me to doctors, psychologists, speech therapists etc. They tried everything. Their marriage broke up because of me so my mother had me admitted to Rozelle Hospital. Whilst there, I was raped by 3 male patients and a female nurse. I ran away only to get involved with drugs. It was awful. Finally, my grandmother, who used to scour the streets everyday looking for me, found me. She was the first person I had spoken to in over a year. I said "Granny, I need to speak to you." She took me home and cared for me. Finally when I was 19, I met Norm and we fell in love and had a daughter whom we both adore. We have been engaged for five years and he wants to marry now but I don't feel confident walking down the aisle in front of all those people. I am doing a course to boost my confidence and Norm is a great help for example, we went to a birthday B.B.Q and I thought it was a family only thing but when we walked into the yard, there were about 100 people. I clung to Norm and then the sweating started, he realised what was happening so he gave the present to the birthday girl and we left. He was really good about it. The "Silent treatment" is a very damaging form of abuse. I find it hard to feel hate for the kids I went to school with, but I know I never will forgive them for how they treated me at school. I often look at other women my age (from a distance, of course) and wonder what it would be like to laugh amongst friends and be popular but I try not to reflect on it too much as I fear being put on Prozac again if I get depressed. I have not provided you with my address or phone number because I would hate it if you contacted me, but I do wish you every bit of success with your research. I feel better for telling you all this. Thank you doctor.

Dear Dr Williams,

I am writing to you in regards to the research you are conducting into "the silent treatment". I lived in a marriage where this was a dominant factor of control and manipulation used against myself and my family and would be more than willing to share with you the negative and positive effects this had on us all.

My third husband, whom I married due to financial insecurity and having come from a dysfunctional family appeared to be our "Saviour" and his way of being the Master of the house (so to speak) was to totally ignore, whenever your opinions differed to his. He walked around our home for weeks on end, not uttering a word to anyone and I personally learned to react in return, with this same cruel, unforgiving method. My husband not only used the "silent treatment" by not speaking to me; he also used it by 1) avoiding any bodily contact, i.e., would walk passed you sideways so as not to touch you; 2) slept on the lounge or in the car until you begged him not to; 3) refused to eat any meals; 4) took away all financial support, i.e., had bank accounts transferred into his own name and allowed you no access to them; 5) refused to let you use the car. This mental cruelty almost destroyed myself and my family and it wasn't until I suffered a breakdown and spent eight weeks in a hospital undergoing psychotherapy that I came to realise the devastating effects this treatment had on my life and those I loved. My second husband, who was an alcoholic used to physically abuse me, but the bruises and scars healed very quickly and I believe that mental cruelty is far more damaging than a black eye, although any type of violence to me now is unacceptable.

When my third husband and I finally separated, for the fifth time in nine years and after having him live in our garage for twelve months prior to this separation, I only felt relief and contentment when he was finally forced to leave. Even the year before I finally managed to become strong enough to be able to work, study and buy out his half of our house, the "silent treatment" together with verbal abuse continued.

I sadly lacked in self-esteem, confidence and drank too much too often and felt like a totally useless human being. I began to believe that I deserved this type of treatment and all the hopelessness that went with it. I have two beautiful daughters to my first husband, aged 24 years and 22 years who have also grown up with negativity and dysfunctional attitudes and lifestyle habits. My eldest daughter left home to live with a boyfriend at the age of 16 yrs (encouraged by my third husband) and smoked copious amounts of dope and drank too much alcohol (and still does) and my youngest daughter is very withdrawn and anti-social at times, but is improving with time, patience and understanding.

I have been undergoing psychotherapy for seven years now on a fortnightly basis and have almost managed to turn my life around. I was employed as a check-out operator for Woolworths in Sydney whilst married to my third husband – he was a transport driver in the R.A.A.F. and had left school at fifteen years of age to care for my mother who developed schizophrenia after the tragic death of my father, from bone cancer in 1960. I had no qualifications to work elsewhere and felt I was never clever enough, nor competent enough to ever learn anything else. My third husband's "silent treatment" constantly instilled this belief until the point of my breakdown. Since then, 1991, I have completed a Childcare Course and worked in a Pre-School and Day Care Centre, completed a Medical Terminology

course and almost finished an Assistant in Nursing course (I have worked in an Aged Care facility for three years) completed an Alzheimer & Dementia course, did two years of a Bachelor of Social Science at Newcastle University (but left due to my mother's ill-health) and have bought my own home. I broke up with my third husband in December, 1995 and this year met a kind, gentle man who treats me with dignity and respect and finds it extremely difficult to comprehend the lifestyle I've led up until the past few years. I have learnt to become assertive, confident and like myself over the last two years and can no longer "sit back" and allow anyone to treat me hardly nor react in a negative way.

I would be more than happy to provide you with any more information you may require with your research into "silent treatment" and it's devastating effects. Good Luck.

Yours sincerely

Sample Letters from Sources

Dear Dr. Williams,

I am writing to you following your appearance on ABC Regional Radio last week which involved discussion of your interest in situations of ostracism and the subsequent effects of that ostracism on both the victim and the perpetrator.

I was unable to call to speak to you at the time as I was listening on my car radio but I noted that the calls that you did receive were, in the main, from victims of ostracism. I would like to tell you of my experience as a perpetrator of ostracism.

Not so long ago, I had a row with my son which was terminated by his use of extremely violent and foul language at me. I was so shocked and outraged by this incident that I instinctively, that is without any thought about what should be my appropriate response, instigated a regimen of ostracism toward him. I did not speak to him, I did not acknowledge anything he said to me, or anyone else, in fact I acted as if he were not even present. I did not set a place for him at the table nor did I provide for him in any meals that I prepared for the family.

As I said, I slipped into this, although for me novel, paradigm without any premeditation and, hence, without any difficulty and maintained it comfortably as if it were the natural way of family relationships. I was able to perpetuate it easily and without any discomfort for myself.

After two weeks, I woke up one morning with a blinding flash of insight: "What are you doing to your relationship with your son?". In that short period my son had already become intimidated by this treatment - he did exactly what his mother said at all times and whenever he spoke it was in a quiet whisper. I am ashamed to say that I was sort of pleased with the effect of my ostracism but, as I say, one day I suddenly realised that it was making him weak and submissive and that it was eroding the future quality of our relationship.

To terminate the ostracism, however, was an extremely difficult process. I could only begin with grudging, monosyllabic responses to his indirect overtures. I was only able to expand on these responses with the passing of time and it is only now, about six weeks since the ostracism ceased that our relationship appears to be getting back to pre-row normality. The pain and stress from a period of ostracism clearly impact on the principals for far longer than the actual period of ostracism.

On your radio program last week, the case was mentioned of a husband who ostracised his wife for 40 years. I suspect that, in that particular case, the longer the ostracism persisted, the harder it became to stop such that there came a point when, no matter how much that husband wanted to speak to his wife, it was just too difficult to do. This is what I felt after just two weeks of ostracism of my son - that if it had lasted much longer I might have not have been able to stop and that not only would our relationship have been destroyed but also my son himself might have been permanently emotionally and physiologically disfigured. Further, as also suggested on the radio program, it may even have led to illness and perhaps, ultimately, to his premature death.

So the point of this letter is just to say that ostracism can be like a whirlpool, or quicksand, if you, the user, don't extract yourself from it as soon as possible, it is likely to become impossible to terminate regardless of the emergence of any subsequent will to do so.

The use of ostracism against one's immediate family might be an instinctive reaction but its effects may be horrific. I have been deeply shocked by the effect of its use in my family and will ensue that it never happens again.

I hope that this anecdote will help to add weight to any thesis that you may be developing such that some good may come from that harrowing experience.

Yours sincerely,

Dear Dr. Williams,

I am writing to you in response to your article in the Woman's Day magazine. My work colleagues and I discussed the situation and decided to drop you a line. We work in the hospitality industry and our coordinator (manager) refuses to do any work, all she does is sit at her desk all day and read magazines. This has been going on for nine months, so for the last three months we have given her the silent treatment.

We felt that under the circumstances if she is not going to help us then the best thing to do is completely ignore her and we now feel that it is all too much for her and life is a bit lonely at the top!

It must be rather humiliating not to be spoken to day after day, and the lines of communication have completely broken down. The executive officer who is the boss above her has told us that we all have to work together as a team, but I'm afraid the damage is done and things won't right themselves as it's too far gone.

The staff all work well together and the business has not deteriorated because of it, so we will just carry on as we are and continue the silent treatment.

As for how she feels, I think deep down inside she is feeling the strain of it all, and she is losing control.

I would be interested to receive a reply from you as to your opinion on the matter.

Hoping to hear from you,

Yours faithfully,

Chapter 3: Study 2— The Antecedents of Ostracism

Appendix E: Personality Questionnaire Booklet

ATTITUDES AND PERCEPTIONS QUESTIONNAIRES

This booklet contains a series of questionnaires. Please try to answer all of the questions as honestly as possible. There are no right or wrong answers--just provide the answer that best suits you. By doing so, you will be greatly helping us in our research. Remember: All of your responses will remain **completely confidential**.

If you have any questions at all about the study, do not hesitate to speak to the examiner.

To begin with, please fill out the following details...

1. Student no. _____
2. Date of birth: _____
3. Sex Male _____ Female _____
4. Religious affiliation (e.g., Catholic, Muslim) _____
5. Ethnic background (e.g., Italian, Australian, Greek) _____

QUESTIONNAIRE 1

Please read the following passages **very carefully**. Then rate each paragraph according to how closely the paragraph describes you by **circling one of the numbers...**

Response A.

It is easy for me to become emotionally close to others. I am comfortable depending on them and having them depend on me. I don't worry about being alone or having others not accept me.

0	1	2	3	4	5	6
Not at all						Very much
like me						like me

Response B.

I am uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others.

0	1	2	3	4	5	6
Not at all						Very much
like me						like me

Response C.

I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others don't value me as much as I value them.

0	1	2	3	4	5	6
Not at all						Very much
like me						like me

Response D.

I am very comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me.

0	1	2	3	4	5	6
Not at all						Very much
like me						like me

NOW Of the four responses which one describes you best? (A, B, C or D) _____

QUESTIONNAIRE 2

Please respond to each of the following statements by circling one of the numbers from 1 = strongly disagree to 4 = strongly agree. There are no right or wrong answers, just circle whichever seems to be best for you. After you have answered a question **do not** go back and change your answer.

	Strongly disagree			Strongly agree
1. I feel that I'm a person of worth, at least on an equal basis with others	1	2	3	4
2. I feel that I have a number of good qualities	1	2	3	4
3. All in all, I am inclined to feel that I am a failure	1	2	3	4
4. I am able to do things as well as most other people	1	2	3	4
5. I feel I do not have much to be proud of	1	2	3	4
6. I take a positive attitude toward myself	1	2	3	4
7. On the whole, I am satisfied with myself	1	2	3	4
8. I wish I could have more respect for myself	1	2	3	4
9. I certainly feel useless at times	1	2	3	4
10. At times I think I am no good at all	1	2	3	4
11. I consider myself to be a stubborn person	1	2	3	4

QUESTIONNAIRE 3

The following questionnaire examines your relationships with friends and family. Please respond to the following questions by indicating the extent to which they are true or typical of your relationship.

	Strongly disagree		Unsure		Strongly agree
1. I am a very important part of the lives of my friends	1	2	3	4	5
2. My mother has disappointed me on many occasions	1	2	3	4	5
3. My parents objected to a number of things I did	1	2	3	4	5
4. My father disciplined me too often	1	2	3	4	5
5. I sometimes wonder if other people like me	1	2	3	4	5
6. My mother is always "there for me" when I need her	1	2	3	4	5
7. My parents have generally trusted me to make my own decisions	1	2	3	4	5
8. At times, my father has made me feel that he didn't approve of me	1	2	3	4	5
9. My friends frequently show me that they care	1	2	3	4	5
10. My mother made me feel that she really accepted me	1	2	3	4	5
11. I am a very important part of the lives of my family	1	2	3	4	5
12. My father never really understood me	1	2	3	4	5
13. I can always count on my friends	1	2	3	4	5

QUESTIONNAIRE 3 cont....

	Strongly disagree		Unsure		Strongly agree
14. My mother loves and cares for me no matter what I might do or say	1	2	3	4	5
15. I often feel left out of things in my relationship with my family	1	2	3	4	5
16. I feel comfortable "just to be myself" around my father	1	2	3	4	5
17. My friends are sensitive to my personal needs	1	2	3	4	5
18. My mother never really understood me	1	2	3	4	5
19. I sometimes wonder if my family likes me	1	2	3	4	5
20. My father is always "there for me" when I need him	1	2	3	4	5
21. I often feel left out things in my relationships with others	1	2	3	4	5
22. I feel comfortable to "just be myself" around my mother	1	2	3	4	5
23. My family frequently shows me that they care	1	2	3	4	5
24. My father made me feel that he really accepted me	1	2	3	4	5
25. I confide my innermost secrets to my friends	1	2	3	4	5
26. At times, my mother has made me feel that she didn't approve of me	1	2	3	4	5

QUESTIONNAIRE 3 cont...

	Strongly disagree		Unsure		Strongly agree
27. I can always count on my family	1	2	3	4	5
28. My father loves and cares for me no matter what I might do or say	1	2	3	4	5
29. I feel on the fringe of my group of friends	1	2	3	4	5
30. My mother disciplines me too often	1	2	3	4	5
31. My father is sensitive to my personal needs	1	2	3	4	5
32. My father has disappointed me on many occasions	1	2	3	4	5
33. I sometimes feel that my friends don't consider me to be a good friend	1	2	3	4	5
34. My mother was always careful not to hurt my feelings	1	2	3	4	5
35. I confide my innermost secrets to my family	1	2	3	4	5
36. My father was always careful not to hurt my feelings	1	2	3	4	5
37. I often feel that my friends don't understand me	1	2	3	4	5
38. My mother trusts me to do what's best for me	1	2	3	4	5
39. I often feel that my family don't understand me	1	2	3	4	5

QUESTIONNAIRE 3 cont....

	Strongly disagree		Unsure		Strongly agree
40. My father trusts me to do what is best for me	1	2	3	4	5
41. I feel I'm on the fringe of my family relationships	1	2	3	4	5
42. I sometimes feel that my family doesn't consider me to be a good family member	1	2	3	4	5
43. My friends have objected to a number of things I have done	1	2	3	4	5
44. My friends have generally trusted me to make my own decisions	1	2	3	4	5
45. I often give people "the silent treatment" (i.e., ignore them, don't speak to them)	1	2	3	4	5
46. People often give me "the silent treatment" (i.e., ignore me, don't speak to me)	1	2	3	4	5

QUESTIONNAIRE 4

Please indicate whether the following statements are **True (T)** or **False (F)** for you by circling the appropriate response.

	TRUE	FALSE
1. I am very much afraid to die	T	F
2. The thought of death seldom enters my mind	T	F
3. It doesn't make me nervous when people talk about death	T	F
4. I dread to think about having an operation	T	F
5. I am not at all afraid to die	T	F
6. I am not particularly afraid of getting cancer	T	F
7. The thought of death never bothers me	T	F
8. I am often distressed by the way time flies so rapidly	T	F
9. I fear dying a painful death	T	F
10. The subject of life after death troubles me greatly	T	F
11. I am really scared of having a heart attack	T	F
12. I often think about how short life really is	T	F
13. I shudder when I hear about people talking about a World War III	T	F
14. The sight of a dead body is horrifying to me	T	F
15. I feel that the future holds nothing for me to fear	T	F

Please read each statement carefully and indicate how much you agree or disagree by circling the appropriate response.

	Disagree	Moderately Disagree	Unsure	Moderately Agree	Agree
1. It seems to me that getting along with people is a skill	0	1	2	3	4
2. Maintaining friendships requires real effort to make them work	0	1	2	3	4
3. My enjoyment of a social occasion is almost entirely dependent on the personalities of the other people who are there	0	1	2	3	4
4. Making friends is a funny business; I sometimes have to chalk up my success to luck	0	1	2	3	4
5. Having good friends is simply a matter of one's social skill	0	1	2	3	4
6. In my case, success at making friends depends on how hard I work at it	0	1	2	3	4
7. Some people can make me have a good time even when I don't feel sociable	0	1	2	3	4
8. In my experience, making friends is largely a matter of having the right breaks	0	1	2	3	4
9. It is impossible for me to maintain close relations with people without my tact and patience	0	1	2	3	4
10. If my marriage were to succeed it would have to be because I worked at it	0	1	2	3	4
11. To enjoy myself at a party I have to be surrounded by others who know how to have a good time	0	1	2	3	4
12. If my marriage was a long, happy one, I'd say that I must just be very lucky	0	1	2	3	4
13. It seems to me that failure to have people like me would show my ignorance in interpersonal relationships	0	1	2	3	4
14. If I did not get along with others it would tell me that I hadn't put much effort into the pursuit of social goals.	0	1	2	3	4

	Disagree	Moderately Disagree	Unsure	Moderately Agree	Agree
5. No matter what I do, some people just don't like me	0	1	2	3	4
6. Often chance events can play a large part in causing rifts between friends	0	1	2	3	4
7. I feel that people who are often lonely are lacking in social competence	0	1	2	3	4
8. When I hear of a divorce I suspect that the couple probably did not try enough to make their marriage work.	0	1	2	3	4
9. Some people just seem predisposed to dislike me	0	1	2	3	4
10. I find that the absence of friendships is often a matter of not being lucky enough to meet the right people	0	1	2	3	4
11. In my experience, there is a direct connection between the absence of friendship and being socially inept	0	1	2	3	4
12. In my experience, loneliness comes from not trying to be friendly	0	1	2	3	4
13. It is almost impossible to figure out how I have displeased some people	0	1	2	3	4
14. Difficulties with my friends often start with chance remarks	0	1	2	3	4

Instructions: Below you will find a series of statements. At the top of each page, you will find a response key. Please read each statement carefully and respond to it according to the scale provided. Use the number that best reflects your response.

-
- 1 = The statement does not apply to me at all.
 - 2 = The statement usually does not apply to me.
 - 3 = Most often, the statement does not apply to me.
 - 4 = I am unsure about whether or not the statement applies to me, or it applies to me about half the time.
 - 5 = The statement applies more often than not.
 - 6 = The statement usually applies to me.
 - 7 = The statement always applies to me.
-

- ☐ 1. I prefer a job where I have a lot of control over what I do and when I do it.
- ☐ 2. I enjoy political participation because I want to have as much say in running government as possible.
- ☐ 3. I try to avoid situations where someone else tells me what to do.
- ☐ 4. I would prefer to be a leader than a follower.
- ☐ 5. I enjoy being able to influence the actions of others.
- ☐ 6. I am careful to check everything on an automobile before I leave for a long trip.
- ☐ 7. Others usually know what is best for me.
- ☐ 8. I enjoy making my own decisions.
- ☐ 9. I enjoy having control over my own destiny.
- ☐ 10. I would rather someone else take over the leadership role when I'm involved in a group project.
- ☐ 11. I consider myself to be generally more capable of handling situations than others are.
- ☐ 12. I'd rather run my own business and make my own mistakes than listen to someone else's orders.
- ☐ 13. I like to get a good idea of what a job is all about before I begin.
- ☐ 14. When I see a problem, I prefer to do something about it rather than sit by and let it continue.
- ☐ 15. When it comes to orders, I would rather give them than receive them.
- ☐ 16. I wish I could push many of life's daily decisions off on someone else.
- ☐ 17. When driving, I try to avoid putting myself in a situation where I could be hurt by another person's mistake.
- ☐ 18. I prefer to avoid situations where someone else has to tell me what it is I should be doing.
- ☐ 19. There are many situations in which I would prefer only one choice rather than having to make a decision.
- ☐ 20. I like to wait and see if someone else is going to solve a problem so that I don't have to be bothered with it.

Please indicate whether the following statements are true (T), or false (F) for you.

- ☐ 1. I am quite independent of the people I know
- ☐ 2. I choose hobbies that I can share with other people.
- ☐ 3. I seldom put out extra effort to make friends.
- ☐ 4. I go out of my way to meet people.
- ☐ 5. I don't really have fun at large parties.
- ☐ 6. People consider me to be quite friendly.
- ☐ 7. I would not be very good at a job which required me to meet people all day long.
- ☐ 8. I truly enjoy myself at social functions.
- ☐ 9. When I see someone I know from a distance, I don't go out of my way to say hello.
- ☐ 10. I spend a lot of time visiting friends.
- ☐ 11. Sometimes I have to make a real effort to be sociable.
- ☐ 12. My friendships are many.
- ☐ 13. I don't spend much of my time talking with people I see every day.
- ☐ 14. I trust my friends completely.
- ☐ 15. Often I would rather be alone than with a group of friends.
- ☐ 16. I try to be in the company of friends as much as possible.

Thank you for completing the questionnaires!!

Make sure that you have answered all of the questions, then hand this questionnaire booklet back to the experimenter (Rm. 503a)

Appendix F: Participant Information Sheet and Consent form



School of Psychology

PARTICIPANT INFORMATION STATEMENT

Attitudes and Opinions

You are being asked to participate in a research project that examines attitudes and opinions. You will be involved in completing a series of questionnaires in your own time that tests attitudes and opinions about a variety of issues. Filling out the questionnaires will take approximately **one-hour**.

We hope to learn how people form attitudes and opinions in a variety of different types of interaction settings. You were selected as a possible participant in this study because, like others, you live in a social world where such attitudes and opinions are commonly formed and guide our subsequent behaviours. If you decide to participate, Dr Williams and associates will give you instructions as to the types of attitudes and opinions you will be asked to make.

After participation you will receive a **complete and thorough** explanation of the study, and you will be encouraged to express your feelings about your experience filling out the questionnaires, if you wish. Although we think you will learn something interesting from this experiment, we cannot and do not guarantee or promise that you will receive any benefits from this study.

Any information that is obtained in connection with this study and that can be identified with you will **remain confidential** and will be disclosed only with your permission or except as required by law. If you give us your permission by signing this document, we plan to present and publish the results to national and international conferences and journals. In any publication, information will be provided in such a way that you cannot be identified.

Complaints may be directed to the Ethics Secretariat, University of New South Wales, SYDNEY 2052 AUSTRALIA (phone 9385 4234, fax 9385 6648, email: ethics.sec@unsw.edu.au).

Your decision whether or not to participate will not prejudice your future relations with the University of New South Wales. If you decide to participate, you are free to withdraw your consent and to discontinue participation at any time without prejudice.

If you have any questions, we expect you to ask us. If you have any additional questions later, Dr. Williams (9385 3521) will be happy to answer them.

You will be given a copy of this form to keep.

CONSENT FORM

Attitudes and Opinions

You are making a decision whether or not to participate. Your signature indicates that you have decided to participate after having read the information provided above.

Signature of subject:

Signature of witness

Please PRINT name

Please PRINT name

Date

Nature of Witness

Signature(s) of investigator(s)

Please PRINT Name

Revocation of Consent

I hereby wish to WITHDRAW my consent to participate in the research proposal described above and understand that such withdrawal WILL NOT jeopardise any treatment or my relationship with the University of New South Wales.

Signature of subject:

Date

Please PRINT name

The section for Revocation of Consent should be forwarded to Dr. K Williams, School of Psychology, University of New South Wales, Sydney 2052.

Chapter 4: Study 3— The Train Ride: Comparing the effects of ostracism and argument on the primary needs and somatic responses of targets and sources

Appendix G: Train Ride Tickets (Experiments 3.1, 3.2, & 3.3)

Appendix G: Train ride tickets (Experiments 3.1, 3.2, & 3.3)

<p>All traffic carried subject to the Transport Administration Act, 1988</p>  <p>RETURN TICKETS ONLY VALID UP TO 4AM AFTER DAY OF ISSUE</p> <p>UNSW T1</p>	<p>All traffic carried subject to the Transport Administration Act, 1988</p>  <p>RETURN TICKETS ONLY VALID UP TO 4AM AFTER DAY OF ISSUE</p> <p>UNSW S1</p>	<p>All traffic carried subject to the Transport Administration Act, 1988</p>  <p>RETURN TICKETS ONLY VALID UP TO 4AM AFTER DAY OF ISSUE</p> <p>UNSW S1</p>
<p>All traffic carried subject to the Transport Administration Act, 1988</p>  <p>RETURN TICKETS ONLY VALID UP TO 4AM AFTER DAY OF ISSUE</p> <p>UNSW T2</p>	<p>All traffic carried subject to the Transport Administration Act, 1988</p>  <p>RETURN TICKETS ONLY VALID UP TO 4AM AFTER DAY OF ISSUE</p> <p>UNSW S2</p>	<p>All traffic carried subject to the Transport Administration Act, 1988</p>  <p>RETURN TICKETS ONLY VALID UP TO 4AM AFTER DAY OF ISSUE</p> <p>UNSW S2</p>
<p>All traffic carried subject to the Transport Administration Act, 1988</p>  <p>RETURN TICKETS ONLY VALID UP TO 4AM AFTER DAY OF ISSUE</p> <p>UNSW T3</p>	<p>All traffic carried subject to the Transport Administration Act, 1988</p>  <p>RETURN TICKETS ONLY VALID UP TO 4AM AFTER DAY OF ISSUE</p> <p>UNSW S3</p>	<p>All traffic carried subject to the Transport Administration Act, 1988</p>  <p>RETURN TICKETS ONLY VALID UP TO 4AM AFTER DAY OF ISSUE</p> <p>UNSW S3</p>

These tickets were modelled on the State Transport Authority (New South Wales) train tickets that were in circulation during the experiments. The S or T represents the role played by the participant (i.e., source or target). The number represents the row of the train (i.e., row 1, row2) where the participants were to be seated.

*Appendix H: Participant Information Sheet and Consent Forms
(Experiment 3.1)*



School of Psychology

THE UNIVERSITY OF NEW SOUTH WALES SUBJECT INFORMATION AND CONSENT FORM

The train-ride role-play study

You are invited to participate in a study examining whether role-play can be effectively used to examine human behaviour. We hope to learn how well individuals can perform a simple role-play task (i.e. pretending to be in a train) and whether this technique approximates true human behaviour in the situation.

If you decide to participate, we will be asking you to form a group with two other people, and role-play a scenario. This scenario will ask you to pretend that you are on a train with two classmates for a 5-minute "ride." Afterward, you will be asked to rate the ride on a number of dimensions. This study will take approximately 30 minutes to complete. We cannot and do not guarantee or promise that you will receive any benefits from this study.

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or except as required by law. If you give us your permission by signing this document, we plan to publish the results in scientific journals. In any publication, information will be provided in such a way that you cannot be identified. Complaints may be directed to the Ethics Secretariat, University of New South Wales, SYDNEY 2052 AUSTRALIA (ph: 9385 4234, fax 9385 6648, email ethics.sec@unsw.edu.au).

Your decision whether or not to participate will not prejudice your future relations with the University of New South Wales. If you decide to participate, you are free to withdraw your consent and to discontinue participation at any time without prejudice.

If you have any questions, we expect you to ask us. If you have any additional questions later, Dr. Kipling Williams (ph: 9385 3521) will be happy to answer them.

You will be given a copy of this form to keep.

CONSENT FORM

The train-ride role-play study

You are making a decision whether or not to participate. Your signature indicates that you have decided to participate in the train ride role-play study as detailed above.

Signature of participant

Please PRINT name

Date

Signature(s) of investigators(s)

Please PRINT name

REVOCATION OF CONSENT

I hereby wish to WITHDRAW my consent to participate in the research proposal described above and understand that such withdrawal WILL NOT lead to negative consequences.

Signature of participant

Date

Please PRINT name

*Appendix I: Train Ride Booklets for Targets and Sources
(Experiment 3.1)*

Scenario for Sources

Scenario for Targets

Post-study Questionnaire

Role Play Task: The train ride

You have been given a ticket marked S. Show it to the others!

Now, imagine that you are taking the train home. It's late in the afternoon and the train is packed, so there aren't many seats left. Luckily, you have a seat—you're sitting with a good friend but between you both is a classmate (the one who chose the "T") whom you both know fairly well, but you wouldn't describe yourselves as close friends. Actually, you are both angry at "T" because you found out today that you and your friend were not invited to T's birthday party last weekend.

As the train pulls away from the platform, the classmate sitting between (the one who chose the "T") starts to talk to you and your friend about his/her day. But you and your friend begin to talk over the top of "T", talking about anything and everything (who so and so was going out with, Bill Clinton's wacky love life, your favourite Spice girl, the results of the Commonwealth games ...). Everything, But whenever "T" tries to join in, you just ignore him/her and keep talking to each other.

Make sure that you keep the conversation lively! And be sure to ignore "T" completely, no matter what they may say or do!

Role Play Task: The train ride

You have been given a ticket marked S. Show it to the others!

Now, imagine that you are taking the train home. It's late in the afternoon and the train is packed, so there aren't many seats left. Luckily, you have a seat—you're sitting with a good friend but between you both is a classmate (the one who chose the "T") whom you both know fairly well, but you wouldn't describe yourselves as close friends. Actually, you are both angry at "T" because you found out today that you and your friend were not invited to "T"'s birthday party last weekend.

As the train pulls away from the platform, the classmate sitting between (the one who chose the "T") starts to talk to you and your friend about his/her day. But you and your friend begin to tell "T" off for not inviting you both to his/her party. You argue with, and insult "T", and tell him/her how hurt you are for not inviting you to their party. Although the "T" person may come up with a reason for their behaviour, you are in no mood to accept it—there is no acceptable excuse for what they have done.

Make sure that you keep the argument lively! **Do not** ignore, or stop speaking to "T" for any reason!

Role Play Task: The train ride

You have been given a ticket marked T. Show it to the others!
Make sure you sit in the middle seat.

Now, imagine that you are taking the train home. It's late in the afternoon and the train is packed, so there aren't many seats left. Luckily, you have a seat—you're sitting in between two classmates. You know each of them fairly well, but you also know that they are close friends.

Actually, you are a little bit anxious about sitting with them. You know that they are probably angry that you didn't invite them to your birthday party last weekend. You wanted to invite them, it's just that you were only allowed to invite 10 friends to your party and they were the 10th and 11th people on the list.

As the train pulls away from the platform, you start to talk to the classmates about your day...

You're on your own!

Post-study Questionnaire

AGE: _____ SEX: M F LETTER ON TICKET: T S

PLEASE ANSWER THE FOLLOWING QUESTIONS (by placing a '|' anywhere between 0 and 100) **BASED UPON HOW YOU WERE FEELING IN THIS 5-MINUTE 'TRAIN RIDE' SITUATION:**

1. ...I felt a strong connection with the other two people in my train row.

0 10 20 30 40 50 60 70 80 90 100
DISAGREE AGREE

2. ...I felt like I was in control over what was happening.

0 10 20 30 40 50 60 70 80 90 100
DISAGREE AGREE

3. ...I felt badly about myself.

0 10 20 30 40 50 60 70 80 90 100
DISAGREE AGREE

4. ...I felt invisible.

0 10 20 30 40 50 60 70 80 90 100
DISAGREE AGREE

5. ...I felt superior.

0 10 20 30 40 50 60 70 80 90 100
DISAGREE AGREE

6. ...I felt frustrated.

0 10 20 30 40 50 60 70 80 90 100
DISAGREE AGREE

7. ...I felt included in the conversation.

0 10 20 30 40 50 60 70 80 90 100
DISAGREE AGREE

8. ...I felt anxious.

0 10 20 30 40 50 60 70 80 90 100
DISAGREE AGREE

9. ...I felt like I was getting a headache.

0 10 20 30 40 50 60 70 80 90 100
DISAGREE AGREE

10. ...I felt like I was getting nauseous.

0 10 20 30 40 50 60 70 80 90 100
DISAGREE AGREE

11. ...I felt like I was getting 'stressed out.'

0 10 20 30 40 50 60 70 80 90 100
DISAGREE AGREE

12. ...I felt my point-of-view was at least acknowledged by the others.

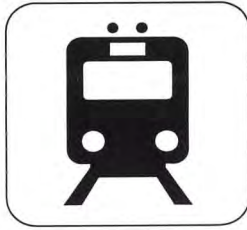
0 10 20 30 40 50 60 70 80 90 100
DISAGREE AGREE

*Appendix J: Train Ride Booklets for Targets and Sources
(Experiment 3.2)*

Scenario for Sources

Scenario for Targets

Post-study Questionnaire



Scenario for Sources of Argument

1. Please take a close look at your train ticket—it should have an “S” on it.
2. Now read the role-play instructions below.
3. When the instructor calls out “all aboard,” act out the scenario.

Imagine that you are taking the train home. It's late in the afternoon and the train is packed, so there aren't many seats left. Luckily, you have a seat. By a strange coincidence you are sitting with two people who are in your Psyc1 tutorial class. Although you did not really know the two other people very well before session started, one of these people (the one with the other “S” ticket) has become a friend of yours—you sit and talk with them during tutorials and generally have a good time. The person sitting in between you and your friend (the one with the “T” ticket) is not a friend, but you have spoken to them and performed several of the group activities with them during the tutorials.

Actually, you and your friend are both a bit **angry** with the “T” person. After this week's tutorial, you saw T go up and tell the tutor that you and your friend were talking while the tutor was explaining the tutorial activities for the week. The T person told the tutor that you and your friend were making too much noise and that they could not concentrate!

As the train pulls away from the platform, T starts to talk to you and your friend about his/her day. But you and your friend begin to tell T off for telling the tutor that you and your friend were talking. You **argue strongly with T**, that you weren't making that much noise at all, that T should have spoken to you and your friend rather than the tutor. Although the T person may come up with a reason for their behaviour, you are in no mood to accept it—there is no acceptable excuse for what they have done. **Keep the argument going.**

Okay, now you're actually going to role-play this situation, just as it's written above. When the instructor calls out “all aboard”, begin the conversation. A whistle will be blown to signal the train's first stop—**just ignore it and keep the argument going**. Please remain in the train. Make sure you **keep the argument lively!**

Scenario for Sources of Ostracism



1. Please take a close look at your train ticket—it should have an “**S**” on it.
2. Now read the role-play instructions below.
3. When the instructor calls out “all aboard,” act out the scenario.

Imagine that you are taking the train home. It's late in the afternoon and the train is packed, so there aren't many seats left. Luckily, you have a seat. By a strange coincidence you are sitting with two people who are in your Psyc1 tutorial class. Although you did not really know the two other people very well before session started, one of these people (the one with the other “S” ticket) has become a friend of yours—you sit and talk with them during tutorials and generally have a good time. The person sitting in between you and your friend (the one with the “T” ticket) is not a friend, but you have spoken to them and performed several of the group activities with them during the tutorials.

Actually, you and your friend are both a bit **angry** with the “T” person. After this week's tutorial, you saw T go up and tell the tutor that you and your friend were talking while the tutor was explaining the tutorial activities for the week. The T person told the tutor that you and your friend were making too much noise and that they could not concentrate!

As the train pulls away from the platform, T starts to talk to you and your friend about his/her day. But you and your friend begin to tell T off for telling the tutor that you and your friend were talking. You **argue strongly with T**, that you weren't making that much noise at all, that T should have spoken to you and your friend rather than the tutor. Although the T person may come up with a reason for their behaviour, you are in no mood to accept it—there is no acceptable excuse for what they have done. **Keep the argument going.**

After the train pulls into the first station (when the whistle blows), you and your friend begin to talk over the top of T, talking about anything and everything (the latest movies you have seen, what assignments you have due ...). But whenever T tries to join in, **you just ignore him/her** and keep talking to each other. You don't look at T, listen to T, or talk to T.

Okay, now you're actually going to role-play this situation, just as it's written above. When the instructor calls out “all aboard”, begin the conversation. **A whistle will be blown to signal the train's first stop.** Please remain in the train. Make sure you keep the conversation lively! And remember, after the first stop **do not speak to T for any reason!**



Scenario for Targets

1. Please take a close look at your train ticket—it should have an “T” on it.
2. Now read the role-play instructions below.
3. When the instructor calls out “all aboard,” act out the scenario.

Imagine that you are taking the train home. It's late in the afternoon and the train is packed, so there aren't many seats left. Luckily, you have a seat. By a strange coincidence you are sitting with two people (who have chosen the “S” tickets) who are in your Psyc1 tutorial class. Although you did not really know the two other people very well before session started, you have spoken to them and performed several of the group activities with them during the tutorials.

Actually, you are a little bit anxious about sitting with them. The two people were sitting behind you during this week's tutorial, and were laughing and talking very loudly to each other during the class. You could hardly hear what the tutor was saying!

So, after the tutorial, you went up and told the tutor that the two “S” people were talking through her lecture and disturbing the class. You asked her if she could talk to the two people if it happened again.

When you left the tutor, you noticed that the two S people were still in the corridor, so they probably heard your conversation with the tutor. You know that they are probably angry with you for telling on them.

As the train pulls away from the platform, **you start to talk to the classmates about your day...**

Okay, now you're actually going to role-play this situation, just as it's written above. When the instructor calls out “all aboard”, begin the conversation. A whistle will be blown to signal the train's first stop—**just ignore it and keep talking**. Please remain in the train. You're on your own!

PLEASE ANSWER THE FOLLOWING QUESTIONS (by circling the appropriate rating) **BASED UPON HOW YOU WERE FEELING DURING THIS 5-MINUTE 'TRAIN RIDE' SITUATION. BE BRUTALLY HONEST!**

1. ...I felt a special bond with at least one other person in my train row.

0 10 20 30 40 50 60 70 80 90 100
DISAGREE AGREE

2. ...I felt an unusually strong sense of control over what was happening.

0 10 20 30 40 50 60 70 80 90 100
DISAGREE AGREE

3. ...I felt badly about myself.

0 10 20 30 40 50 60 70 80 90 100
DISAGREE AGREE

4. ...I felt invisible.

0 10 20 30 40 50 60 70 80 90 100
DISAGREE AGREE

5. ...I felt superior to at least one other person in my train row.

0 10 20 30 40 50 60 70 80 90 100
DISAGREE AGREE

6. ...It was as though my existence was meaningless.

0 10 20 30 40 50 60 70 80 90 100
DISAGREE AGREE

7. ...I felt frustrated.

0 10 20 30 40 50 60 70 80 90 100
DISAGREE AGREE

8. ...I felt that I was acknowledged by at least one other person in my train row.

0 10 20 30 40 50 60 70 80 90 100
DISAGREE AGREE

9. ...I felt included in the group.

0 10 20 30 40 50 60 70 80 90 100
DISAGREE AGREE



Please rate each of the following words according to how you feel ***right now*** by circling the appropriate response.

	<i>Definitely YES</i>	<i>Slightly YES</i>	<i>Not sure or do not understand</i>	<i>Definitely NOT</i>
Relaxed	++	+	?	-
Aroused	++	+	?	-
Distressed	++	+	?	-
Calm	++	+	?	-
Contented	++	+	?	-
Active	++	+	?	-
Vigorous	++	+	?	-
Comfortable	++	+	?	-
Lively	++	+	?	-
Uneasy	++	+	?	-
Tired	++	+	?	-
Worried	++	+	?	-
Uptight	++	+	?	-
Drowsy	++	+	?	-
Tense	++	+	?	-
Passive	++	+	?	-
Energetic	++	+	?	-
Alert	++	+	?	-
Bothered	++	+	?	-
Sleepy	++	+	?	-

*Appendix K: Participant Information Sheet and Consent form
(Experiment 3.3)*



School of Psychology
Approval No: 9982

THE UNIVERSITY OF NEW SOUTH WALES SUBJECT INFORMATION AND CONSENT FORM

The train-ride role-play study

You are invited to participate in a study examining whether role-play can be effectively used to examine human behaviour. We hope to learn how well individuals can perform a simple role-play task (i.e. pretending to be in a train) and whether this technique approximates true human behaviour in the situation.

If you decide to participate, we will be asking you to form a group with two other people, and role-play a scenario. This scenario will ask you to pretend that you are on a train with two classmates for a 5-minute "ride." Afterward, you will be asked to rate the ride on a number of dimensions. This study will take approximately 30 minutes to complete. We cannot and do not guarantee or promise that you will receive any benefits from this study.

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or except as required by law. If you give us your permission by signing this document, we plan to publish the results in scientific journals. In any publication, information will be provided in such a way that you cannot be identified.

Participation in the research will result in 0.8 credit points per hour. These credit points will go toward your final mark in 1st year Psychology. Complaints may be directed to the Ethics Secretariat, University of New South Wales, SYDNEY 2052 AUSTRALIA (ph: 9385 4234, fax 9385 6648, email ethics.sec@unsw.edu.au).

Your decision whether or not to participate will not prejudice your future relations with the University of New South Wales. If you decide to participate, you are free to withdraw your consent and to discontinue participation at any time without prejudice.

If you have any questions, we expect you to ask us. If you have any additional questions later, Dr. Kipling Williams (ph: 9385 3521) will be happy to answer them.

You will be given a copy of this form to keep.

CONSENT FORM

The train-ride role-play study

You are making a decision whether or not to participate. Your signature indicates that you have decided to participate in the train ride role-play study as detailed above.

Signature of participant

Please PRINT name

Date

Signature(s) of investigators(s)

Please PRINT name

REVOCATION OF CONSENT

I hereby wish to WITHDRAW my consent to participate in the research proposal described above and understand that such withdrawal WILL NOT lead to negative consequences.

Signature of participant

Date

Please PRINT name

*Appendix L: Train Ride Booklets for Targets and Sources
(Experiment 3.3)*

Scenario for Sources

Scenario for Targets

Post-study Questionnaire



Scenario for Sources of Ostracism

1. Please take a close look at your train ticket—it should have an “S” on it.
2. Now read the role-play instructions below. Fill in your responses in the space provided.
3. When the instructor calls out “all aboard,” act out the scenario.

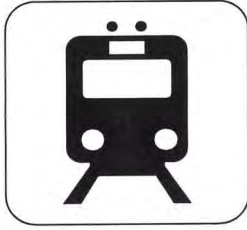
Imagine that you are taking the train home. It's late in the afternoon and the train is packed, so there aren't many seats left. Luckily, you have a seat—you're sitting with a good friend but between you both is a classmate (the one who chose the "T") whom you both know fairly well from your social/developmental psychology tutorial, but you wouldn't describe yourselves as close friends.

Actually, you are both a bit angry at T. Last week, you and your friend were ill and missed the social psychology tutorial. When you asked T if you and your friend could borrow T's notes from the tutorial, T said no, even though you promised to return them later that day.

As the train pulls away from the platform, T starts to talk to you and your friend about his/her day. But you and your friend begin to tell T off for not letting you and your friend borrow their notes. You argue strongly with T, and tell him/her how much you needed the notes, and how selfish they are for not letting you borrow them. Although the T person may come up with a reason for their behaviour, you are in no mood to accept it—there is no acceptable excuse for what they have done. Keep the argument going.

After the train pulls into the first station (when the whistle blows), you and your friend begin to talk over the top of T, talking about anything and everything (who so and so was going out with, your favourite Spice girl). But whenever T tries to join in, you just ignore him/her and keep talking to each other. You don't look at T, listen to T, or talk to T.

Okay, now you're actually going to role-play this situation, just as it's written above. When the instructor calls out “all aboard”, begin the conversation. A whistle will be blown to signal the train's first stop. Please remain in the train. Make sure you keep the conversation lively! And remember, after the first stop do not speak to T for any reason!



Scenario for Sources of Argument

1. Please take a close look at your train ticket—it should have an “S” on it.
2. Now read the role-play instructions below. Fill in your responses in the space provided.
3. When the instructor calls out “all aboard,” act out the scenario.

Imagine that you are taking the train home. It's late in the afternoon and the train is packed, so there aren't many seats left. Luckily, you have a seat—you're sitting with a good friend but between you both is a classmate (the one who chose the "T") whom you both know fairly well from your social/developmental psychology tutorial, but you wouldn't describe yourselves as close friends.

Actually, you are both a bit angry at T. Last week, you and your friend were ill and missed the social psychology tutorial. When you asked T if you and your friend could borrow T's notes from the tutorial, T said no, even though you promised to return them later that day.

As the train pulls away from the platform, T starts to talk to you and your friend about his/her day. But you and your friend begin to tell T off for not letting you and your friend borrow their notes. You argue strongly with T, and tell him/her how much you needed the notes, and how selfish they are for not letting you borrow them. Although the T person may come up with a reason for their behaviour, you are in no mood to accept it—there is no acceptable excuse for what they have done. Keep the argument going.

After the train pulls into the first station (when the whistle blows), continue your argument with T. Don't let up.

Okay, now you're actually going to role-play this situation, just as it's written above. When the instructor calls out “all aboard”, begin the conversation. A whistle will be blown to signal the train's first stop. Please remain in the train. Make sure you keep the argument lively!



Scenario for Sources of Inclusion

1. Please take a close look at your train ticket—it should have an “**S**” on it.
2. Now read the role-play instructions below. Fill in your responses in the space provided.
3. When the instructor calls out “all aboard,” act out the scenario.

Imagine that you are taking the train home. It's late in the afternoon and the train is packed, so there aren't many seats left. Luckily, you have a seat—you're sitting with a good friend but between you both is a classmate (the one who chose the "T") whom you both know fairly well from your social/developmental psychology tutorial, but you wouldn't describe yourselves as close friends.

As the train pulls away from the platform, “T” starts to talk to you and your friend about his/her day. For the rest of the ride, all three of you begin to talk about anything and everything (who so and so is going out with, your favourite Spice Girl). Everything.

Okay, now you're actually going to role-play this situation, just as it's written above. When the instructor calls out “all aboard,” begin the conversation. A whistle will be blown to signal the train's first stop—ignore it, just keep talking. Please remain in the train throughout the ride. Make sure you keep the conversation lively!



Scenario for Targets of Ostracism and Argument

1. Please take a close look at your train ticket—it should have a “T” on it.
2. Now read the role-play instructions below. Fill in your responses in the space provided.
3. When the instructor calls out “all aboard,” act out the scenario.

Imagine that you are taking the train home. It's late in the afternoon and the train is packed, so there aren't many seats left. Luckily, you have a seat—you're sitting in between two classmates. You know each of them fairly well, but you also know that they are close friends.

Actually, you are a little bit anxious about sitting with them. You know that they are probably angry that you didn't lend them your social/developmental tutorial notes for the prac they missed. You wanted to lend the notes to them, but you were being cautious. In the past, you have lent your prac notes to people, only to have them returned late, with pages missing, or not at all. So you have made it your general rule not to lend your tutorial or lecture notes out to others.

As the train pulls away from the platform, you start to talk to the classmates about your day...

Okay, now you're actually going to role-play this situation, just as it's written above. When the instructor calls out “all aboard”, begin the conversation. A whistle will be blown to signal the train's first stop. Please remain in the train. You're on your own!



Scenario for Targets of Inclusion

1. Please take a close look at your train ticket—it should have an “T” on it.
2. Now read the role-play instructions below. Fill in your responses in the space provided.
3. When the instructor calls out “all aboard,” act out the scenario.

Imagine that you are taking the train home. It's late in the afternoon and the train is packed, so there aren't many seats left. Luckily, you have a seat—you're sitting in between two classmates. You know each of them fairly well, but you also know that they are close friends.

As the train pulls away from the platform, you start to talk to the classmates about your day. For the rest of the ride, all three of you begin to talk about anything and everything (who so and so is going out with, your favourite Spice Girl). Everything.

Okay, now you're actually going to role-play this situation, just as it's written above. When the instructor calls out “all aboard,” begin the conversation. A whistle will be blown to signal the train's first stop—ignore it, just keep talking. Please remain in the train throughout the ride. Make sure you keep the conversation lively!

Post-study Questionnaire

PLEASE ANSWER THE FOLLOWING QUESTIONS (by placing a '*|*' anywhere between 0 and 100) **BASED UPON HOW YOU WERE FEELING DURING THIS 5-MINUTE 'TRAIN RIDE' SITUATION. BE BRUTALLY HONEST!**

1. ...I felt a special bond with at least one other person in my train row.

0..... 10..... 20..... 3040 50..... 60 70 80..... 90..... 100
DISAGREE AGREE

2. ...I felt an unusually strong sense of control over what was happening.

0..... 10..... 20..... 3040 50..... 60 70 80..... 90..... 100
DISAGREE AGREE

3. ...I felt badly about myself.

0..... 10..... 20..... 3040 50..... 60 70 80..... 90..... 100
DISAGREE AGREE

4. ...I felt invisible.

0..... 10..... 20..... 3040 50..... 60 70 80..... 90..... 100
DISAGREE AGREE

5. ...I felt superior to at least one other person in my train row.

0..... 10..... 20..... 3040 50..... 60 70 80..... 90..... 100
DISAGREE AGREE

6. ...It was as though my existence was meaningless.

0..... 10..... 20..... 3040 50..... 60 70 80..... 90..... 100
DISAGREE AGREE

7. ...I felt frustrated.

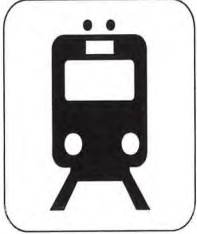
0..... 10..... 20..... 3040 50..... 60 70 80..... 90..... 100
DISAGREE AGREE

8. ...I felt that I was acknowledged by at least one other person in my train row.

0..... 10..... 20..... 3040 50..... 60 70 80..... 90..... 100
DISAGREE AGREE

9. ...I felt included in the group.

0..... 10..... 20..... 3040 50..... 60 70 80..... 90..... 100
DISAGREE AGREE



Read each statement and then circle the appropriate response to the right of the statement to indicate how you feel **AT THIS MOMENT**

	Not at all	Somewhat	Moderately so	Very much so
I feel calm	1	2	3	4
I feel secure	1	2	3	4
I am tense	1	2	3	4
I feel strained	1	2	3	4
I feel at ease	1	2	3	4
I feel upset	1	2	3	4
I am presently worrying over possible misfortunes	1	2	3	4
I feel satisfied	1	2	3	4
I feel frightened	1	2	3	4
I feel comfortable	1	2	3	4
I feel self-confident	1	2	3	4
I feel nervous	1	2	3	4
I am jittery	1	2	3	4
I feel indecisive	1	2	3	4
I am relaxed	1	2	3	4
I feel content	1	2	3	4
I am worried	1	2	3	4
I feel confused	1	2	3	4
I feel steady	1	2	3	4
I feel pleasant	1	2	3	4

Chapter 5: Study 4— Source identity, attributions and the physiological effects of ostracism

*Appendix M: Outline of Webpages in the Cyberball Game
(Experiment 4.1)*

Coverpages for each Condition

Post-Study Questionnaire

Experiment 4.1: Coversheets for each condition

Human players conditions

Cyberball



Welcome!

Many experts believe that mental visualisation is very important in task performance. Whether the task is shooting a basketball, or giving a speech, it is believed that visualising successful completion of these tasks improves performance in real life. This research investigates how useful the computer is as a tool in helping the visualisation process and also plans to assess the autonomic nervous system response associated with it.

In this study, you will have a chance to interact with other people, like yourself, who are participating in an experiment. This will be followed by a questionnaire. Your performance does not matter in the game—only your mental visualisation.

In a moment, you will be asked to engage in a "Cyberball" internet game with two other participants at other universities. During the game you will be asked to visualise or imagine that you are really playing with these people in real life.

Please follow the instructions outlined below:

1. Throw the cyberball by clicking on the icon representing the player to whom you want to throw the ball.
2. Try your best to imagine yourself actually playing the game in real life.
3. Do not "reload" or go back to any of the pages.
4. Click on "Next" to start the game.

The conduct of this research has been approved by the Head of School, Psychology, University of New South Wales.

NEXT

Computer players conditions

Cyberball



Welcome!

Many experts believe that mental visualisation is very important in task performance. Whether the task is shooting a basketball, or giving a speech, it is believed that visualising successful completion of these tasks improves performance in real life. This research investigates how useful the computer is as a tool in helping the visualisation process and also plans to assess the autonomic nervous system response associated with it.

In this study, you will have a chance to interact with two computers in an experiment. This will be followed by a questionnaire. Your performance does not matter in the game—only your mental visualisation.

In a moment, you will be asked to engage in a "Cyberball" internet game with two different computer generated players. During the game you will be asked to visualise or imagine that you are really playing with these computer players in real life.

Please follow the instructions outlined below:

1. Throw the cyberball by clicking on the icon representing the player to whom you want to throw the ball.
2. Try your best to imagine yourself actually playing the game in real life.
3. Do not "reload" or go back to any of the pages.
4. Click on "Next" to start the game.

The conduct of this research has been approved by the Head of School, Psychology, University of New South Wales.

NEXT

Sample Page of the Cyberball game



Post-Study Questionnaire

	<i>Definitely YES</i>	<i>Slightly YES</i>	<i>Not sure or do not understand</i>	<i>Definitely NOT</i>
Relaxed	++	+	?	-
Aroused	++	+	?	-
Distressed	++	+	?	-
Calm	++	+	?	-
Contented	++	+	?	-
Active	++	+	?	-
Vigorous	++	+	?	-
Comfortable	++	+	?	-
Lively	++	+	?	-
Uneasy	++	+	?	-
Tired	++	+	?	-
Worried	++	+	?	-
Uptight	++	+	?	-
Drowsy	++	+	?	-
Tense	++	+	?	-
Passive	++	+	?	-
Energetic	++	+	?	-
Alert	++	+	?	-
Bothered	++	+	?	-
Sleepy	++	+	?	-

*Appendix N: Photos of the Experimental Area and Equipment
(Experiments 4.1 & 4.2)*

Appendix N: Photos of the Experimental Area and Equipment (Experiments 4.1 & 4.2)



SORBA CIC-1000 Impedance Cardiograph



Experimental Area

Appendix O: Script for Cyberball Game (Experiment 4.1)

Cyberball Scripts

Human Players

Let me tell you a little about the study. As you know, the study is about mental visualization and the Internet. It is a collaborative project between UNSW, Macquarie University, and Sydney Universities.

What we are interested in is the process of mental visualisation. We use mental visualisation every day, and there is some evidence to suggest that effective mental visualisation helps us to better achieve our goals. A good example of this is a basketball player who is about to shoot the ball into the hoop. If he or she visualises the ball going into the hoop before they shoot, they will be more likely to score the point.

So, during this study, I will be asking you to visualise while you play a simple internet game with a student from Sydney university and a student from Macquarie. The game is called “cyberball” and basically, it is a simple game of toss. On the screen, you will see two players— player 1 and player 2 (they kind of look like snowmen). You are represented on the screen by a little hand. When the game begins, you and the other players will throw the ball back and forth to each other. Simple!

BUT rather than just point and click, what I want you to do is to actually visualise the game as much as possible. I want you to imagine that you are playing the game in a field, or a park, or on a beach, or in your house, or anywhere that you want to play a game of toss. I want you to really use all your senses while visualising. If you imagine that you are playing the game outdoors, I want you to imagine what kind of day it is. Is it sunny? Rainy? Cloudy? Are you on grass, dirt, sand, water? Is there a breeze? If you are indoors, what does the room look like? Is there carpet on the floor? Are there paintings on the wall? I want you to imagine what the ball looks like— is it a beach ball, or something heavier like a baseball? I want you to imagine how it feels to throw the ball and how it feels to catch the ball.

I want you to imagine the scene as vividly as possible, and that extends to the other players. I want you to get a feel for the other players. As you are playing, I want you to try to figure out whether the players are male or female. How you figure it out is up to you— but at the end of the game, I want you to tell me whether you think player 1 is male or female, and whether player 2 is male or female. Imagine what they look like. I want you to visualise them playing the game with you, as vividly as possible.

As I said, the game is a simple game of ball tossing. You are free to throw the ball to whomever you choose.

What I, and the other experimenters at the other two universities, are particularly interested in is the effects of mental visualization on the body. So, while you play the game, I will be monitoring your physiological responses. Each university will be monitoring a different response. Cassie, who is the experimenter at Macquarie will be monitoring GSR responses— which is skin conductance. John, who is the experimenter at Sydney, will be monitoring

EKG— which is basically evoked brain waves. And here, I will be monitoring your cardiovascular responses, so between the three of us, we will be able to get a pretty good picture of the physiological changes that occur during the game.

I will be placing four electrodes on your body (pointing to the SORBA picture). These electrodes only monitor your responses, they do not hurt, and they do not give out shocks. They will feel like bandaids on your skin. The other piece of cardio equipment is a blood pressure cuff. Have you had your blood pressure taken before? *(wait for their response)*. The cuff goes on the upper half of your right arm like this *(demonstrating on my self)*. The cuff will inflate automatically approximately every 3 minutes. It will make a low humming sound as it inflates. When it inflates, you will feel it squeeze your arm for about a minute. Then it will deflate. At the end of the study, I will show you all your physiological measures.

So, to give you a quick run down on the study. First, I'll ask you to fill out a consent form and two quick questionnaires. I'll then hook you up to the cardiovascular machine. For the next ten minutes or so, I will ask you to relax while I make sure that the machine is functioning properly. This rest period will also give the other two universities time to get their participants ready for the game. At the end of the rest period, I will call Cassie at Macquarie to let her know that we are ready, and she will call John at Sydney. When we are all ready, I'll come in and ask you to start playing the game. When the game is finished, you will see a screen that asks you to tell the experimenter that you are finished. Simply knock on the wall so that I know you are finished. You will then fill out a questionnaire about the game. And that's it! I'll unhook you and you can take a look at your physiological variables. Do you have any questions?

So, let's begin. Please fill out the consent forms and the questionnaires that are laid out on the table. Meanwhile, I'm just going to get some water so that I can apply the electrodes to you.

(Come back and apply the electrodes)

This is prep gel. I will be putting a little of this on you before I put on the electrode. It clears the skin of any oil or flaking skin cells (prep gel goes on, is washed off). Then the electrode goes on.

(while the electrodes are being attached). So, where are you going to visualize playing the game?
(engage them in a discussion about the place)

Now, the machine calculates how much blood is pumping through your body. But first it has to know the dimensions of your body. So we are now going to find out your height and weight *(measure height and weight)*.

(after height and weight are measured) Now, we are going to hook you up.
(attaching the blood pressure cuff). This is the blood pressure cuff. Is it on too tight? As I said before, the cuff will automatically inflate approx. every three or four minutes. It will make a noise just before it inflates. In a minute, I will inflate it so that you know what it will feel like.

(after all the electrodes have been attached to the leads). I am just going to put your variables into the computer. While I do that, I would like you to read the coverpage on the computer. When you finished, press “next” and go onto the next page. It will ask you to type in your student number, age, religion etc. After you have finished doing that, just wait. Don’t press “next” on that page.

(put variables into the computer. Return to the participant)

How was the blood pressure cuff?

Ok, now we will start the rest period. Just sit quietly for the next ten minutes. Try not to think of exams, or assignments, or anything you have due. Just relax. Make sure that you keep your head up. Don’t turn your head from side to side as it will interfere with the electrode on your forehead. Also, keep your feet flat on the ground. If you move your legs, it will interfere with the electrode on your hip. After the rest period is up, I will ring Cassie to make sure everyone else is ready, and then we will begin the game. I will come in and tell you when to start. Don’t start until I come in. Do you have any questions? Ok then, let’s start the rest period.

(make the fake phone call: discuss the sex of the participants)

Ok, the rest period is up. You will start the game by pressing “next.” Remember, you will be playing Cyberball with students from Macquarie and Sydney. You will be free to throw the ball to the other players any way you please. I want you to visualise the situation as vividly as possible. And to make sure that you are visualising, I want you to figure out whether the other two players are male or female. When you have finished playing the game, knock on the wall so I know that you are done. Then go onto the questionnaires. Remember, your performance doesn’t matter— only the visualization. Now, start the game.

Computer Players

Let me tell you a little about the study. As you know, the study is about mental visualization and the Internet. It is a collaborative project between UNSW, Macquarie University, and Sydney Universities.

What we are interested in is the process of mental visualisation. We use mental visualisation every day, and there is some evidence to suggest that effective mental visualisation helps us to better achieve our goals. A good example of this is a basketball player who is about to shoot the ball into the hoop. If he or she visualises the ball going into the hoop before they shoot, they will be more likely to score the point.

So, during this study, I will be asking you to visualise while you play a simple internet game. Although you would usually be playing the game with a student from Sydney university and a student from Macquarie, one of the labs has had equipment failure, so this will not be possible. As I said during my reminder call to you yesterday, if there was any sort of problem, you would be playing the game with two computer generated players who are the default options at each of the universities.

The game is called “cyberball” and basically, it is a simple game of toss. On the screen, you will see two players— player 1 and player 2 (they kind of look like snowmen). You are represented on the screen by a little hand. When the game begins, you and the two computer players will throw the ball back and forth to each other. Simple!

BUT rather than just point and click, what I want you to do is to actually visualise the game as much as possible. I want you to imagine that you are playing the game in a field, or a park, or on a beach, or in your house, or anywhere that you want to play a game of toss. I want you to really use all your senses while visualising. If you imagine that you are playing the game outdoors, I want you to imagine what kind of day it is. Is it sunny? Rainy? Cloudy? Are you on grass, dirt, sand, water? Is there a breeze? If you are indoors, what does the room look like? Is there carpet on the floor? Are there paintings on the wall? I want you to imagine what the ball looks like— is it a beach ball, or something heavier like a baseball? I want you to imagine how it feels to throw the ball and how it feels to catch the ball.

I want you to imagine the scene as vividly as possible, but this does not extend to the other players. I want you at all times to be aware that they are computer generated. Do not imagine playing the game with real people. Instead, imagine that you are throwing the ball to the two animated players you will see on the screen.

As I said, the game is a simple game of ball tossing. You are free to throw the ball to whomever you choose.

What I, and the other experimenters at the other two universities, are particularly interested in is the effects of mental visualization on the body. So, while you play the game, I will be monitoring your physiological responses. Each university will be monitoring a different response. Cassie, who is the experimenter at Macquarie will be monitoring GSR responses—which is skin conductance. John, who is the experimenter at Sydney, will be monitoring EKG—which is basically evoked brain waves. And here, I will be monitoring your

cardiovascular responses, so between the three of us, we will be able to get a pretty good picture of the physiological changes that occur during the game. Though, due to the technical problems, only your responses will be monitored.

I will be placing four electrodes on your body (pointing to the SORBA picture). These electrodes only monitor your responses, they do not hurt, and they do not give out shocks. They will feel like bandaids on your skin. The other piece of cardio equipment is a blood pressure cuff. Have you had your blood pressure taken before? *(wait for their response)*. The cuff goes on the upper half of your right arm like this *(demonstrating on my self)*. The cuff will inflate automatically approximately every 3 minutes. It will make a low humming sound as it inflates. When it inflates, you will feel it squeeze your arm for about a minute. Then it will deflate. At the end of the study, I will show you all your physiological measures.

So, to give you a quick run down on the study. First, I'll ask you to fill out a consent form and two quick questionnaires. I'll then hook you up to the cardiovascular machine. For the next ten minutes or so, I will ask you to relax while I make sure that the machine is functioning properly. At the end of the rest period, I will call Cassie at Macquarie to let her know that we are ready, and she will activate the computer generated player at her university, and will contact John at Sydney to make sure that he activates his computer generated player. When we are all ready, I'll come in and ask you to start playing the game. When the game is finished, you will see a screen that asks you to tell the experimenter that you are finished. Simply knock on the wall so that I know you are finished. You will then fill out a questionnaire about the game. And that's it! I'll unhook you and you can take a look at your physiological variables. Do you have any questions?

So, let's begin. Please fill out the consent forms and the questionnaires that are laid out on the table. Meanwhile, I'm just going to get some water so that I can apply the electrodes to you.

(Come back and apply the electrodes)

This is prep gel. I will be putting a little of this on you before I put on the electrode. It clears the skin of any oil or flaking skin cells (prep gel goes on, is washed off). Then the electrode goes on.

(while the electrodes are being attached). So, where are you going to visualize playing the game?
(engage them in a discussion about the place)

Now, the machine calculates how much blood is pumping through your body. But first it has to know the dimensions of your body. So we are now going to find out your height and weight *(measure height and weight)*.

(after height and weight are measured) Now, we are going to hook you up.
(attaching the blood pressure cuff). This is the blood pressure cuff. Is it on too tight? As I said before, the cuff will automatically inflate approx. every three or four minutes. It will make a noise just before it inflates. In a minute, I will inflate it so that you know what it will feel like.

(after all the electrodes have been attached to the leads). I am just going to put your variables into the computer. While I do that, I would like you to read the coverpage on the computer. When you finished, press “next” and go onto the next page. It will ask you to type in your student number, age, religion etc. After you have finished doing that, just wait. Don’t press “next” on that page.

(put variables into the computer. Return to the participant)

How was the blood pressure cuff?

Ok, now we will start the rest period. Just sit quietly for the next ten minutes. Try not to think of exams, or assignments, or anything you have due. Just relax. Make sure that you keep your head up. Don’t turn your head from side to side as it will interfere with the electrode on your forehead. Also, keep your feet flat on the ground. If you move your legs, it will interfere with the electrode on your hip. After the rest period is up, I will ring Cassie to make sure everyone else is ready, and then we will begin the game. I will come in and tell you when to start. Don’t start until I come in. Do you have any questions? Ok then, let’s start the rest period.

(make the fake phone call)

Ok, the rest period is up. You will start the game by pressing “next.” Remember, you will be playing Cyberball with two computer generated players. You will be free to throw the ball to the other players any way you please. I want you to visualise the situation as vividly as possible. But do not imagine that you are throwing the ball to real people— always keep in mind that they players are computer generated. When you have finished playing the game, knock on the wall so I know that you are done. Then go onto the questionnaires. Remember, your performance doesn’t matter— only the visualization. Now, start the game.

*Appendix P: Participant Information Sheet and Consent Form
(Experiments 4.1 & 4.2)*



School of Psychology

SUBJECT INFORMATION STATEMENT

Mental Visualisation and the Internet

You are being asked to participate in a research project that compares the ways people mentally visualise during social interactions and how they perceive themselves and others in these interactions. You will be asked to mentally visualise during a social interaction with others via computer in a “game-like” activity, during which you will be monitored with the use of physiological equipment measuring heart rate, blood pressure, and other cardiovascular indicators, and afterwards you will be asked to express your impressions, feelings, and choices for further interactions. Examples of the types of social interactions you might be involved in include cooperative tasks, conversations, and problem-solving tasks. The entire experiment, including the **explanation that will follow**, will last no longer than **one-hour**, and the social interactions will comprise a small amount of this time.

We hope to learn how people perceive individuals and groups and form impressions in a variety of different types of interaction settings. You were selected as a possible participant in this study because, like others, you live in a social world where such perceptions and impressions are commonly formed and guide our subsequent behaviours. If you decide to participate, Dr Williams and associates will give you instructions as to the judgments you will be asked to make.

As with any social behaviour, mild and temporary feelings of stress or anxiety may occur. After participation you will receive a **complete and thorough** explanation of the experiment, and you will be encouraged to express your feelings about your experience in the experiment, if you wish. Although we think you will learn something interesting from this experiment, we cannot and do not guarantee or promise that you will receive any benefits from this study.

Any information that is obtained in connection with this study and that can be identified with you will **remain confidential** and will be disclosed only with your permission or except as required by law. If you give us your permission by signing this document, we plan to present and publish the results to national and international conferences and journals. In any publication, information will be provided in such a way that you cannot be identified.

Complaints may be directed to the Ethics Secretariat, University of New South Wales, SYDNEY 2052 AUSTRALIA (phone 9385 4234, fax 9385 6648, email: ethics.sec@unsw.edu.au).

Your decision whether or not to participate will not prejudice your future relations with the University of New South Wales. If you decide to participate, you are free to withdraw your consent and to discontinue participation at any time without prejudice.

If you have any questions, we expect you to ask us. If you have any additional questions later, Dr. Williams (9385 3521) will be happy to answer them.

You will be given a copy of this form to keep.

CONSENT FORM

Mental Visualisation and the Internet

You are making a decision whether or not to participate. Your signature indicates that you have decided to participate after having read the information provided above.

Signature of subject:

Signature of witness

Please PRINT name

Please PRINT name

Date

Nature of Witness

Signature(s) of investigator(s)

Please PRINT Name

Revocation of Consent

I hereby wish to **WITHDRAW** my consent to participate in the research proposal described above and understand that such withdrawal **WILL NOT** jeopardise any treatment or my relationship with the University of New South Wales.

Signature of subject:

Date

Please PRINT name

The section for Revocation of Consent should be forwarded to Dr. K Williams, School of Psychology, University of New South Wales, Sydney 2052.

*Appendix Q: Outline of Webpages in the Cyberball Game
(Experiment 4.2)*

Coverpages for each Condition

Post-Study Questionnaire

Experiment 4.2: Coversheets for each condition

Human/Unscripted

Cyberball



Welcome!

Many experts believe that mental visualisation is very important in task performance. Whether the task is shooting a basketball, or giving a speech, it is believed that visualising successful completion of these tasks improves performance in real life. This research investigates how useful the computer is as a tool in helping the visualisation process and also plans to assess the autonomic nervous system response associated with it.

In this study, you will have a chance to interact with other people, like yourself, who are participating in an experiment. This will be followed by a questionnaire. Your performance does not matter in the game—only your mental visualisation.

In a moment, you will be asked to engage in a "Cyberball" internet game with two other participants at other universities. During the game you will be asked to visualise or imagine that you are really playing with these people in real life. **Remember! This is a spontaneous game. You and the other players are free to throw the ball to whomever you choose.**

Please follow the instructions outlined below:

1. Throw the cyberball by clicking on the icon representing the player to whom you want to throw the ball.
2. Try your best to imagine yourself actually playing the game in real life.
3. Do not "reload" or go back to any of the pages.
4. Click on "Next" to start the game.

The conduct of this research has been approved by the Head of School, Psychology, University of New South Wales.

NEXT

Human/Scripted

Cyberball



Welcome!

Many experts believe that mental visualisation is very important in task performance. Whether the task is shooting a basketball, or giving a speech, it is believed that visualising successful completion of these tasks improves performance in real life. This research investigates how useful the computer is as a tool in helping the visualisation process and also plans to assess the autonomic nervous system response associated with it.

In this study, you will have a chance to interact with other people, like yourself, who are participating in an experiment. This will be followed by a questionnaire. Your performance does not matter in the game—only your mental visualisation.

In a moment, you will be asked to engage in a "Cyberball" internet game with two other participants at other universities. During the game you will be asked to visualise or imagine that you are really playing with these people in real life. **Remember! These players will be playing the game according to a script. This script tells them to whom they should throw the ball. Their actions will NOT be spontaneous—they have no choice but to follow the script. You, however, are free to throw the ball to whomever you choose.**

Please follow the instructions outlined below:

1. Throw the cyberball by clicking on the icon representing the player to whom you want to throw the ball.
2. Try your best to imagine yourself actually playing the game in real life.
3. Do not "reload" or go back to any of the pages.
4. Click on "Next" to start the game.

The conduct of this research has been approved by the Head of School, Psychology, University of New South Wales.

NEXT

Computer/Unscripted

Cyberball



Welcome!

Many experts believe that mental visualisation is very important in task performance. Whether the task is shooting a basketball, or giving a speech, it is believed that visualising successful completion of these tasks improves performance in real life. This research investigates how useful the computer is as a tool in helping the visualisation process and also plans to assess the autonomic nervous system response associated with it.

In this study, you will have a chance to interact with two computers in an experiment. This will be followed by a questionnaire. Your performance does not matter in the game—only your mental visualisation.

In a moment, you will be asked to engage in a "cyberball" internet game with two different computer generated players. During the game you will be asked to visualise or imagine that you are really playing with these players in real life. **Remember! This is a spontaneous game. The computer will be throwing the ball randomly. You are free to throw the ball to whomever you choose.**

Please follow the instructions outlined below:

1. Throw the cyberball by clicking on the icon representing the player to whom you want to throw the ball.
2. Try your best to imagine yourself actually playing the game in real life.
3. Do not "reload" or go back to any of the pages.
4. Click on "Next" to start the game.

The conduct of this research has been approved by the Head of School, Psychology, University of New South Wales.

NEXT

Computer/Scripted

Cyberball



Welcome!

Many experts believe that mental visualisation is very important in task performance. Whether the task is shooting a basketball, or giving a speech, it is believed that visualising successful completion of these tasks improves performance in real life. This research investigates how useful the computer is as a tool in helping the visualisation process and also plans to assess the autonomic nervous system response associated with it.

In this study, you will have a chance to interact with two computers in an experiment. This will be followed by a questionnaire. Your performance does not matter in the game—only your mental visualisation.

In a moment, you will be asked to engage in a "cyberball" internet game with two different computer generated players. During the game you will be asked to visualise or imagine that you are really playing with these players in real life.

Remember! The computer players will be playing the game according to a script. This script tells the computer whom to throw the ball to. The actions of the computer will NOT be random—the computer has no choice but to follow the script. You, however, are free to throw the ball to whomever you choose.

Please follow the instructions outlined below:

1. Throw the cyberball by clicking on the icon representing the player to whom you want to throw the ball.
2. Try your best to imagine yourself actually playing the game in real life.
3. Do not "reload" or go back to any of the pages.
4. Click on "Next" to start the game.

The conduct of this research has been approved by the Head of School, Psychology, University of New South Wales.

NEXT

Post-Study Questionnaire

Cyberball Post Study Questionnaire

[Note: This questionnaire was presented electronically]

The following questions refer to how you felt during the Cyberball game. Please read each statement carefully and then indicate the extent to which the statement applies to you. Please answer honestly— there are no right or wrong answers. All responses are strictly confidential.

1. I felt poorly accepted by the other participants
2. I felt as though I had made a “connection” (or bonded) with one or more of the participants during the Cyberball game.
3. I felt like an outsider during the Cyberball game.
4. During the Cyberball game, I felt good about myself.
5. I felt that the other participants failed to perceive me as a worthy and likeable person.
6. The Cyberball game made me feel somewhat inadequate
7. I felt that I was able to throw the ball as often as I wanted to during the game
8. I felt that my performance (e.g., catching the ball, deciding whom to throw the ball to) had some effect on the direction of the game
9. I felt somewhat frustrated during the Cyberball game.
10. I felt non-existent during the Cyberball game.
11. I felt in control during the Cyberball game.
12. I felt as though my existence was meaningless during the Cyberball game.
13. I enjoyed the Cyberball game
14. I felt angry during the Cyberball game
15. My feelings were hurt during the Cyberball game
16. To what extent were you included by the other participants during the game?

16. The following question also relates how you felt during the game. Please circle the extent to which you felt:

1	2	3	4	5	6	7	8	9
Accepted								Rejected

17. Prior to playing the Cyberball game, the experimenter gave you instructions about the game. Please recall... .

Did you play the Cyberball game with two students from Macquarie and Sydney, or 2 computer generated players?

Students

Computer players

1. Was the sequence of throws by player 1 and player 2 scripted/pre-programmed or spontaneous?

Scripted/preprogrammed

Spontaneous

	<i>Definitely YES</i>	<i>Slightly YES</i>	<i>Not sure or do not understand</i>	<i>Definitely NOT</i>
Relaxed	++	+	?	-
Aroused	++	+	?	-
Distressed	++	+	?	-
Calm	++	+	?	-
Contented	++	+	?	-
Active	++	+	?	-
Vigorous	++	+	?	-
Comfortable	++	+	?	-
Lively	++	+	?	-
Uneasy	++	+	?	-
Tired	++	+	?	-
Worried	++	+	?	-
Uptight	++	+	?	-
Drowsy	++	+	?	-
Tense	++	+	?	-
Passive	++	+	?	-
Energetic	++	+	?	-
Alert	++	+	?	-
Bothered	++	+	?	-
Sleepy	++	+	?	-

Appendix R: Script for Cyberball Game (Experiment 4.2)

Cyberball Scripts

Human— Scripted.

Let me tell you a little about the study. As you know, the study is about Social Perception and the Internet. It is a collaborative project between UNSW, Macquarie University, and Sydney Universities (*point to the sign*).

What we are interested in is the process of mental visualisation. We use mental visualisation every day, and there is some evidence to suggest that effective mental visualisation helps us to better achieve our goals. A good example of this is a basketball player who is about to shoot the ball into the hoop. If he or she visualises the ball going into the hoop before they shoot, they will be more likely to score the point.

So, during this study, I will be asking you to visualise while you play a simple internet game with a student from Sydney university and a student from Macquarie. The game is called “cyberball” and basically, it is a simple game of toss. On the screen, you will see two players— player 1 and player 2 (they kind of look like snowmen). You are represented on the screen by a little hand. When the game begins, you and the other players will throw the ball back and forth to each other. Simple!

BUT rather than just point and click, what I want you to do is to actually visualise the game as much as possible. I want you to imagine that you are playing the game in a field, or a park, or on a beach, or in your house, or anywhere that you want to play a game of toss. I want you to really use all your senses while visualising. If you imagine that you are playing the game outdoors, I want you to imagine what kind of day it is. Is it sunny? Rainy? Cloudy? Are you on grass, dirt, sand, water? Is there a breeze? If you are indoors, what does the room look like? Is there carpet on the floor? Are there paintings on the wall? I want you to imagine what the ball looks like— is it a beach ball, or something heavier like a baseball? I want you to imagine how it feels to throw the ball and how it feels to catch the ball.

I want you to imagine the scene as vividly as possible, and that extends to the other players. I want you to get a feel for the other players. As you are playing, I want you to try to figure out whether the players are male or female. How you figure it out is up to you— but at the end of the game, I want you to tell me whether you think player 1 is male or female, and whether player 2 is male or female. As soon as you have figured out whether the players are male or female, I want you to visualise them playing the game with you, as vividly as possible.

As I said, the game is a simple game of ball tossing. You are free to throw the ball to whomever you choose. BUT the other two players will be throwing the ball according to a script. Each player has a set of instructions telling them to whom they must throw the ball. So, for instance, the instructions will say “When you receive the ball the 1st time, throw to player 2. When you receive the ball the second time, throw to player 3.” They must throw the ball according to this script. Remember to keep this in mind while you are playing.

What I, and the other experimenters at the other two universities, are particularly interested in is the effects of mental visualization on the body. So, while you play the game, I will be monitoring your physiological responses. Each university will be monitoring a different response. Cassie, who is the experimenter at Macquarie will be monitoring GSR responses—which is skin conductance. John, who is the experimenter at Sydney, will be monitoring EKG—which is basically evoked brain waves. And here, I will be monitoring your cardiovascular responses, so between the three of us, we will be able to get a pretty good picture of the physiological changes that occur during the game.

I will be placing four electrodes on your body (pointing to the SORBA picture). These electrodes only monitor your responses, they do not hurt, and they do not give out shocks. They will feel like band-aids on your skin. The other piece of cardio equipment is a blood pressure cuff. Have you had your blood pressure taken before? *(wait for their response)*. The cuff goes on the upper half of your right arm like this *(demonstrating on myself)*. The cuff will inflate automatically approximately every 3 minutes. It will make a low humming sound as it inflates. When it inflates, you will feel it squeeze your arm for about a minute. Then it will deflate. At the end of the study, I will show you all your physiological measures.

So, to give you a quick run down on the study. First, I'll ask you to fill out a consent form and two quick questionnaires. I'll then hook you up to the cardiovascular machine. For the next ten minutes or so, I will ask you to relax while I make sure that the machine is functioning properly. This rest period will also give the other two universities time to get their participants ready for the game. At the end of the rest period, I will call Cassie at Macquarie to let her know that we are ready, and she will call John at Sydney. When we are all ready, I'll come in and ask you to start playing the game. When the game is finished, you will see a screen that asks you to tell the experimenter that you are finished. Simply knock on the wall so that I know you are finished. You will then fill out a questionnaire about the game. And that's it! I'll unhook you and you can take a look at your physiological variables. Do you have any questions?

So, let's begin. Please fill out the consent forms and the questionnaires that are laid out on the table. Meanwhile, I'm just going to get some water so that I can apply the electrodes to you.

(Come back and apply the electrodes)

This is prep gel. I will be putting a little of this on you before I put on the electrode. It clears the skin of any oil or flaking skin cells (prep gel goes on, is washed off). Then the electrode goes on.

(while the electrodes are being attached). So, where are you going to visualize playing the game?
(engage them in a discussion about the place)

Now, the machine calculates how much blood is pumping through your body. But first it has to know the dimensions of your body. So we are now going to find out your height and weight *(measure height and weight)*.

(after height and weight are measured) Now, we are going to hook you up.

(attaching the blood pressure cuff). This is the blood pressure cuff. Is it on too tight? As I said before, the cuff will automatically inflate approx. every three or four minutes. It will make a noise just before it inflates. In a minute, I will inflate it so that you know what it will feel like.

(after all the electrodes have been attached to the leads). I am just going to put your variables into the computer. While I do that, I would like you to read the coverage on the computer. When you finished, press “next” and go onto the next page. It will ask you to type in your student number, age, religion etc. After you have finished doing that, just wait. Don’t press “next” on that page.

(put variables into the computer. Return to the participant)

How was the blood pressure cuff?

Ok, now we will start the rest period. Just sit quietly for the next ten minutes. Try not to think of exams, or assignments, or anything you have due. Just relax. Make sure that you keep your head up. Don’t turn your head from side to side as it will interfere with the electrode on your forehead. Also, keep your feet flat on the ground. If you move your legs, it will interfere with the electrode on your hip. After the rest period is up, I will ring Cassie to make sure everyone else is ready, and then we will begin the game. I will come in and tell you when to start. Don’t start until I come in. Do you have any questions? Ok then, let’s start the rest period.

(make the fake phone call)

Ok, the rest period is up. You will start the game by pressing “next.” Remember, you will be playing Cyberball with students from Macquarie and Sydney. You will be free to throw the ball to the other players any way you please, but they will be forced to throw the ball according to a script. I want you to visualise the situation as vividly as possible. And to make sure that you are visualising, I want you to figure out whether the other two players are male or female. When you have finished playing the game, knock on the wall so I know that you are done. Then go onto the questionnaires. Remember, your performance doesn’t matter— only the visualization. Now, start the game.

Human— Unscripted.

Let me tell you a little about the study. As you know, the study is about Social Perception and the Internet. It is a collaborative project between UNSW, Macquarie University, and Sydney Universities (*point to the sign*).

What we are interested in is the process of mental visualisation. We use mental visualisation every day, and there is some evidence to suggest that effective mental visualisation helps us to better achieve our goals. A good example of this is a basketball player who is about to shoot the ball into the hoop. If he or she visualises the ball going into the hoop before they shoot, they will be more likely to score the point.

So, during this study, I will be asking you to visualise while you play a simple internet game with a student from Sydney university and a student from Macquarie. The game is called “cyberball” and basically, it is a simple game of toss. On the screen, you will see two players— player 1 and player 2 (they kind of look like snowmen). You are represented on the screen by a little hand. When the game begins, you and the other players will throw the ball back and forth to each other. Simple!

BUT rather than just point and click, what I want you to do is to actually visualise the game as much as possible. I want you to imagine that you are playing the game in a field, or a park, or on a beach, or in your house, or anywhere that you want to play a game of toss. I want you to really use all your senses while visualising. If you imagine that you are playing the game outdoors, I want you to imagine what kind of day it is. Is it sunny? Rainy? Cloudy? Are you on grass, dirt, sand, water? Is there a breeze? If you are indoors, what does the room look like? Is there carpet on the floor? Are there paintings on the wall? I want you to imagine what the ball looks like— is it a beach ball, or something heavier like a baseball? I want you to imagine how it feels to throw the ball and how it feels to catch the ball.

I want you to imagine the scene as vividly as possible, and that extends to the other players. I want you to get a feel for the other players. As you are playing, I want you to try to figure out whether the players are male or female. How you figure it out is up to you— but at the end of the game, I want you to tell me whether you think player 1 is male or female, and whether player 2 is male or female. As soon as you have figured out whether the players are male or female, I want you to visualise them playing the game with you, as vividly as possible.

As I said, the game is a simple game of ball tossing. You are free to throw the ball to whomever you choose. And player 1 and player 2 are free to throw the ball to whomever they choose. It is completely spontaneous. Remember to keep this in mind while you are playing.

What I, and the other experimenters at the other two universities, are particularly interested in is the effects of mental visualization on the body. So, while you play the game, I will be monitoring your physiological responses. Each university will be monitoring a different response. Cassie, who is the experimenter at Macquarie will be monitoring GSR responses— which is skin conductance. John, who is the experimenter at Sydney, will be monitoring EKG— which is basically evoked brain waves. And here, I will be monitoring your

cardiovascular responses, so between the three of us, we will be able to get a pretty good picture of the physiological changes that occur during the game.

I will be placing four electrodes on your body (pointing to the SORBA picture). These electrodes only monitor your responses, they do not hurt, and they do not give out shocks. They will feel like bandaids on your skin. The other piece of cardio equipment is a blood pressure cuff. Have you had your blood pressure taken before? *(wait for their response)*. The cuff goes on the upper half of your right arm like this *(demonstrating on myself)*. The cuff will inflate automatically approximately every 3 minutes. It will make a low humming sound as it inflates. When it inflates, you will feel it squeeze your arm for about a minute. Then it will deflate. At the end of the study, I will show you all your physiological measures.

So, to give you a quick run down on the study. First, I'll ask you to fill out a consent form and two quick questionnaires. I'll then hook you up to the cardiovascular machine. For the next ten minutes or so, I will ask you to relax while I make sure that the machine is functioning properly. This rest period will also give the other two universities time to get their participants ready for the game. At the end of the rest period, I will call Cassie at Macquarie to let her know that we are ready, and she will call John at Sydney. When we are all ready, I'll come in and ask you to start playing the game. When the game is finished, you will see a screen that asks you to tell the experimenter that you are finished. Simply knock on the wall so that I know you are finished. You will then fill out a questionnaire about the game. And that's it! I'll unhook you and you can take a look at your physiological variables. Do you have any questions?

So, let's begin. Please fill out the consent forms and the questionnaires that are laid out on the table. Meanwhile, I'm just going to get some water so that I can apply the electrodes to you.

(Come back and apply the electrodes)

This is prep gel. I will be putting a little of this on you before I put on the electrode. It clears the skin of any oil or flaking skin cells (prep gel goes on, is washed off). Then the electrode goes on.

(while the electrodes are being attached). So, where are you going to visualize playing the game?
(engage them in a discussion about the place)

Now, the machine calculates how much blood is pumping through your body. But first it has to know the dimensions of your body. So we are now going to find out your height and weight *(measure height and weight)*.

(after height and weight are measured) Now, we are going to hook you up.
(attaching the blood pressure cuff). This is the blood pressure cuff. Is it on too tight? As I said before, the cuff will automatically inflate approx. every three or four minutes. It will make a noise just before it inflates. In a minute, I will inflate it so that you know what it will feel like.

(after all the electrodes have been attached to the leads). I am just going to put your variables into the computer. While I do that, I would like you to read the coverage on the computer. When

you finished, press “next” and go onto the next page. It will ask you to type in your student number, age, religion etc. After you have finished doing that, just wait. Don’t press “next” on that page.

(put variables into the computer. Return to the participant)

How was the blood pressure cuff?

Ok, now we will start the rest period. Just sit quietly for the next ten minutes. Try not to think of exams, or assignments, or anything you have due. Just relax. Make sure that you keep your head up. Don’t turn your head from side to side as it will interfere with the electrode on your forehead. Also, keep your feet flat on the ground. If you move your legs, it will interfere with the electrode on your hip. After the rest period is up, I will ring Cassie to make sure everyone else is ready, and then we will begin the game. I will come in and tell you when to start. Don’t start until I come in. Do you have any questions? Ok then, let’s start the rest period.

(make the fake phone call)

Ok, the rest period is up. You will start the game by pressing “next.” Remember, you will be playing Cyberball with students from Macquarie and Sydney. You and the other player will be free to throw the ball any way you please. I want you to visualise the situation as vividly as possible. And to make sure that you are visualising, I want you to figure out whether the other two players are male or female. When you have finished playing the game, knock on the wall so I know that you are done. Then go onto the questionnaires. Remember, your performance doesn’t matter— only the visualization. Now, start the game.

Computer— Scripted

Let me tell you a little about the study. As you know, the study is about Social Perception and the Internet. It is a collaborative project between UNSW, Macquarie University, and Sydney Universities (*point to the sign*).

What we are interested in is the process of mental visualisation. We use mental visualisation every day, and there is some evidence to suggest that effective mental visualisation helps us to better achieve our goals. A good example of this is a basketball player who is about to shoot the ball into the hoop. If he or she visualises the ball going into the hoop before they shoot, they will be more likely to score the point.

So, during this study, I will be asking you to visualise while you play a simple internet game. Although you would usually be playing the game with a student from Sydney university and a student from Macquarie, one of the labs has had equipment failure, so this will not be possible. As I said during my reminder call to you yesterday, if there was any sort of problem, you would be playing the game with two computer generated players who are the default options at each of the universities.

The game is called “cyberball” and basically, it is a simple game of toss. On the screen, you will see two players— player 1 and player 2 (they kind of look like snowmen). You are represented on the screen by a little hand. When the game begins, you and the two computer players will throw the ball back and forth to each other. Simple!

BUT rather than just point and click, what I want you to do is to actually visualise the game as much as possible. I want you to imagine that you are playing the game in a field, or a park, or on a beach, or in your house, or anywhere that you want to play a game of toss. I want you to really use all your senses while visualising. If you imagine that you are playing the game outdoors, I want you to imagine what kind of day it is. Is it sunny? Rainy? Cloudy? Are you on grass, dirt, sand, water? Is there a breeze? If you are indoors, what does the room look like? Is there carpet on the floor? Are there paintings on the wall? I want you to imagine what the ball looks like— is it a beach ball, or something heavier like a baseball? I want you to imagine how it feels to throw the ball and how it feels to catch the ball.

I want you to imagine the scene as vividly as possible, but this does not extend to the other players. I want you at all times to be aware that they are computer generated. Do not imagine playing the game with real people. Instead, imagine that you are throwing the ball to the two animated players you will see on the screen.

As I said, the game is a simple game of ball tossing. You are free to throw the ball to whomever you choose. BUT the computer-generated players will be throwing the ball according to a script. Each computer has been pre-programmed with instructions telling them to whom they must throw the ball. So, for instance, the instructions will say “When you receive the ball the 1st time, throw to player 2. When you receive the ball the second time, throw to player 3.” They must throw the ball according to this script. Remember to keep this in mind while you are playing.

What I, and the other experimenters at the other two universities, are particularly interested in is the effects of mental visualization on the body. So, while you play the game, I will be monitoring your physiological responses. Each university will be monitoring a different response. Cassie, who is the experimenter at Macquarie will be monitoring GSR responses—which is skin conductance. John, who is the experimenter at Sydney, will be monitoring EKG—which is basically evoked brain waves. And here, I will be monitoring your cardiovascular responses, so between the three of us, we will be able to get a pretty good picture of the physiological changes that occur during the game. Though, due to the technical problems, only your responses will be monitored.

I will be placing four electrodes on your body (pointing to the SORBA picture). These electrodes only monitor your responses, they do not hurt, and they do not give out shocks. They will feel like band-aids on your skin. The other piece of cardio equipment is a blood pressure cuff. Have you had your blood pressure taken before? *(wait for their response)*. The cuff goes on the upper half of your right arm like this *(demonstrating on my self)*. The cuff will inflate automatically approximately every 3 minutes. It will make a low humming sound as it inflates. When it inflates, you will feel it squeeze your arm for about a minute. Then it will deflate. At the end of the study, I will show you all your physiological measures.

So, to give you a quick run down on the study. First, I'll ask you to fill out a consent form and two quick questionnaires. I'll then hook you up to the cardiovascular machine. For the next ten minutes or so, I will ask you to relax while I make sure that the machine is functioning properly. At the end of the rest period, I will call Cassie at Macquarie to let her know that we are ready, and she will activate the computer generated player at her university, and will contact John at Sydney to make sure that he activates his computer generated player. When we are all ready, I'll come in and ask you to start playing the game. When the game is finished, you will see a screen that asks you to tell the experimenter that you are finished. Simply knock on the wall so that I know you are finished. You will then fill out a questionnaire about the game. And that's it! I'll unhook you and you can take a look at your physiological variables. Do you have any questions?

So, let's begin. Please fill out the consent forms and the questionnaires that are laid out on the table. Meanwhile, I'm just going to get some water so that I can apply the electrodes to you.

(Come back and apply the electrodes)

This is prep gel. I will be putting a little of this on you before I put on the electrode. It clears the skin of any oil or flaking skin cells (prep gel goes on, is washed off). Then the electrode goes on.

(while the electrodes are being attached). So, where are you going to visualize playing the game?
(engage them in a discussion about the place)

Now, the machine calculates how much blood is pumping through your body. But first it has to know the dimensions of your body. So we are now going to find out your height and weight *(measure height and weight)*.

(after height and weight are measured) Now, we are going to hook you up.
(attaching the blood pressure cuff). This is the blood pressure cuff. Is it on too tight? As I said before, the cuff will automatically inflate approx. every three or four minutes. It will make a noise just before it inflates. In a minute, I will inflate it so that you know what it will feel like.

(after all the electrodes have been attached to the leads). I am just going to put your variables into the computer. While I do that, I would like you to read the coverpage on the computer. When you finished, press “next” and go onto the next page. It will ask you to type in your student number, age, religion etc. After you have finished doing that, just wait. Don’t press “next” on that page.

(put variables into the computer. Return to the participant)

How was the blood pressure cuff?

Ok, now we will start the rest period. Just sit quietly for the next ten minutes. Try not to think of exams, or assignments, or anything you have due. Just relax. Make sure that you keep your head up. Don’t turn your head from side to side as it will interfere with the electrode on your forehead. Also, keep your feet flat on the ground. If you move your legs, it will interfere with the electrode on your hip. After the rest period is up, I will ring Cassie to make sure everyone else is ready, and then we will begin the game. I will come in and tell you when to start. Don’t start until I come in. Do you have any questions? Ok then, let’s start the rest period.

(make the fake phone call)

Ok, the rest period is up. You will start the game by pressing “next.” Remember, you will be playing Cyberball with two computer generated players. You will be free to throw the ball to the other players any way you please, but they will be forced to throw the ball according to a script. I want you to visualise the situation as vividly as possible. But do not imagine that you are throwing the ball to real people— always keep in mind that they players are computer generated. When you have finished playing the game, knock on the wall so I know that you are done. Then go onto the questionnaires. Remember, your performance doesn’t matter— only the visualization. Now, start the game.

Computer— Unscripted.

Let me tell you a little about the study. As you know, the study is about Social Perception and the Internet. It is a collaborative project between UNSW, Macquarie University, and Sydney Universities (*point to the sign*).

What we are interested in is the process of mental visualisation. We use mental visualisation every day, and there is some evidence to suggest that effective mental visualisation helps us to better achieve our goals. A good example of this is a basketball player who is about to shoot the ball into the hoop. If he or she visualises the ball going into the hoop before they shoot, they will be more likely to score the point.

So, during this study, I will be asking you to visualise while you play a simple internet game. Although you would usually be playing the game with a student from Sydney university and a student from Macquarie, one of the labs has had equipment failure, so this will not be possible. As I said during my reminder call to you yesterday, if there was any sort of problem, you would be playing the game with two computer generated players who are the default options at each of the universities.

The game is called “cyberball” and basically, it is a simple game of toss. On the screen, you will see two players— player 1 and player 2 (they kind of look like snowmen). You are represented on the screen by a little hand. When the game begins, you and the two computer players will throw the ball back and forth to each other. Simple!

BUT rather than just point and click, what I want you to do is to actually visualise the game as much as possible. I want you to imagine that you are playing the game in a field, or a park, or on a beach, or in your house, or anywhere that you want to play a game of toss. I want you to really use all your senses while visualising. If you imagine that you are playing the game outdoors, I want you to imagine what kind of day it is. Is it sunny? Rainy? Cloudy? Are you on grass, dirt, sand, water? Is there a breeze? If you are indoors, what does the room look like? Is there carpet on the floor? Are there paintings on the wall? I want you to imagine what the ball looks like— is it a beach ball, or something heavier like a baseball? I want you to imagine how it feels to throw the ball and how it feels to catch the ball.

I want you to imagine the scene as vividly as possible, but this does not extend to the other players. I want you at all times to be aware that they are computer generated. Do not imagine playing the game with real people. Instead, imagine that you are throwing the ball to the two animated players you will see on the screen.

As I said, the game is a simple game of ball tossing. You are free to throw the ball to whomever you choose. And the computer generated players will be throwing the ball randomly. It is completely spontaneous. Remember to keep this in mind while you are playing.

What I, and the other experimenters at the other two universities, are particularly interested in is the effects of mental visualization on the body. So, while you play the game, I will be monitoring your physiological responses. Each university will be monitoring a different response. Cassie, who is the experimenter at Macquarie will be monitoring GSR responses—

which is skin conductance. John, who is the experimenter at Sydney, will be monitoring EKG— which is basically evoked brain waves. And here, I will be monitoring your cardiovascular responses, so between the three of us, we will be able to get a pretty good picture of the physiological changes that occur during the game. Though, due to the technical problems, only your responses will be monitored.

I will be placing four electrodes on your body (pointing to the SORBA picture). These electrodes only monitor your responses, they do not hurt, and they do not give out shocks. They will feel like bandaids on your skin. The other piece of cardio equipment is a blood pressure cuff. Have you had your blood pressure taken before? *(wait for their response)*. The cuff goes on the upper half of your right arm like this *(demonstrating on my self)*. The cuff will inflate automatically approximately every 3 minutes. It will make a low humming sound as it inflates. When it inflates, you will feel it squeeze your arm for about a minute. Then it will deflate. At the end of the study, I will show you all your physiological measures.

So, to give you a quick run down on the study. First, I'll ask you to fill out a consent form and two quick questionnaires. I'll then hook you up to the cardiovascular machine. For the next ten minutes or so, I will ask you to relax while I make sure that the machine is functioning properly. At the end of the rest period, I will call Cassie at Macquarie to let her know that we are ready, and she will activate the computer generated player at her university, and will contact John at Sydney to make sure that he activates his computer generated player. When we are all ready, I'll come in and ask you to start playing the game. When the game is finished, you will see a screen that asks you to tell the experimenter that you are finished. Simply knock on the wall so that I know you are finished. You will then fill out a questionnaire about the game. And that's it! I'll unhook you and you can take a look at your physiological variables. Do you have any questions?

So, let's begin. Please fill out the consent forms and the questionnaires that are laid out on the table. Meanwhile, I'm just going to get some water so that I can apply the electrodes to you.

(Come back and apply the electrodes)

This is prep gel. I will be putting a little of this on you before I put on the electrode. It clears the skin of any oil or flaking skin cells (prep gel goes on, is washed off). Then the electrode goes on.

(while the electrodes are being attached). So, where are you going to visualize playing the game?
(engage them in a discussion about the place)

Now, the machine calculates how much blood is pumping through your body. But first it has to know the dimensions of your body. So we are now going to find out your height and weight *(measure height and weight)*.

(after height and weight are measured) Now, we are going to hook you up.
(attaching the blood pressure cuff). This is the blood pressure cuff. Is it on too tight? As I said before, the cuff will automatically inflate approx. every three or four minutes. It will make a noise just before it inflates. In a minute, I will inflate it so that you know what it will feel like.

(after all the electrodes have been attached to the leads). I am just going to put your variables into the computer. While I do that, I would like you to read the coverpage on the computer. When you finished, press “next” and go onto the next page. It will ask you to type in your student number, age, religion etc. After you have finished doing that, just wait. Don’t press “next” on that page.

(put variables into the computer. Return to the participant)

How was the blood pressure cuff?

Ok, now we will start the rest period. Just sit quietly for the next ten minutes. Try not to think of exams, or assignments, or anything you have due. Just relax. Make sure that you keep your head up. Don’t turn your head from side to side as it will interfere with the electrode on your forehead. Also, keep your feet flat on the ground. If you move your legs, it will interfere with the electrode on your hip. After the rest period is up, I will ring Cassie to make sure everyone else is ready, and then we will begin the game. I will come in and tell you when to start. Don’t start until I come in. Do you have any questions? Ok then, let’s start the rest period.

(make the fake phone call)

Ok, the rest period is up. You will start the game by pressing “next.” Remember, you will be playing Cyberball with two computer generated players. You will be free to throw the ball to the other players any way you please, and the computer players will be throwing it randomly. I want you to visualise the situation as vividly as possible. But do not imagine that you are throwing the ball to real people— always keep in mind that they players are computer generated. When you have finished playing the game, knock on the wall so I know that you are done. Then go onto the questionnaires. Remember, your performance doesn’t matter— only the visualization. Now, start the game.

Statistics

Appendix S: ANOVA tables for Chapters 4 and 5

Experiment 3.1

Belonging

Between-Subjects Factors

		Value Label	N
Role	1	target	12
	2	source	23
Condition	1	ostracism	18
	2	argument	17

Descriptive Statistics

Dependent Variable: average belonging

Role	Condition	Mean	Std. Deviation	N
target	ostracism	9.3333	15.9551	6
	argument	59.8333	36.4454	6
	Total	34.5833	37.6164	12
source	ostracism	66.6667	19.2074	12
	argument	57.5000	12.4539	11
	Total	62.2826	16.6398	23
Total	ostracism	47.5556	32.9701	18
	argument	58.3235	22.6570	17
	Total	52.7857	28.5465	35

Tests of Between-Subjects Effects

Dependent Variable: average belonging

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	14183.310 ^b	3	4727.770	10.838	.000	.512
Intercept	73639.801	1	73639.801	168.807	.000	.845
ROLE	5959.701	1	5959.701	13.662	.001	.306
COND	3365.891	1	3365.891	7.716	.009	.199
ROLE * COND	7013.950	1	7013.950	16.078	.000	.342
Error	13523.333	31	436.237			
Total	125228.250	35				
Corrected Total	27706.643	34				

Tests of Between-Subjects Effects

Dependent Variable: average belonging

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	32.513	.997
Intercept	168.807	1.000
ROLE	13.662	.947
COND	7.716	.768
ROLE * COND	16.078	.973
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .512 (Adjusted R Squared = .465)

Univariate Analysis of Variance: Simple effects

Condition = argument

Descriptives^a

average belonging

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
target	6	59.8333	36.4454	14.8788	21.5862	98.0804
source	11	57.5000	12.4539	3.7550	49.1333	65.8667
Total	17	58.3235	22.6570	5.4951	46.6743	69.9727

Descriptives^a

average belonging

	Minimum	Maximum
target	3.00	94.50
source	35.00	76.50
Total	3.00	94.50

a. Condition = argument

ANOVA^a

average belonging

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	21.137	1	21.137	.039	.847
Within Groups	8192.333	15	546.156		
Total	8213.471	16			

a. Condition = argument

Role = target

Descriptives^a

average belonging

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	6	9.3333	15.9551	6.5137	-7.4106	26.0772
argument	6	59.8333	36.4454	14.8788	21.5862	98.0804
Total	12	34.5833	37.6164	10.8589	10.6830	58.4836

Descriptives^a

average belonging

	Minimum	Maximum
ostracism	.00	41.00
argument	3.00	94.50
Total	.00	94.50

a. Role = target

ANOVA^a

average belonging

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7650.750	1	7650.750	9.667	.011
Within Groups	7914.167	10	791.417		
Total	15564.917	11			

a. Role = target

Role = source

Descriptives^a

average belonging

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	12	66.6667	19.2074	5.5447	54.4629	78.8705
argument	11	57.5000	12.4539	3.7550	49.1333	65.8667
Total	23	62.2826	16.6398	3.4696	55.0870	69.4782

Descriptives^a

average belonging

	Minimum	Maximum
ostracism	19.50	87.50
argument	35.00	76.50
Total	19.50	87.50

a. Role = source

ANOVA^a

average belonging

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	482.246	1	482.246	1.805	.193
Within Groups	5609.167	21	267.103		
Total	6091.413	22			

a. Role = source

Control

Between-Subjects Factors

		Value Label	N
Role	1	target	12
	2	source	23
Condition	1	ostracism	18
	2	argument	17

Descriptive Statistics

Dependent Variable: average of control and revfrustr

Role	Condition	Mean	Std. Deviation	N
target	ostracism	13.6667	12.8128	6
	argument	40.7500	25.1292	6
	Total	27.2083	23.7003	12
source	ostracism	69.0417	26.2180	12
	argument	42.8636	20.7136	11
	Total	56.5217	26.7860	23
Total	ostracism	50.5833	34.8506	18
	argument	42.1176	21.6004	17
	Total	46.4714	29.0737	35

Tests of Between-Subjects Effects

Dependent Variable: average of control and revfrustr

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	12909.488 ^b	3	4303.163	8.427	.000	.449
Intercept	54500.234	1	54500.234	106.728	.000	.775
ROLE	6511.232	1	6511.232	12.751	.001	.291
COND	1.615	1	1.615	.003	.956	.000
ROLE * COND	5588.866	1	5588.866	10.945	.002	.261
Error	15829.983	31	510.645			
Total	104325.250	35				
Corrected Total	28739.471	34				

Tests of Between-Subjects Effects

Dependent Variable: average of control and revfrustr

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	25.281	.986
Intercept	106.728	1.000
ROLE	12.751	.933
COND	.003	.050
ROLE * COND	10.945	.893
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .449 (Adjusted R Squared = .396)

Oneway: Simple effects

Role = target

Descriptives^a

average of control and revfrustr

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	6	13.6667	12.8128	5.2308	.2205	27.1128
argument	6	40.7500	25.1292	10.2589	14.3786	67.1214
Total	12	27.2083	23.7003	6.8417	12.1499	42.2668

Descriptives^a

average of control and revfrustr

	Minimum	Maximum
ostracism	.00	32.50
argument	9.50	70.00
Total	.00	70.00

a. Role = target

ANOVA^a

average of control and revfrustr

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2200.521	1	2200.521	5.531	.041
Within Groups	3978.208	10	397.821		
Total	6178.729	11			

a. Role = target

Role = source

Descriptives^a

average of control and revfrustr

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	12	69.0417	26.2180	7.5685	52.3835	85.6998
argument	11	42.8636	20.7136	6.2454	28.9480	56.7792
Total	23	56.5217	26.7860	5.5853	44.9386	68.1049

Descriptives^a

average of control and revfrustr

	Minimum	Maximum
ostracism	4.50	100.00
argument	15.00	90.50
Total	4.50	100.00

a. Role = source

ANOVA^a

average of control and revfrustr

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3932.965	1	3932.965	6.969	.015
Within Groups	11851.775	21	564.370		
Total	15784.739	22			

a. Role = source

Oneway

Condition = ostracism

Descriptives^a

average of control and revfrustr

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
target	6	13.6667	12.8128	5.2308	.2205	27.1128
source	12	69.0417	26.2180	7.5685	52.3835	85.6998
Total	18	50.5833	34.8506	8.2144	33.2525	67.9141

Descriptives^a

average of control and revfrustr

	Minimum	Maximum
target	.00	32.50
source	4.50	100.00
Total	.00	100.00

a. Condition = ostracism

ANOVA^a

average of control and revfrustr

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12265.563	1	12265.563	23.413	.000
Within Groups	8382.063	16	523.879		
Total	20647.625	17			

a. Condition = ostracism

Condition = argument

Descriptives^a

average of control and revfrustr

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
target	6	40.7500	25.1292	10.2589	14.3786	67.1214
source	11	42.8636	20.7136	6.2454	28.9480	56.7792
Total	17	42.1176	21.6004	5.2389	31.0117	53.2236

Descriptives^a

average of control and revfrustr

	Minimum	Maximum
target	9.50	70.00
source	15.00	90.50
Total	9.50	90.50

a. Condition = argument

ANOVA^a

average of control and revfrustr

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	17.344	1	17.344	.035	.854
Within Groups	7447.920	15	496.528		
Total	7465.265	16			

a. Condition = argument

Self-esteem

Between-Subjects Factors

		Value Label	N
Role	1	target	12
	2	source	23
Condition	1	ostracism	18
	2	argument	17

Descriptive Statistics

Dependent Variable: reverse scored self-esteem

Role	Condition	Mean	Std. Deviation	N
target	ostracism	54.8333	36.4001	6
	argument	44.8333	35.6506	6
	Total	49.8333	34.7454	12
source	ostracism	59.3333	30.7256	12
	argument	67.7273	25.6986	11
	Total	63.3478	28.1176	23
Total	ostracism	57.8333	31.7068	18
	argument	59.6471	30.6124	17
	Total	58.7143	30.7328	35

Tests of Between-Subjects Effects

Dependent Variable: reverse scored self-esteem

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	2144.628 ^b	3	714.876	.739	.537	.067
Intercept	101276.027	1	101276.027	104.762	.000	.772
ROLE	1478.455	1	1478.455	1.529	.225	.047
COND	5.082	1	5.082	.005	.943	.000
ROLE * COND	666.574	1	666.574	.690	.413	.022
Error	29968.515	31	966.726			
Total	152771.000	35				
Corrected Total	32113.143	34				

Tests of Between-Subjects Effects

Dependent Variable: reverse scored self-esteem

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	2.218	.189
Intercept	104.762	1.000
ROLE	1.529	.224
COND	.005	.051
ROLE * COND	.690	.127
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .067 (Adjusted R Squared = -.024)

Simple effects

Condition = ostracism

Descriptives^a

reverse scored self-esteem

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
target	6	54.8333	36.4001	14.8603	16.6338	93.0329
source	12	59.3333	30.7256	8.8697	39.8112	78.8554
Total	18	57.8333	31.7068	7.4734	42.0659	73.6008

Descriptives^a

reverse scored self-esteem

	Minimum	Maximum
target	.00	93.00
source	7.00	95.00
Total	.00	95.00

a. Condition = ostracism

ANOVA^a

reverse scored self-esteem

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	81.000	1	81.000	.076	.786
Within Groups	17009.500	16	1063.094		
Total	17090.500	17			

a. Condition = ostracism

Condition = argument

Descriptives^a

reverse scored self-esteem

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
target	6	44.8333	35.6506	14.5543	7.4203	82.2464
source	11	67.7273	25.6986	7.7484	50.4627	84.9918
Total	17	59.6471	30.6124	7.4246	43.9076	75.3865

Descriptives^a

reverse scored self-esteem

	Minimum	Maximum
target	.00	93.00
source	15.00	100.00
Total	.00	100.00

a. Condition = argument

ANOVA^a

reverse scored self-esteem

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2034.867	1	2034.867	2.355	.146
Within Groups	12959.015	15	863.934		
Total	14993.882	16			

a. Condition = argument

Role = target**Descriptives^a**

reverse scored self-esteem

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	6	54.8333	36.4001	14.8603	16.6338	93.0329
argument	6	44.8333	35.6506	14.5543	7.4203	82.2464
Total	12	49.8333	34.7454	10.0301	27.7572	71.9095

Descriptives^a

reverse scored self-esteem

	Minimum	Maximum
ostracism	.00	93.00
argument	.00	93.00
Total	.00	93.00

a. Role = target

ANOVA^a

reverse scored self-esteem

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	300.000	1	300.000	.231	.641
Within Groups	12979.667	10	1297.967		
Total	13279.667	11			

a. Role = target

Role = source

Descriptives^a

reverse scored self-esteem

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	12	59.3333	30.7256	8.8697	39.8112	78.8554
argument	11	67.7273	25.6986	7.7484	50.4627	84.9918
Total	23	63.3478	28.1176	5.8629	51.1889	75.5068

Descriptives^a

reverse scored self-esteem

	Minimum	Maximum
ostracism	7.00	95.00
argument	15.00	100.00
Total	7.00	100.00

a. Role = source

ANOVA^a

reverse scored self-esteem

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	404.369	1	404.369	.500	.487
Within Groups	16988.848	21	808.993		
Total	17393.217	22			

a. Role = source

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Role	1	target	12
	2	source	23
Condition	1	ostracism	18
	2	argument	17

Descriptive Statistics

Dependent Variable: I felt superior

Role	Condition	Mean	Std. Deviation	N
target	ostracism	5.83	7.00	6
	argument	23.33	17.60	6
	Total	14.58	15.70	12
source	ostracism	55.92	29.26	12
	argument	58.55	23.56	11
	Total	57.17	26.12	23
Total	ostracism	39.22	34.04	18
	argument	46.12	27.29	17
	Total	42.57	30.69	35

Tests of Between-Subjects Effects

Dependent Variable: I felt superior

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	15262.761 ^b	3	5087.587	9.408	.000	.477
Intercept	40642.660	1	40642.660	75.157	.000	.708
ROLE	14333.456	1	14333.456	26.506	.000	.461
COND	798.242	1	798.242	1.476	.234	.045
ROLE * COND	435.704	1	435.704	.806	.376	.025
Error	16763.811	31	540.768			
Total	95458.000	35				
Corrected Total	32026.571	34				

Tests of Between-Subjects Effects

Dependent Variable: I felt superior

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	28.224	.993
Intercept	75.157	1.000
ROLE	26.506	.999
COND	1.476	.218
ROLE * COND	.806	.140
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .477 (Adjusted R Squared = .426)

Simple effects

Role = target

Descriptives^a

I felt superior

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	6	5.83	7.00	2.86	-1.51	13.18
argument	6	23.33	17.60	7.19	4.86	41.81
Total	12	14.58	15.70	4.53	4.61	24.56

Descriptives^a

I felt superior

	Minimum	Maximum
ostracism	0	18
argument	6	46
Total	0	46

a. Role = target

ANOVA^a

I felt superior

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	918.750	1	918.750	5.121	.047
Within Groups	1794.167	10	179.417		
Total	2712.917	11			

a. Role = target

Role = source

Descriptives^a

I felt superior

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	12	55.92	29.26	8.45	37.33	74.51
argument	11	58.55	23.56	7.10	42.71	74.38
Total	23	57.17	26.12	5.45	45.88	68.47

Descriptives^a

I felt superior

	Minimum	Maximum
ostracism	5	95
argument	20	84
Total	5	95

a. Role = source

ANOVA^a

I felt superior

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	39.660	1	39.660	.056	.816
Within Groups	14969.644	21	712.840		
Total	15009.304	22			

a. Role = source

Condition = ostracism

Descriptives^a

I felt superior

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
target	6	5.83	7.00	2.86	-1.51	13.18
source	12	55.92	29.26	8.45	37.33	74.51
Total	18	39.22	34.04	8.02	22.30	56.15

Descriptives^a

I felt superior

	Minimum	Maximum
target	0	18
source	5	95
Total	0	95

a. Condition = ostracism

ANOVA^a

I felt superior

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10033.361	1	10033.361	16.615	.001
Within Groups	9661.750	16	603.859		
Total	19695.111	17			

a. Condition = ostracism

Condition = argument

Descriptives^a

I felt superior

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
target	6	23.33	17.60	7.19	4.86	41.81
source	11	58.55	23.56	7.10	42.71	74.38
Total	17	46.12	27.29	6.62	32.09	60.15

Descriptives^a

I felt superior

	Minimum	Maximum
target	6	46
source	20	84
Total	6	84

a. Condition = argument

ANOVA^a

I felt superior

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4813.704	1	4813.704	10.167	.006
Within Groups	7102.061	15	473.471		
Total	11915.765	16			

a. Condition = argument

Meaningful existence

Between-Subjects Factors

		Value Label	N
Role	1	target	12
	2	source	23
Condition	1	ostracism	18
	2	argument	17

Descriptive Statistics

Dependent Variable: average of revmean and acknowl

Role	Condition	Mean	Std. Deviation	N
target	ostracism	10.8333	18.8379	6
	argument	50.4167	37.6383	6
	Total	30.6250	35.1077	12
source	ostracism	71.7083	19.4720	12
	argument	62.9091	21.9588	11
	Total	67.5000	20.7112	23
Total	ostracism	51.4167	34.9522	18
	argument	58.5000	27.9631	17
	Total	54.8571	31.4913	35

Tests of Between-Subjects Effects

Dependent Variable: average of revmean and acknowl

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	15867.606 ^b	3	5289.202	9.186	.000	.471
Intercept	75582.900	1	75582.900	131.263	.000	.809
ROLE	10604.878	1	10604.878	18.417	.000	.373
COND	1867.032	1	1867.032	3.242	.081	.095
ROLE * COND	4611.870	1	4611.870	8.009	.008	.205
Error	17850.180	31	575.812			
Total	139043.500	35				
Corrected Total	33717.786	34				

Tests of Between-Subjects Effects

Dependent Variable: average of revmean and acknowl

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	27.557	.992
Intercept	131.263	1.000
ROLE	18.417	.986
COND	3.242	.415
ROLE * COND	8.009	.783
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .471 (Adjusted R Squared = .419)

Simple Effects

Role = target

Descriptives^a

average of revmean and acknowl

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	6	10.8333	18.8379	7.6905	-8.9358	30.6025
argument	6	50.4167	37.6383	15.3658	10.9177	89.9156
Total	12	30.6250	35.1077	10.1347	8.3186	52.9314

Descriptives^a

average of revmean and acknowl

	Minimum	Maximum
ostracism	.00	48.50
argument	5.00	97.00
Total	.00	97.00

a. Role = target

ANOVA^a

average of revmean and acknowl

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4700.521	1	4700.521	5.307	.044
Within Groups	8857.542	10	885.754		
Total	13558.062	11			

a. Role = target

Role = source

Descriptives^a

average of revmean and acknowl

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	12	71.7083	19.4720	5.6211	59.3364	84.0802
argument	11	62.9091	21.9588	6.6208	48.1569	77.6612
Total	23	67.5000	20.7112	4.3186	58.5438	76.4562

Descriptives^a

average of revmean and acknowl

	Minimum	Maximum
ostracism	40.00	94.00
argument	30.00	92.50
Total	30.00	94.00

a. Role = source

ANOVA^a

average of revmean and acknowl

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	444.362	1	444.362	1.038	.320
Within Groups	8992.638	21	428.221		
Total	9437.000	22			

a. Role = source

Condition = ostracism

Descriptives^a

average of revmean and acknowl

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
target	6	10.8333	18.8379	7.6905	-8.9358	30.6025
source	12	71.7083	19.4720	5.6211	59.3364	84.0802
Total	18	51.4167	34.9522	8.2383	34.0354	68.7980

Descriptives^a

average of revmean and acknowl

	Minimum	Maximum
target	.00	48.50
source	40.00	94.00
Total	.00	94.00

a. Condition = ostracism

ANOVA^a

average of revmean and acknowl

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	14823.062	1	14823.062	39.893	.000
Within Groups	5945.063	16	371.566		
Total	20768.125	17			

a. Condition = ostracism

Condition = argument**Descriptives^a**

average of revmean and acknowl

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
target	6	50.4167	37.6383	15.3658	10.9177	89.9156
source	11	62.9091	21.9588	6.6208	48.1569	77.6612
Total	17	58.5000	27.9631	6.7821	44.1227	72.8773

Descriptives^a

average of revmean and acknowl

	Minimum	Maximum
target	5.00	97.00
source	30.00	92.50
Total	5.00	97.00

a. Condition = argument

ANOVA^a

average of revmean and acknowl

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	605.883	1	605.883	.763	.396
Within Groups	11905.117	15	793.674		
Total	12511.000	16			

a. Condition = argument

Health

Between-Subjects Factors

		Value Label	N
Role	1	target	12
	2	source	23
Condition	1	ostracism	18
	2	argument	17

Descriptive Statistics

Dependent Variable: average health score

Role	Condition	Mean	Std. Deviation	N
target	ostracism	46.9583	20.5167	6
	argument	50.5000	30.5974	6
	Total	48.7292	24.9058	12
source	ostracism	27.4375	28.0556	12
	argument	19.2273	12.4652	11
	Total	23.5109	21.9493	23
Total	ostracism	33.9444	26.8845	18
	argument	30.2647	25.0396	17
	Total	32.1571	25.6889	35

Tests of Between-Subjects Effects

Dependent Variable: average health score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	5439.511 ^b	3	1813.170	3.307	.033	.242
Intercept	40922.896	1	40922.896	74.634	.000	.707
ROLE	5082.957	1	5082.957	9.270	.005	.230
COND	42.940	1	42.940	.078	.781	.003
ROLE * COND	272.091	1	272.091	.496	.486	.016
Error	16997.750	31	548.315			
Total	58630.125	35				
Corrected Total	22437.261	34				

Tests of Between-Subjects Effects

Dependent Variable: average health score

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	9.920	.697
Intercept	74.634	1.000
ROLE	9.270	.839
COND	.078	.058
ROLE * COND	.496	.105
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .242 (Adjusted R Squared = .169)

Simple Effects

Condition = ostracism

Descriptives^a

average health score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
target	6	46.9583	20.5167	8.3759	25.4274	68.4893
source	12	27.4375	28.0556	8.0989	9.6118	45.2632
Total	18	33.9444	26.8845	6.3367	20.5751	47.3138

Descriptives^a

average health score

	Minimum	Maximum
target	7.25	65.00
source	.00	95.00
Total	.00	95.00

a. Condition = ostracism

ANOVA^a

average health score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1524.252	1	1524.252	2.266	.152
Within Groups	10762.943	16	672.684		
Total	12287.194	17			

a. Condition = ostracism

Condition = argument

Descriptives^a

average health score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
target	6	50.5000	30.5974	12.4913	18.3900	82.6100
source	11	19.2273	12.4652	3.7584	10.8531	27.6015
Total	17	30.2647	25.0396	6.0730	17.3905	43.1389

Descriptives^a

average health score

	Minimum	Maximum
target	1.00	82.50
source	6.00	48.00
Total	1.00	82.50

a. Condition = argument

ANOVA^a

average health score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3796.877	1	3796.877	9.135	.009
Within Groups	6234.807	15	415.654		
Total	10031.684	16			

a. Condition = argument

Role = target

Descriptives^a

average health score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	6	46.9583	20.5167	8.3759	25.4274	68.4893
argument	6	50.5000	30.5974	12.4913	18.3900	82.6100
Total	12	48.7292	24.9058	7.1897	32.9048	64.5536

Descriptives^a

average health score

	Minimum	Maximum
ostracism	7.25	65.00
argument	1.00	82.50
Total	1.00	82.50

a. Role = target

ANOVA^a

average health score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	37.630	1	37.630	.055	.819
Within Groups	6785.677	10	678.568		
Total	6823.307	11			

a. Role = target

Role = source

Descriptives^a

average health score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	12	27.4375	28.0556	8.0989	9.6118	45.2632
argument	11	19.2273	12.4652	3.7584	10.8531	27.6015
Total	23	23.5109	21.9493	4.5767	14.0193	33.0024

Descriptives^a

average health score

	Minimum	Maximum
ostracism	.00	95.00
argument	6.00	48.00
Total	.00	95.00

a. Role = source

ANOVA^a

average health score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	386.862	1	386.862	.796	.383
Within Groups	10212.072	21	486.289		
Total	10598.935	22			

a. Role = source

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Role	1	target	12
	2	source	23
Condition	1	ostracism	18
	2	argument	17

Descriptive Statistics

Dependent Variable: I felt anxious

Role	Condition	Mean	Std. Deviation	N
target	ostracism	25.17	23.54	6
	argument	60.00	40.24	6
	Total	42.58	36.32	12
source	ostracism	36.50	29.13	12
	argument	23.00	15.55	11
	Total	30.04	24.12	23
Total	ostracism	32.72	27.25	18
	argument	36.06	31.46	17
	Total	34.34	28.98	35

Tests of Between-Subjects Effects

Dependent Variable: I felt anxious

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	5926.052 ^b	3	1975.351	2.707	.062	.208
Intercept	41232.159	1	41232.159	56.498	.000	.646
ROLE	1297.891	1	1297.891	1.778	.192	.054
COND	896.637	1	896.637	1.229	.276	.038
ROLE * COND	4602.488	1	4602.488	6.306	.017	.169
Error	22623.833	31	729.801			
Total	69830.000	35				
Corrected Total	28549.886	34				

Tests of Between-Subjects Effects

Dependent Variable: I felt anxious

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	8.120	.601
Intercept	56.498	1.000
ROLE	1.778	.253
COND	1.229	.189
ROLE * COND	6.306	.682
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .208 (Adjusted R Squared = .131)

Simple Effects

Role = target

Descriptives^a

I felt anxious

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	6	25.17	23.54	9.61	.46	49.87
argument	6	60.00	40.24	16.43	17.77	102.23
Total	12	42.58	36.32	10.48	19.51	65.66

Descriptives^a

I felt anxious

	Minimum	Maximum
ostracism	5	60
argument	0	100
Total	0	100

a. Role = target

ANOVA^a

I felt anxious

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3640.083	1	3640.083	3.349	.097
Within Groups	10868.833	10	1086.883		
Total	14508.917	11			

a. Role = target

Role = source

Descriptives^a

I felt anxious

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	12	36.50	29.13	8.41	17.99	55.01
argument	11	23.00	15.55	4.69	12.55	33.45
Total	23	30.04	24.12	5.03	19.61	40.47

Descriptives^a

I felt anxious

	Minimum	Maximum
ostracism	0	95
argument	2	50
Total	0	95

a. Role = source

ANOVA^a

I felt anxious

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1045.957	1	1045.957	1.869	.186
Within Groups	11755.000	21	559.762		
Total	12800.957	22			

a. Role = source

Condition = ostracism

Descriptives^a

I felt anxious

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
target	6	25.17	23.54	9.61	.46	49.87
source	12	36.50	29.13	8.41	17.99	55.01
Total	18	32.72	27.25	6.42	19.17	46.27

Descriptives^a

I felt anxious

	Minimum	Maximum
target	5	60
source	0	95
Total	0	95

a. Condition = ostracism

ANOVA^a

I felt anxious

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	513.778	1	513.778	.679	.422
Within Groups	12107.833	16	756.740		
Total	12621.611	17			

a. Condition = ostracism

Condition = argument

Descriptives^a

I felt anxious

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
target	6	60.00	40.24	16.43	17.77	102.23
source	11	23.00	15.55	4.69	12.55	33.45
Total	17	36.06	31.46	7.63	19.89	52.23

Descriptives^a

I felt anxious

	Minimum	Maximum
target	0	100
source	2	50
Total	0	100

a. Condition = argument

ANOVA^a

I felt anxious

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5314.941	1	5314.941	7.581	.015
Within Groups	10516.000	15	701.067		
Total	15830.941	16			

a. Condition = argument

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Role	1	target	12
	2	source	23
Condition	1	ostracism	18
	2	argument	17

Descriptive Statistics

Dependent Variable: I felt like I was getting a headache

Role	Condition	Mean	Std. Deviation	N
target	ostracism	62.83	34.79	6
	argument	51.67	34.74	6
	Total	57.25	33.65	12
source	ostracism	28.67	32.99	12
	argument	15.36	17.57	11
	Total	22.30	27.03	23
Total	ostracism	40.06	36.53	18
	argument	28.18	29.83	17
	Total	34.29	33.50	35

Tests of Between-Subjects Effects

Dependent Variable: I felt like I was getting a headache

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	11019.764 ^b	3	3673.255	4.195	.013	.289
Intercept	49513.509	1	49513.509	56.553	.000	.646
ROLE	9783.718	1	9783.718	11.175	.002	.265
COND	1179.659	1	1179.659	1.347	.255	.042
ROLE * COND	8.992	1	8.992	.010	.920	.000
Error	27141.379	31	875.528			
Total	79304.000	35				
Corrected Total	38161.143	34				

Tests of Between-Subjects Effects

Dependent Variable: I felt like I was getting a headache

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	12.586	.807
Intercept	56.553	1.000
ROLE	11.175	.899
COND	1.347	.203
ROLE * COND	.010	.051
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .289 (Adjusted R Squared = .220)

Simple Effects

Condition = ostracism

Descriptives^a

I felt like I was getting a headache

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
target	6	62.83	34.79	14.20	26.33	99.34
source	12	28.67	32.99	9.52	7.71	49.63
Total	18	40.06	36.53	8.61	21.89	58.22

Descriptives^a

I felt like I was getting a headache

	Minimum	Maximum
target	5	100
source	0	95
Total	0	100

a. Condition = ostracism

ANOVA^a

I felt like I was getting a headache

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4669.444	1	4669.444	4.146	.059
Within Groups	18021.500	16	1126.344		
Total	22690.944	17			

a. Condition = ostracism

Condition = argument

Descriptives^a

I felt like I was getting a headache

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
target	6	51.67	34.74	14.18	15.21	88.12
source	11	15.36	17.57	5.30	3.56	27.17
Total	17	28.18	29.83	7.23	12.84	43.51

Descriptives^a

I felt like I was getting a headache

	Minimum	Maximum
target	0	100
source	2	60
Total	0	100

a. Condition = argument

ANOVA^a

I felt like I was getting a headache

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5116.592	1	5116.592	8.416	.011
Within Groups	9119.879	15	607.992		
Total	14236.471	16			

a. Condition = argument

Role = target

Descriptives^a

I felt like I was getting a headache

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	6	62.83	34.79	14.20	26.33	99.34
argument	6	51.67	34.74	14.18	15.21	88.12
Total	12	57.25	33.65	9.71	35.87	78.63

Descriptives^a

I felt like I was getting a headache

	Minimum	Maximum
ostracism	5	100
argument	0	100
Total	0	100

a. Role = target

ANOVA^a

I felt like I was getting a headache

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	374.083	1	374.083	.310	.590
Within Groups	12084.167	10	1208.417		
Total	12458.250	11			

a. Role = target

Role = source

Descriptives^a

I felt like I was getting a headache

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	12	28.67	32.99	9.52	7.71	49.63
argument	11	15.36	17.57	5.30	3.56	27.17
Total	23	22.30	27.03	5.64	10.62	33.99

Descriptives^a

I felt like I was getting a headache

	Minimum	Maximum
ostracism	0	95
argument	2	60
Total	0	95

a. Role = source

ANOVA^a

I felt like I was getting a headache

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1015.657	1	1015.657	1.417	.247
Within Groups	15057.212	21	717.010		
Total	16072.870	22			

a. Role = source

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Role	1	target	12
	2	source	23
Condition	1	ostracism	18
	2	argument	17

Descriptive Statistics

Dependent Variable: I felt like I was getting nauseous

Role	Condition	Mean	Std. Deviation	N
target	ostracism	33.17	28.96	6
	argument	33.33	39.20	6
	Total	33.25	32.86	12
source	ostracism	19.33	31.35	12
	argument	9.73	9.94	11
	Total	14.74	23.67	23
Total	ostracism	23.94	30.46	18
	argument	18.06	26.02	17
	Total	21.09	28.13	35

Tests of Between-Subjects Effects

Dependent Variable: I felt like I was getting nauseous

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	3231.728 ^b	3	1077.243	1.410	.258	.120
Intercept	17991.067	1	17991.067	23.555	.000	.432
ROLE	2761.574	1	2761.574	3.616	.067	.104
COND	175.545	1	175.545	.230	.635	.007
ROLE * COND	188.161	1	188.161	.246	.623	.008
Error	23677.015	31	763.775			
Total	42470.000	35				
Corrected Total	26908.743	34				

Tests of Between-Subjects Effects

Dependent Variable: I felt like I was getting nauseous

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	4.231	.337
Intercept	23.555	.997
ROLE	3.616	.453
COND	.230	.075
ROLE * COND	.246	.077
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .120 (Adjusted R Squared = .035)

Simple Effects

Role = target

Descriptives^a

I felt like I was getting nauseous

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	6	33.17	28.96	11.82	2.77	63.56
argument	6	33.33	39.20	16.00	-7.80	74.47
Total	12	33.25	32.86	9.49	12.37	54.13

Descriptives^a

I felt like I was getting nauseous

	Minimum	Maximum
ostracism	0	73
argument	0	100
Total	0	100

a. Role = target

ANOVA^a

I felt like I was getting nauseous

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8.333E-02	1	8.333E-02	.000	.993
Within Groups	11878.167	10	1187.817		
Total	11878.250	11			

a. Role = target

Role = source

Descriptives^a

I felt like I was getting nauseous

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	12	19.33	31.35	9.05	-.59	39.25
argument	11	9.73	9.94	3.00	3.05	16.41
Total	23	14.74	23.67	4.94	4.50	24.98

Descriptives^a

I felt like I was getting nauseous

	Minimum	Maximum
ostracism	0	95
argument	0	35
Total	0	95

a. Role = source

ANOVA^a

I felt like I was getting nauseous

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	529.586	1	529.586	.943	.343
Within Groups	11798.848	21	561.850		
Total	12328.435	22			

a. Role = source

Condition = ostracism

Descriptives^a

I felt like I was getting nauseous

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
target	6	33.17	28.96	11.82	2.77	63.56
source	12	19.33	31.35	9.05	-.59	39.25
Total	18	23.94	30.46	7.18	8.80	39.09

Descriptives^a

I felt like I was getting nauseous

	Minimum	Maximum
target	0	73
source	0	95
Total	0	95

a. Condition = ostracism

ANOVA^a

I felt like I was getting nauseous

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	765.444	1	765.444	.816	.380
Within Groups	15005.500	16	937.844		
Total	15770.944	17			

a. Condition = ostracism

Condition = argument

Descriptives^a

I felt like I was getting nauseous

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
target	6	33.33	39.20	16.00	-7.80	74.47
source	11	9.73	9.94	3.00	3.05	16.41
Total	17	18.06	26.02	6.31	4.68	31.44

Descriptives^a

I felt like I was getting nauseous

	Minimum	Maximum
target	0	100
source	0	35
Total	0	100

a. Condition = argument

ANOVA^a

I felt like I was getting nauseous

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2163.426	1	2163.426	3.742	.072
Within Groups	8671.515	15	578.101		
Total	10834.941	16			

a. Condition = argument

Univariate Analysis of Variance

Between-Subjects Factors

	Value Label	N
Role	1 target	12
	2 source	23
Condition	1 ostracism	18
	2 argument	17

Descriptive Statistics

Dependent Variable: I felt like I was getting stressed out

Role	Condition	Mean	Std. Deviation	N
target	ostracism	66.67	32.51	6
	argument	57.00	29.92	6
	Total	61.83	30.21	12
source	ostracism	25.25	28.59	12
	argument	28.82	29.29	11
	Total	26.96	28.32	23
Total	ostracism	39.06	35.26	18
	argument	38.76	31.76	17
	Total	38.91	33.11	35

Tests of Between-Subjects Effects

Dependent Variable: I felt like I was getting stressed out

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	9945.523 ^b	3	3315.174	3.760	.021	.267
Intercept	62236.377	1	62236.377	70.585	.000	.695
ROLE	9543.303	1	9543.303	10.824	.003	.259
COND	73.273	1	73.273	.083	.775	.003
ROLE * COND	345.094	1	345.094	.391	.536	.012
Error	27333.220	31	881.717			
Total	90280.000	35				
Corrected Total	37278.743	34				

Tests of Between-Subjects Effects

Dependent Variable: I felt like I was getting stressed out

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	11.280	.758
Intercept	70.585	1.000
ROLE	10.824	.890
COND	.083	.059
ROLE * COND	.391	.093
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .267 (Adjusted R Squared = .196)

Simple Effects

Condition = ostracism

Descriptives^a

I felt like I was getting stressed out

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
target	6	66.67	32.51	13.27	32.55	100.79
source	12	25.25	28.59	8.25	7.08	43.42
Total	18	39.06	35.26	8.31	21.52	56.59

Descriptives^a

I felt like I was getting stressed out

	Minimum	Maximum
target	14	100
source	0	95
Total	0	100

a. Condition = ostracism

ANOVA^a

I felt like I was getting stressed out

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6861.361	1	6861.361	7.689	.014
Within Groups	14277.583	16	892.349		
Total	21138.944	17			

a. Condition = ostracism

Condition = argument

Descriptives^a

I felt like I was getting stressed out

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
target	6	57.00	29.92	12.21	25.60	88.40
source	11	28.82	29.29	8.83	9.14	48.50
Total	17	38.76	31.76	7.70	22.44	55.09

Descriptives^a

I felt like I was getting stressed out

	Minimum	Maximum
target	4	85
source	0	83
Total	0	85

a. Condition = argument

ANOVA^a

I felt like I was getting stressed out

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3083.422	1	3083.422	3.543	.079
Within Groups	13055.636	15	870.376		
Total	16139.059	16			

a. Condition = argument

Role = target

Descriptives^a

I felt like I was getting stressed out

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	6	66.67	32.51	13.27	32.55	100.79
argument	6	57.00	29.92	12.21	25.60	88.40
Total	12	61.83	30.21	8.72	42.64	81.03

Descriptives^a

I felt like I was getting stressed out

	Minimum	Maximum
ostracism	14	100
argument	4	85
Total	4	100

a. Role = target

ANOVA^a

I felt like I was getting stressed out

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	280.333	1	280.333	.287	.604
Within Groups	9761.333	10	976.133		
Total	10041.667	11			

a. Role = target

Role = source

Descriptives^a

I felt like I was getting stressed out

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	12	25.25	28.59	8.25	7.08	43.42
argument	11	28.82	29.29	8.83	9.14	48.50
Total	23	26.96	28.32	5.91	14.71	39.20

Descriptives^a

I felt like I was getting stressed out

	Minimum	Maximum
ostracism	0	95
argument	0	83
Total	0	95

a. Role = source

ANOVA^a

I felt like I was getting stressed out

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	73.070	1	73.070	.087	.771
Within Groups	17571.886	21	836.756		
Total	17644.957	22			

a. Role = source

Experiment 3.2

Belonging

Between-Subjects Factors

		Value Label	N
Ostracism role	1	Target	19
	2	source	38
condition	1	argue	27
	2	ostracism	30

Descriptive Statistics

Dependent Variable: average belonging score

Ostracism role	condition	Mean	Std. Deviation	N
Target	argue	23.3333	21.2132	9
	ostracism	8.0000	13.3749	10
	Total	15.2632	18.7434	19
source	argue	65.2778	19.9612	18
	ostracism	73.2500	17.8646	20
	Total	69.4737	19.0586	38
Total	argue	51.2963	28.3723	27
	ostracism	51.5000	35.2613	30
	Total	51.4035	31.9004	57

Tests of Between-Subjects Effects

Dependent Variable: average belonging score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	38940.358 ^b	3	12980.119	38.119	.000	.683
Intercept	91114.096	1	91114.096	267.576	.000	.835
ROLE	36286.260	1	36286.260	106.562	.000	.668
CONDIT	171.114	1	171.114	.503	.482	.009
ROLE * CONDIT	1715.207	1	1715.207	5.037	.029	.087
Error	18047.361	53	340.516			
Total	207600.000	57				
Corrected Total	56987.719	56				

Tests of Between-Subjects Effects

Dependent Variable: average belonging score

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	114.357	1.000
Intercept	267.576	1.000
ROLE	106.562	1.000
CONDIT	.503	.107
ROLE * CONDIT	5.037	.596
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .683 (Adjusted R Squared = .665)

Simple Effects

Ostracism role = Target

Descriptives^a

average belonging score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	9	23.3333	21.2132	7.0711	7.0274	39.6392
ostracism	10	8.0000	13.3749	4.2295	-1.5679	17.5679
Total	19	15.2632	18.7434	4.3000	6.2291	24.2972

Descriptives^a

average belonging score

	Minimum	Maximum
argue	.00	60.00
ostracism	.00	40.00
Total	.00	60.00

a. Ostracism role = Target

ANOVA^a

average belonging score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1113.684	1	1113.684	3.634	.074
Within Groups	5210.000	17	306.471		
Total	6323.684	18			

a. Ostracism role = Target

Ostracism role = source

Descriptives^a

average belonging score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	18	65.2778	19.9612	4.7049	55.3513	75.2042
ostracism	20	73.2500	17.8646	3.9947	64.8891	81.6109
Total	38	69.4737	19.0586	3.0917	63.2093	75.7381

Descriptives^a

average belonging score

	Minimum	Maximum
argue	25.00	90.00
ostracism	25.00	95.00
Total	25.00	95.00

a. Ostracism role = source

ANOVA^a

average belonging score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	602.113	1	602.113	1.689	.202
Within Groups	12837.361	36	356.593		
Total	13439.474	37			

a. Ostracism role = source

condition = argue

Descriptives^a

average belonging score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	9	23.3333	21.2132	7.0711	7.0274	39.6392
source	18	65.2778	19.9612	4.7049	55.3513	75.2042
Total	27	51.2963	28.3723	5.4602	40.0726	62.5200

Descriptives^a

average belonging score

	Minimum	Maximum
Target	.00	60.00
source	25.00	90.00
Total	.00	90.00

a. condition = argue

ANOVA^a

average belonging score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10556.019	1	10556.019	25.440	.000
Within Groups	10373.611	25	414.944		
Total	20929.630	26			

a. condition = argue

condition = ostracism

Descriptives^a

average belonging score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	10	8.0000	13.3749	4.2295	-1.5679	17.5679
source	20	73.2500	17.8646	3.9947	64.8891	81.6109
Total	30	51.5000	35.2613	6.4378	38.3332	64.6668

Descriptives^a

average belonging score

	Minimum	Maximum
Target	.00	40.00
source	25.00	95.00
Total	.00	95.00

a. condition = ostracism

ANOVA^a

average belonging score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	28383.750	1	28383.750	103.567	.000
Within Groups	7673.750	28	274.063		
Total	36057.500	29			

a. condition = ostracism

Control

Between-Subjects Factors

		Value Label	N
Ostracism role	1	Target	19
	2	source	38
condition	1	argue	27
	2	ostracism	30

Descriptive Statistics

Dependent Variable: average control score

Ostracism role	condition	Mean	Std. Deviation	N
Target	argue	23.3333	15.6125	9
	ostracism	17.0000	22.0101	10
	Total	20.0000	19.0029	19
source	argue	56.1111	14.8081	18
	ostracism	65.5000	17.8370	20
	Total	61.0526	16.9322	38
Total	argue	45.1852	21.5942	27
	ostracism	49.3333	29.9923	30
	Total	47.3684	26.2050	57

Tests of Between-Subjects Effects

Dependent Variable: average control score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	22372.485 ^b	3	7457.495	24.576	.000	.582
Intercept	82818.957	1	82818.957	272.926	.000	.837
ROLE	20861.296	1	20861.296	68.747	.000	.565
CONDIT	29.483	1	29.483	.097	.756	.002
ROLE * CONDIT	780.595	1	780.595	2.572	.115	.046
Error	16082.778	53	303.449			
Total	166350.000	57				
Corrected Total	38455.263	56				

Tests of Between-Subjects Effects

Dependent Variable: average control score

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	73.727	1.000
Intercept	272.926	1.000
ROLE	68.747	1.000
CONDIT	.097	.061
ROLE * CONDIT	2.572	.350
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .582 (Adjusted R Squared = .558)

Simple Effects

condition = argue

Descriptives^a

average control score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	9	23.3333	15.6125	5.2042	11.3325	35.3342
source	18	56.1111	14.8081	3.4903	48.7472	63.4750
Total	27	45.1852	21.5942	4.1558	36.6428	53.7276

Descriptives^a

average control score

	Minimum	Maximum
Target	5.00	50.00
source	40.00	90.00
Total	5.00	90.00

a. condition = argue

ANOVA^a

average control score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6446.296	1	6446.296	28.384	.000
Within Groups	5677.778	25	227.111		
Total	12124.074	26			

a. condition = argue

condition = ostracism

Descriptives^a

average control score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	10	17.0000	22.0101	6.9602	1.2549	32.7451
source	20	65.5000	17.8370	3.9885	57.1520	73.8480
Total	30	49.3333	29.9923	5.4758	38.1340	60.5327

Descriptives^a

average control score

	Minimum	Maximum
Target	.00	60.00
source	30.00	100.00
Total	.00	100.00

a. condition = ostracism

ANOVA^a

average control score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15681.667	1	15681.667	42.200	.000
Within Groups	10405.000	28	371.607		
Total	26086.667	29			

a. condition = ostracism

Ostracism role = Target

Descriptives^a

average control score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	9	23.3333	15.6125	5.2042	11.3325	35.3342
ostracism	10	17.0000	22.0101	6.9602	1.2549	32.7451
Total	19	20.0000	19.0029	4.3596	10.8409	29.1591

Descriptives^a

average control score

	Minimum	Maximum
argue	5.00	50.00
ostracism	.00	60.00
Total	.00	60.00

a. Ostracism role = Target

ANOVA^a

average control score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	190.000	1	190.000	.512	.484
Within Groups	6310.000	17	371.176		
Total	6500.000	18			

a. Ostracism role = Target

Ostracism role = source

Descriptives^a

average control score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	18	56.1111	14.8081	3.4903	48.7472	63.4750
ostracism	20	65.5000	17.8370	3.9885	57.1520	73.8480
Total	38	61.0526	16.9322	2.7468	55.4872	66.6181

Descriptives^a

average control score

	Minimum	Maximum
argue	40.00	90.00
ostracism	30.00	100.00
Total	30.00	100.00

a. Ostracism role = source

ANOVA^a

average control score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	835.117	1	835.117	3.076	.088
Within Groups	9772.778	36	271.466		
Total	10607.895	37			

a. Ostracism role = source

Self-esteem

Between-Subjects Factors

		Value Label	N
Ostracism role	1	Target	19
	2	source	38
condition	1	argue	27
	2	ostracism	30

Descriptive Statistics

Dependent Variable: reverse scored 'I felt badly'

Ostracism role	condition	Mean	Std. Deviation	N
Target	argue	41.1111	27.5882	9
	ostracism	46.0000	38.3551	10
	Total	43.6842	32.8651	19
source	argue	55.5556	23.5702	18
	ostracism	49.0000	28.6356	20
	Total	52.1053	26.2172	38
Total	argue	50.7407	25.4083	27
	ostracism	48.0000	31.5573	30
	Total	49.2982	28.5894	57

Tests of Between-Subjects Effects

Dependent Variable: reverse scored 'I felt badly'

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	1418.596 ^b	3	472.865	.565	.640	.031
Intercept	116008.772	1	116008.772	138.625	.000	.723
ROLE	960.975	1	960.975	1.148	.289	.021
CONDIT	8.772	1	8.772	.010	.919	.000
ROLE * CONDIT	413.606	1	413.606	.494	.485	.009
Error	44353.333	53	836.855			
Total	184300.000	57				
Corrected Total	45771.930	56				

Tests of Between-Subjects Effects

Dependent Variable: reverse scored 'I felt badly'

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	1.695	.159
Intercept	138.625	1.000
ROLE	1.148	.183
CONDIT	.010	.051
ROLE * CONDIT	.494	.106
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .031 (Adjusted R Squared = -.024)

Simple Effects

condition = argue

Descriptives^a

reverse scored 'I felt badly'

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	9	41.1111	27.5882	9.1961	19.9049	62.3173
source	18	55.5556	23.5702	5.5556	43.8344	67.2768
Total	27	50.7407	25.4083	4.8898	40.6895	60.7919

Descriptives^a

reverse scored 'I felt badly'

	Minimum	Maximum
Target	.00	90.00
source	.00	100.00
Total	.00	100.00

a. condition = argue

ANOVA^a

reverse scored 'I felt badly'

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1251.852	1	1251.852	2.015	.168
Within Groups	15533.333	25	621.333		
Total	16785.185	26			

a. condition = argue

condition = ostracism

Descriptives^a

reverse scored 'I felt badly'

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	10	46.0000	38.3551	12.1289	18.5624	73.4376
source	20	49.0000	28.6356	6.4031	35.5981	62.4019
Total	30	48.0000	31.5573	5.7615	36.2163	59.7837

Descriptives^a

reverse scored 'I felt badly'

	Minimum	Maximum
Target	.00	100.00
source	.00	100.00
Total	.00	100.00

a. condition = ostracism

ANOVA^a

reverse scored 'I felt badly'

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	60.000	1	60.000	.058	.811
Within Groups	28820.000	28	1029.286		
Total	28880.000	29			

a. condition = ostracism

Ostracism role = Target

Descriptives^a

reverse scored 'I felt badly'

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	9	41.1111	27.5882	9.1961	19.9049	62.3173
ostracism	10	46.0000	38.3551	12.1289	18.5624	73.4376
Total	19	43.6842	32.8651	7.5398	27.8437	59.5247

Descriptives^a

reverse scored 'I felt badly'

	Minimum	Maximum
argue	.00	90.00
ostracism	.00	100.00
Total	.00	100.00

a. Ostracism role = Target

ANOVA^a

reverse scored 'I felt badly'

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	113.216	1	113.216	.100	.756
Within Groups	19328.889	17	1136.993		
Total	19442.105	18			

a. Ostracism role = Target

Ostracism role = source

Descriptives^a

reverse scored 'I felt badly'

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	18	55.5556	23.5702	5.5556	43.8344	67.2768
ostracism	20	49.0000	28.6356	6.4031	35.5981	62.4019
Total	38	52.1053	26.2172	4.2530	43.4879	60.7226

Descriptives^a

reverse scored 'I felt badly'

	Minimum	Maximum
argue	.00	100.00
ostracism	.00	100.00
Total	.00	100.00

a. Ostracism role = source

ANOVA^a

reverse scored 'I felt badly'

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	407.135	1	407.135	.586	.449
Within Groups	25024.444	36	695.123		
Total	25431.579	37			

a. Ostracism role = source

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Ostracism role	1	Target	19
	2	source	38
condition	1	argue	27
	2	ostracism	30

Descriptive Statistics

Dependent Variable: I felt superior to at least one other person in my train row

Ostracism role	condition	Mean	Std. Deviation	N
Target	argue	41.11	37.23	9
	ostracism	11.00	18.53	10
	Total	25.26	32.04	19
source	argue	48.89	29.08	18
	ostracism	54.00	33.15	20
	Total	51.58	30.98	38
Total	argue	46.30	31.52	27
	ostracism	39.67	35.38	30
	Total	42.81	33.47	57

Tests of Between-Subjects Effects

Dependent Variable: I felt superior to at least one other person in my train row

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	13314.211 ^b	3	4438.070	4.758	.005	.212
Intercept	75868.421	1	75868.421	81.337	.000	.605
ROLE	8142.261	1	8142.261	8.729	.005	.141
CONDIT	1973.684	1	1973.684	2.116	.152	.038
ROLE * CONDIT	3917.700	1	3917.700	4.200	.045	.073
Error	49436.667	53	932.767			
Total	167200.000	57				
Corrected Total	62750.877	56				

Tests of Between-Subjects Effects

Dependent Variable: I felt superior to at least one other person in my train row

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	14.274	.878
Intercept	81.337	1.000
ROLE	8.729	.827
CONDIT	2.116	.298
ROLE * CONDIT	4.200	.521
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .212 (Adjusted R Squared = .168)

Simple Effects

Ostracism role = Target

Descriptives^a

I felt superior to at least one other person in my train row

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	9	41.11	37.23	12.41	12.49	69.73
ostracism	10	11.00	18.53	5.86	-2.26	24.26
Total	19	25.26	32.04	7.35	9.82	40.70

Descriptives^a

I felt superior to at least one other person in my train row

	Minimum	Maximum
argue	0	100
ostracism	0	60
Total	0	100

a. Ostracism role = Target

ANOVA^a

I felt superior to at least one other person in my train row

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4294.795	1	4294.795	5.149	.037
Within Groups	14178.889	17	834.052		
Total	18473.684	18			

a. Ostracism role = Target

Ostracism role = source

Descriptives^a

I felt superior to at least one other person in my train row

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	18	48.89	29.08	6.85	34.43	63.35
ostracism	20	54.00	33.15	7.41	38.49	69.51
Total	38	51.58	30.98	5.03	41.40	61.76

Descriptives^a

I felt superior to at least one other person in my train row

	Minimum	Maximum
argue	10	100
ostracism	0	100
Total	0	100

a. Ostracism role = source

ANOVA^a

I felt superior to at least one other person in my train row

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	247.485	1	247.485	.253	.618
Within Groups	35257.778	36	979.383		
Total	35505.263	37			

a. Ostracism role = source

condition = argue

Descriptives^a

I felt superior to at least one other person in my train row

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	9	41.11	37.23	12.41	12.49	69.73
source	18	48.89	29.08	6.85	34.43	63.35
Total	27	46.30	31.52	6.07	33.83	58.76

Descriptives^a

I felt superior to at least one other person in my train row

	Minimum	Maximum
Target	0	100
source	10	100
Total	0	100

a. condition = argue

ANOVA^a

I felt superior to at least one other person in my train row

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	362.963	1	362.963	.356	.556
Within Groups	25466.667	25	1018.667		
Total	25829.630	26			

a. condition = argue

condition = ostracism**Descriptives^a**

I felt superior to at least one other person in my train row

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	10	11.00	18.53	5.86	-2.26	24.26
source	20	54.00	33.15	7.41	38.49	69.51
Total	30	39.67	35.38	6.46	26.46	52.88

Descriptives^a

I felt superior to at least one other person in my train row

	Minimum	Maximum
Target	0	60
source	0	100
Total	0	100

a. condition = ostracism

ANOVA^a

I felt superior to at least one other person in my train row

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12326.667	1	12326.667	14.399	.001
Within Groups	23970.000	28	856.071		
Total	36296.667	29			

a. condition = ostracism

Meaningful Existence

Between-Subjects Factors

		Value Label	N
Ostracism role	1	Target	19
	2	source	38
condition	1	argue	27
	2	ostracism	30

Descriptive Statistics

Dependent Variable: The REAL average for meaningful existence with 3 variables

Ostracism role	condition	Mean	Std. Deviation	N
Target	argue	85.19	13.03	9
	ostracism	25.33	18.61	10
	Total	53.68	34.51	19
source	argue	79.63	20.64	18
	ostracism	84.83	19.96	20
	Total	82.37	20.18	38
Total	argue	81.48	18.38	27
	ostracism	65.00	34.38	30
	Total	72.81	28.95	57

Tests of Between-Subjects Effects

Dependent Variable: The REAL average for meaningful existence with 3 variables

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	27646.988 ^b	3	9215.663	25.331	.000	.589
Intercept	238783.627	1	238783.627	656.351	.000	.925
ROLE	9189.483	1	9189.483	25.259	.000	.323
CONDIT	9430.800	1	9430.800	25.923	.000	.328
ROLE * CONDIT	13364.922	1	13364.922	36.736	.000	.409
Error	19281.667	53	363.805			
Total	349077.778	57				
Corrected Total	46928.655	56				

Tests of Between-Subjects Effects

Dependent Variable: The REAL average for meaningful existence with 3 variables

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	75.994	1.000
Intercept	656.351	1.000
ROLE	25.259	.999
CONDIT	25.923	.999
ROLE * CONDIT	36.736	1.000
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .589 (Adjusted R Squared = .566)

Simple Effects

Ostracism role = Target

Descriptives^a

The REAL average for meaningful existence with 3 variables

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	9	85.19	13.03	4.34	75.17	95.20
ostracism	10	25.33	18.61	5.88	12.02	38.64
Total	19	53.68	34.51	7.92	37.05	70.32

Descriptives^a

The REAL average for meaningful existence with 3 variables

	Minimum	Maximum
argue	67	100
ostracism	0	53
Total	0	100

a. Ostracism role = Target

ANOVA^a

The REAL average for meaningful existence with 3 variables

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	16968.525	1	16968.525	64.482	.000
Within Groups	4473.580	17	263.152		
Total	21442.105	18			

a. Ostracism role = Target

Ostracism role = source

Descriptives^a

The REAL average for meaningful existence with 3 variables

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	18	79.63	20.64	4.86	69.37	89.89
ostracism	20	84.83	19.96	4.46	75.49	94.17
Total	38	82.37	20.18	3.27	75.74	89.00

Descriptives^a

The REAL average for meaningful existence with 3 variables

	Minimum	Maximum
argue	33	100
ostracism	20	100
Total	20	100

a. Ostracism role = source

ANOVA^a

The REAL average for meaningful existence with 3 variables

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	256.533	1	256.533	.624	.435
Within Groups	14808.086	36	411.336		
Total	15064.620	37			

a. Ostracism role = source

condition = argue

Descriptives^a

The REAL average for meaningful existence with 3 variables

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	9	85.19	13.03	4.34	75.17	95.20
source	18	79.63	20.64	4.86	69.37	89.89
Total	27	81.48	18.38	3.54	74.21	88.75

Descriptives^a

The REAL average for meaningful existence with 3 variables

	Minimum	Maximum
Target	67	100
source	33	100
Total	33	100

a. condition = argue

ANOVA^a

The REAL average for meaningful existence with 3 variables

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	185.185	1	185.185	.538	.470
Within Groups	8600.000	25	344.000		
Total	8785.185	26			

a. condition = argue

condition = ostracism

Descriptives^a

The REAL average for meaningful existence with 3 variables

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	10	25.33	18.61	5.88	12.02	38.64
source	20	84.83	19.96	4.46	75.49	94.17
Total	30	65.00	34.38	6.28	52.16	77.84

Descriptives^a

The REAL average for meaningful existence with 3 variables

	Minimum	Maximum
Target	0	53
source	20	100
Total	0	100

a. condition = ostracism

ANOVA^a

The REAL average for meaningful existence with 3 variables

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	23601.667	1	23601.667	61.867	.000
Within Groups	10681.667	28	381.488		
Total	34283.333	29			

a. condition = ostracism

Stress and Arousal

Between-Subjects Factors

		Value Label	N
Ostracism role	1	Target	19
	2	source	38
condition	1	argue	27
	2	ostracism	30

Descriptive Statistics

Dependent Variable: stress score

Ostracism role	condition	Mean	Std. Deviation	N
Target	argue	5.67	3.43	9
	ostracism	6.10	4.09	10
	Total	5.89	3.70	19
source	argue	3.72	3.08	18
	ostracism	2.70	3.18	20
	Total	3.18	3.14	38
Total	argue	4.37	3.27	27
	ostracism	3.83	3.81	30
	Total	4.09	3.54	57

Tests of Between-Subjects Effects

Dependent Variable: stress score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	103.850 ^b	3	34.617	3.064	.036	.148
Intercept	1044.744	1	1044.744	92.484	.000	.636
ROLE	90.199	1	90.199	7.985	.007	.131
CONDIT	1.095	1	1.095	.097	.757	.002
ROLE * CONDIT	6.690	1	6.690	.592	.445	.011
Error	598.711	53	11.296			
Total	1655.000	57				
Corrected Total	702.561	56				

Tests of Between-Subjects Effects

Dependent Variable: stress score

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	9.193	.686
Intercept	92.484	1.000
ROLE	7.985	.792
CONDIT	.097	.061
ROLE * CONDIT	.592	.118
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .148 (Adjusted R Squared = .100)

Simple Effects

Ostracism role = Target

Descriptives^a

stress score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	9	5.67	3.43	1.14	3.03	8.30
ostracism	10	6.10	4.09	1.29	3.17	9.03
Total	19	5.89	3.70	.85	4.11	7.68

Descriptives^a

stress score

	Minimum	Maximum
argue	0	10
ostracism	0	10
Total	0	10

a. Ostracism role = Target

ANOVA^a

stress score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.889	1	.889	.062	.807
Within Groups	244.900	17	14.406		
Total	245.789	18			

a. Ostracism role = Target

Ostracism role = source

Descriptives^a

stress score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	18	3.72	3.08	.73	2.19	5.26
ostracism	20	2.70	3.18	.71	1.21	4.19
Total	38	3.18	3.14	.51	2.15	4.21

Descriptives^a

stress score

	Minimum	Maximum
argue	0	9
ostracism	0	10
Total	0	10

a. Ostracism role = source

ANOVA^a

stress score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.899	1	9.899	1.007	.322
Within Groups	353.811	36	9.828		
Total	363.711	37			

a. Ostracism role = source

condition = argue

Descriptives^a

stress score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	9	5.67	3.43	1.14	3.03	8.30
source	18	3.72	3.08	.73	2.19	5.26
Total	27	4.37	3.27	.63	3.08	5.66

Descriptives^a

stress score

	Minimum	Maximum
Target	0	10
source	0	9
Total	0	10

a. condition = argue

ANOVA^a

stress score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	22.685	1	22.685	2.219	.149
Within Groups	255.611	25	10.224		
Total	278.296	26			

a. condition = argue

condition = ostracism

Descriptives^a

stress score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	10	6.10	4.09	1.29	3.17	9.03
source	20	2.70	3.18	.71	1.21	4.19
Total	30	3.83	3.81	.69	2.41	5.25

Descriptives^a

stress score

	Minimum	Maximum
Target	0	10
source	0	10
Total	0	10

a. condition = ostracism

ANOVA^a

stress score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	77.067	1	77.067	6.289	.018
Within Groups	343.100	28	12.254		
Total	420.167	29			

a. condition = ostracism

Univariate Analysis of Variance

Between-Subjects Factors

	Value	Label	N
Ostracism role	1	Target	19
	2	source	38
condition	1	argue	27
	2	ostracism	30

Descriptive Statistics

Dependent Variable: AROUSAL

Ostracism role	condition	Mean	Std. Deviation	N
Target	argue	6.89	3.18	9
	ostracism	3.20	2.39	10
	Total	4.95	3.31	19
source	argue	6.67	3.31	18
	ostracism	7.05	2.39	20
	Total	6.87	2.83	38
Total	argue	6.74	3.21	27
	ostracism	5.77	2.99	30
	Total	6.23	3.11	57

Tests of Between-Subjects Effects

Dependent Variable: AROUSAL

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	112.596 ^b	3	37.532	4.654	.006	.208
Intercept	1789.593	1	1789.593	221.899	.000	.807
ROLE	41.560	1	41.560	5.153	.027	.089
CONDIT	34.505	1	34.505	4.278	.043	.075
ROLE * CONDIT	52.367	1	52.367	6.493	.014	.109
Error	427.439	53	8.065			
Total	2751.000	57				
Corrected Total	540.035	56				

Tests of Between-Subjects Effects

Dependent Variable: AROUSAL

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	13.961	.870
Intercept	221.899	1.000
ROLE	5.153	.606
CONDIT	4.278	.528
ROLE * CONDIT	6.493	.706
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .208 (Adjusted R Squared = .164)

Simple Effects

condition = argue

Descriptives^a

AROUSAL

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	9	6.89	3.18	1.06	4.44	9.33
source	18	6.67	3.31	.78	5.02	8.31
Total	27	6.74	3.21	.62	5.47	8.01

Descriptives^a

AROUSAL

	Minimum	Maximum
Target	2	10
source	0	10
Total	0	10

a. condition = argue

ANOVA^a

AROUSAL

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.296	1	.296	.028	.869
Within Groups	266.889	25	10.676		
Total	267.185	26			

a. condition = argue

condition = ostracism

Descriptives^a

AROUSAL

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	10	3.20	2.39	.76	1.49	4.91
source	20	7.05	2.39	.54	5.93	8.17
Total	30	5.77	2.99	.55	4.65	6.88

Descriptives^a

AROUSAL

	Minimum	Maximum
Target	0	8
source	1	10
Total	0	10

a. condition = ostracism

ANOVA^a

AROUSAL

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	98.817	1	98.817	17.234	.000
Within Groups	160.550	28	5.734		
Total	259.367	29			

a. condition = ostracism

Ostracism role = Target

Descriptives^a

AROUSAL

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	9	6.89	3.18	1.06	4.44	9.33
ostracism	10	3.20	2.39	.76	1.49	4.91
Total	19	4.95	3.31	.76	3.35	6.54

Descriptives^a

AROUSAL

	Minimum	Maximum
argue	2	10
ostracism	0	8
Total	0	10

a. Ostracism role = Target

ANOVA^a

AROUSAL

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	64.458	1	64.458	8.271	.010
Within Groups	132.489	17	7.793		
Total	196.947	18			

a. Ostracism role = Target

Ostracism role = source

Descriptives^a

AROUSAL

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	18	6.67	3.31	.78	5.02	8.31
ostracism	20	7.05	2.39	.54	5.93	8.17
Total	38	6.87	2.83	.46	5.94	7.80

Descriptives^a

AROUSAL

	Minimum	Maximum
argue	0	10
ostracism	1	10
Total	0	10

a. Ostracism role = source

ANOVA^a

AROUSAL

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.392	1	1.392	.170	.683
Within Groups	294.950	36	8.193		
Total	296.342	37			

a. Ostracism role = source

Experiment 3.3

Belonging

Between-Subjects Factors

		Value Label	N
Ostracism role	1	Target	46
	2	source	92
condition	1	argue	45
	2	ostracism	48
	3	inclusion	45

Descriptive Statistics

Dependent Variable: average belonging score

Ostracism role	condition	Mean	Std. Deviation	N
Target	argue	25.2000	26.1826	15
	ostracism	6.1875	8.0806	16
	inclusion	54.0000	16.6990	15
	Total	27.9783	26.8125	46
source	argue	60.9833	16.9367	30
	ostracism	80.2187	11.5346	32
	inclusion	64.3667	16.6283	30
	Total	68.7772	17.2431	92
Total	argue	49.0556	26.4234	45
	ostracism	55.5417	36.7753	48
	inclusion	60.9111	17.1869	45
	Total	55.1775	28.3942	138

Tests of Between-Subjects Effects

Dependent Variable: average belonging score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	75511.386 ^b	5	15102.277	57.051	.000	.684
Intercept	288189.070	1	288189.070	1088.673	.000	.892
ROLE	49169.474	1	49169.474	185.744	.000	.585
CONDIT	6930.607	2	3465.303	13.091	.000	.166
ROLE * CONDIT	21292.918	2	10646.459	40.218	.000	.379
Error	34942.515	132	264.716			
Total	530603.250	138				
Corrected Total	110453.900	137				

Tests of Between-Subjects Effects

Dependent Variable: average belonging score

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	285.254	1.000
Intercept	1088.673	1.000
ROLE	185.744	1.000
CONDIT	26.181	.997
ROLE * CONDIT	80.437	1.000
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .684 (Adjusted R Squared = .672)

Post Hoc Tests

condition

Multiple Comparisons

Dependent Variable: average belonging score

Bonferroni

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	-6.4861	3.3760	.171	-14.6725	1.7003
	inclusion	-11.8556*	3.4300	.002	-20.1730	-3.5381
ostracism	argue	6.4861	3.3760	.171	-1.7003	14.6725
	ostracism					
	inclusion	-5.3694	3.3760	.342	-13.5559	2.8170
inclusion	argue	11.8556*	3.4300	.002	3.5381	20.1730
	ostracism	5.3694	3.3760	.342	-2.8170	13.5559
	inclusion					

Based on observed means.

*. The mean difference is significant at the .05 level.

Simple Effects

Ostracism role = Target

Descriptives^a

average belonging score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	15	25.2000	26.18260	6.76032	10.7006	39.6994
ostracism	16	6.1875	8.08058	2.02015	1.8817	10.4933
inclusion	15	54.0000	16.69902	4.31167	44.7524	63.2476
Total	46	27.9783	26.81251	3.95329	20.0159	35.9406

Descriptives^a

average belonging score

	Minimum	Maximum
argue	.00	77.50
ostracism	.00	30.00
inclusion	5.00	75.00
Total	.00	77.50

a. Ostracism role = Target

ANOVA^a

average belonging score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	17870.141	2	8935.070	26.532	.000
Within Groups	14480.838	43	336.764		
Total	32350.978	45			

a. Ostracism role = Target

Ostracism role = source

Descriptives^a

average belonging score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	30	60.9833	16.93674	3.09221	54.6591	67.3076
ostracism	32	80.2188	11.53462	2.03905	76.0601	84.3774
inclusion	30	64.3667	16.62825	3.03589	58.1576	70.5758
Total	92	68.7772	17.24315	1.79772	65.2062	72.3481

Descriptives^a

average belonging score

	Minimum	Maximum
argue	15.00	97.50
ostracism	56.00	95.00
inclusion	26.00	95.00
Total	15.00	97.50

a. Ostracism role = source

ANOVA^a

average belonging score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6595.005	2	3297.502	14.343	.000
Within Groups	20461.677	89	229.906		
Total	27056.682	91			

a. Ostracism role = source

condition = argue**Descriptives^a**

average belonging score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	15	25.2000	26.18260	6.76032	10.7006	39.6994
source	30	60.9833	16.93674	3.09221	54.6591	67.3076
Total	45	49.0556	26.42339	3.93897	41.1171	56.9940

Descriptives^a

average belonging score

	Minimum	Maximum
Target	.00	77.50
source	15.00	97.50
Total	.00	97.50

a. condition = argue

ANOVA^a

average belonging score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12804.469	1	12804.469	30.732	.000
Within Groups	17916.142	43	416.654		
Total	30720.611	44			

a. condition = argue

condition = ostracism

Descriptives^a

average belonging score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	16	6.1875	8.08058	2.02015	1.8817	10.4933
source	32	80.2188	11.53462	2.03905	76.0601	84.3774
Total	48	55.5417	36.77531	5.30806	44.8632	66.2201

Descriptives^a

average belonging score

	Minimum	Maximum
Target	.00	30.00
source	56.00	95.00
Total	.00	95.00

a. condition = ostracism

ANOVA^a

average belonging score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	58460.010	1	58460.010	526.883	.000
Within Groups	5103.906	46	110.954		
Total	63563.917	47			

a. condition = ostracism

condition = inclusion

Descriptives^a

average belonging score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	15	54.0000	16.69902	4.31167	44.7524	63.2476
source	30	64.3667	16.62825	3.03589	58.1576	70.5758
Total	45	60.9111	17.18690	2.56207	55.7476	66.0746

Descriptives^a

average belonging score

	Minimum	Maximum
Target	5.00	75.00
source	26.00	95.00
Total	5.00	95.00

a. condition = inclusion

ANOVA^a

average belonging score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1074.678	1	1074.678	3.876	.055
Within Groups	11922.467	43	277.267		
Total	12997.144	44			

a. condition = inclusion

Control

Between-Subjects Factors

		Value Label	N
Ostracism role	1	Target	46
	2	source	92
condition	1	argue	45
	2	ostracism	48
	3	inclusion	45

Descriptive Statistics

Dependent Variable: average control score

Ostracism role	condition	Mean	Std. Deviation	N
Target	argue	30.2000	21.9071	15
	ostracism	18.2188	26.0947	16
	inclusion	60.7000	16.8828	15
	Total	35.9783	28.1417	46
source	argue	54.5833	17.6426	30
	ostracism	72.4375	16.4340	32
	inclusion	65.7667	15.7139	30
	Total	64.4402	18.0274	92
Total	argue	46.4556	22.2030	45
	ostracism	54.3646	32.5978	48
	inclusion	64.0778	16.1019	45
	Total	54.9529	25.6385	138

Tests of Between-Subjects Effects

Dependent Variable: average control score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	44571.376 ^b	5	8914.275	25.871	.000	.495
Intercept	310288.966	1	310288.966	900.514	.000	.872
ROLE	23831.352	1	23831.352	69.163	.000	.344
CONDIT	10246.204	2	5123.102	14.868	.000	.184
ROLE * CONDIT	12716.147	2	6358.073	18.452	.000	.218
Error	45483.068	132	344.569			
Total	506789.750	138				
Corrected Total	90054.444	137				

Tests of Between-Subjects Effects

Dependent Variable: average control score

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	129.354	1.000
Intercept	900.514	1.000
ROLE	69.163	1.000
CONDIT	29.736	.999
ROLE * CONDIT	36.905	1.000
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .495 (Adjusted R Squared = .476)

Post Hoc Tests

condition

Multiple Comparisons

Dependent Variable: average control score

Bonferroni

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	-7.9090	3.8517	.126	-17.2489	1.4309
	inclusion	-17.6222*	3.9133	.000	-27.1116	-8.1329
ostracism	argue	7.9090	3.8517	.126	-1.4309	17.2489
	ostracism					
	inclusion	-9.7132*	3.8517	.039	-19.0531	-.3733
inclusion	argue	17.6222*	3.9133	.000	8.1329	27.1116
	ostracism	9.7132*	3.8517	.039	.3733	19.0531
	inclusion					

Based on observed means.

*. The mean difference is significant at the .05 level.

Simple Effects

condition = argue

Descriptives^a

average control score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	15	30.2000	21.9071	5.6564	18.0682	42.3318
source	30	54.5833	17.6426	3.2211	47.9955	61.1712
Total	45	46.4556	22.2030	3.3098	39.7850	53.1261

Descriptives^a

average control score

	Minimum	Maximum
Target	.00	85.00
source	15.00	85.00
Total	.00	85.00

a. condition = argue

ANOVA^a

average control score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5945.469	1	5945.469	16.237	.000
Within Groups	15745.442	43	366.173		
Total	21690.911	44			

a. condition = argue

condition = ostracism

Descriptives^a

average control score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	16	18.2188	26.0947	6.5237	4.3139	32.1236
source	32	72.4375	16.4340	2.9051	66.5124	78.3626
Total	48	54.3646	32.5978	4.7051	44.8992	63.8300

Descriptives^a

average control score

	Minimum	Maximum
Target	.00	100.00
source	36.00	100.00
Total	.00	100.00

a. condition = ostracism

ANOVA^a

average control score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	31356.510	1	31356.510	77.605	.000
Within Groups	18586.359	46	404.051		
Total	49942.870	47			

a. condition = ostracism

condition = inclusion

Descriptives^a

average control score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	15	60.7000	16.8828	4.3591	51.3506	70.0494
source	30	65.7667	15.7139	2.8690	59.8990	71.6343
Total	45	64.0778	16.1019	2.4003	59.2402	68.9153

Descriptives^a

average control score

	Minimum	Maximum
Target	25.00	85.00
source	36.00	98.50
Total	25.00	98.50

a. condition = inclusion

ANOVA^a

average control score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	256.711	1	256.711	.990	.325
Within Groups	11151.267	43	259.332		
Total	11407.978	44			

a. condition = inclusion

Ostracism role = Target

Descriptives^a

average control score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	15	30.2000	21.9071	5.6564	18.0682	42.3318
ostracism	16	18.2188	26.0947	6.5237	4.3139	32.1236
inclusion	15	60.7000	16.8828	4.3591	51.3506	70.0494
Total	46	35.9783	28.1417	4.1493	27.6212	44.3353

Descriptives^a

average control score

	Minimum	Maximum
argue	.00	85.00
ostracism	.00	100.00
inclusion	25.00	85.00
Total	.00	100.00

a. Ostracism role = Target

ANOVA^a

average control score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	14714.694	2	7357.347	15.120	.000
Within Groups	20923.284	43	486.588		
Total	35637.978	45			

a. Ostracism role = Target

Ostracism role = source

Descriptives^a

average control score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	30	54.5833	17.6426	3.2211	47.9955	61.1712
ostracism	32	72.4375	16.4340	2.9051	66.5124	78.3626
inclusion	30	65.7667	15.7139	2.8690	59.8990	71.6343
Total	92	64.4402	18.0274	1.8795	60.7068	68.1736

Descriptives^a

average control score

	Minimum	Maximum
argue	15.00	85.00
ostracism	36.00	100.00
inclusion	36.00	98.50
Total	15.00	100.00

a. Ostracism role = source

ANOVA^a

average control score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5014.138	2	2507.069	9.085	.000
Within Groups	24559.783	89	275.953		
Total	29573.921	91			

a. Ostracism role = source

Self-esteem

Between-Subjects Factors

		Value Label	N
Ostracism role	1	Target	46
	2	source	92
condition	1	argue	45
	2	ostracism	48
	3	inclusion	45

Descriptive Statistics

Dependent Variable: reverse scored 'I felt badly'

Ostracism role	condition	Mean	Std. Deviation	N
Target	argue	46.3333	34.2546	15
	ostracism	43.7500	31.1844	16
	inclusion	86.6667	13.1131	15
	Total	58.5870	33.6727	46
source	argue	63.1333	28.9503	30
	ostracism	53.0313	30.5756	32
	inclusion	82.2333	18.9622	30
	Total	65.8478	29.1351	92
Total	argue	57.5333	31.4625	45
	ostracism	49.9375	30.7657	48
	inclusion	83.7111	17.2094	45
	Total	63.4275	30.7908	138

Tests of Between-Subjects Effects

Dependent Variable: reverse scored 'I felt badly'

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	32750.307 ^b	5	6550.061	8.901	.000	.252
Intercept	479101.138	1	479101.138	651.063	.000	.831
ROLE	1595.344	1	1595.344	2.168	.143	.016
CONDIT	30168.991	2	15084.496	20.499	.000	.237
ROLE * CONDIT	2321.035	2	1160.517	1.577	.210	.023
Error	97135.469	132	735.875			
Total	685067.000	138				
Corrected Total	129885.775	137				

Tests of Between-Subjects Effects

Dependent Variable: reverse scored ' I felt badly'

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	44.505	1.000
Intercept	651.063	1.000
ROLE	2.168	.309
CONDIT	40.997	1.000
ROLE * CONDIT	3.154	.329
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .252 (Adjusted R Squared = .224)

Post Hoc Tests

condition

Multiple Comparisons

Dependent Variable: reverse scored ' I felt badly'

Bonferroni

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	7.5958	5.6288	.539	-6.0533	21.2450
	inclusion	-26.1778*	5.7189	.000	-40.0453	-12.3102
ostracism	argue	-7.5958	5.6288	.539	-21.2450	6.0533
	ostracism					
	inclusion	-33.7736*	5.6288	.000	-47.4228	-20.1245
inclusion	argue	26.1778*	5.7189	.000	12.3102	40.0453
	ostracism	33.7736*	5.6288	.000	20.1245	47.4228
	inclusion					

Based on observed means.

*. The mean difference is significant at the .05 level.

Simple Effects

condition = argue

Descriptives^a

reverse scored 'I felt badly'

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	15	46.3333	34.2546	8.8445	27.3637	65.3029
source	30	63.1333	28.9503	5.2856	52.3231	73.9436
Total	45	57.5333	31.4625	4.6902	48.0809	66.9857

Descriptives^a

reverse scored 'I felt badly'

	Minimum	Maximum
Target	.00	100.00
source	7.00	100.00
Total	.00	100.00

a. condition = argue

ANOVA^a

reverse scored 'I felt badly'

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2822.400	1	2822.400	2.979	.092
Within Groups	40732.800	43	947.274		
Total	43555.200	44			

a. condition = argue

condition = ostracism

Descriptives^a

reverse scored 'I felt badly'

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	16	43.7500	31.1844	7.7961	27.1330	60.3670
source	32	53.0313	30.5756	5.4051	42.0076	64.0549
Total	48	49.9375	30.7657	4.4406	41.0041	58.8709

Descriptives^a

reverse scored ' I felt badly'

	Minimum	Maximum
Target	5.00	100.00
source	.00	100.00
Total	.00	100.00

a. condition = ostracism

ANOVA^a

reverse scored ' I felt badly'

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	918.844	1	918.844	.970	.330
Within Groups	43567.969	46	947.130		
Total	44486.812	47			

a. condition = ostracism

condition = inclusion**Descriptives^a**

reverse scored ' I felt badly'

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	15	86.6667	13.1131	3.3858	79.4049	93.9284
source	30	82.2333	18.9622	3.4620	75.1527	89.3139
Total	45	83.7111	17.2094	2.5654	78.5408	88.8814

Descriptives^a

reverse scored ' I felt badly'

	Minimum	Maximum
Target	57.00	100.00
source	42.00	100.00
Total	42.00	100.00

a. condition = inclusion

ANOVA^a

reverse scored 'I felt badly'

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	196.544	1	196.544	.658	.422
Within Groups	12834.700	43	298.481		
Total	13031.244	44			

a. condition = inclusion

Ostracism role = Target

Descriptives^a

reverse scored 'I felt badly'

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	15	46.3333	34.2546	8.8445	27.3637	65.3029
ostracism	16	43.7500	31.1844	7.7961	27.1330	60.3670
inclusion	15	86.6667	13.1131	3.3858	79.4049	93.9284
Total	46	58.5870	33.6727	4.9648	48.5874	68.5865

Descriptives^a

reverse scored 'I felt badly'

	Minimum	Maximum
argue	.00	100.00
ostracism	5.00	100.00
inclusion	57.00	100.00
Total	.00	100.00

a. Ostracism role = Target

ANOVA^a

reverse scored 'I felt badly'

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	17601.486	2	8800.743	11.323	.000
Within Groups	33421.667	43	777.248		
Total	51023.152	45			

a. Ostracism role = Target

Ostracism role = source

Descriptives^a

reverse scored 'I felt badly'

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	30	63.1333	28.9503	5.2856	52.3231	73.9436
ostracism	32	53.0313	30.5756	5.4051	42.0076	64.0549
inclusion	30	82.2333	18.9622	3.4620	75.1527	89.3139
Total	92	65.8478	29.1351	3.0375	59.8141	71.8815

Descriptives^a

reverse scored 'I felt badly'

	Minimum	Maximum
argue	7.00	100.00
ostracism	.00	100.00
inclusion	42.00	100.00
Total	.00	100.00

a. Ostracism role = source

ANOVA^a

reverse scored 'I felt badly'

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13532.067	2	6766.034	9.451	.000
Within Groups	63713.802	89	715.885		
Total	77245.870	91			

a. Ostracism role = source

Univariate Analysis of Variance

Between-Subjects Factors

	Value Label	N
Ostracism role	1 Target	46
	2 source	92
condition	1 argue	45
	2 ostracism	48
	3 inclusion	45

Descriptive Statistics

Dependent Variable: I felt superior to at least one other person in my train row

Ostracism role	condition	Mean	Std. Deviation	N
Target	argue	33.80	33.20	15
	ostracism	13.56	19.48	16
	inclusion	19.13	24.66	15
	Total	21.98	27.07	46
source	argue	41.23	26.80	30
	ostracism	66.06	27.44	32
	inclusion	32.47	29.62	30
	Total	47.01	31.20	92
Total	argue	38.76	28.93	45
	ostracism	48.56	35.26	48
	inclusion	28.02	28.49	45
	Total	38.67	32.06	138

Tests of Between-Subjects Effects

Dependent Variable: I felt superior to at least one other person in my train row

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	41529.888 ^b	5	8305.978	11.047	.000	.295
Intercept	144825.532	1	144825.532	192.617	.000	.593
ROLE	18274.058	1	18274.058	24.304	.000	.155
CONDIT	4595.774	2	2297.887	3.056	.050	.044
ROLE * CONDIT	12513.623	2	6256.811	8.322	.000	.112
Error	99248.779	132	751.885			
Total	347104.000	138				
Corrected Total	140778.667	137				

Tests of Between-Subjects Effects

Dependent Variable: I felt superior to at least one other person in my train row

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	55.234	1.000
Intercept	192.617	1.000
ROLE	24.304	.998
CONDIT	6.112	.582
ROLE * CONDIT	16.643	.960
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .295 (Adjusted R Squared = .268)

Post Hoc Tests

condition

Multiple Comparisons

Dependent Variable: I felt superior to at least one other person in my train row
Bonferroni

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	-9.81	5.69	.261	-23.60	3.99
	inclusion	10.73	5.78	.197	-3.28	24.75
ostracism	argue	9.81	5.69	.261	-3.99	23.60
	ostracism					
	inclusion	20.54*	5.69	.001	6.74	34.34
inclusion	argue	-10.73	5.78	.197	-24.75	3.28
	ostracism	-20.54*	5.69	.001	-34.34	-6.74
	inclusion					

Based on observed means.

*. The mean difference is significant at the .05 level.

Simple Effects

Ostracism role = Target

Descriptives^a

I felt superior to at least one other person in my train row

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	15	33.80	33.20	8.57	15.41	52.19
ostracism	16	13.56	19.48	4.87	3.18	23.94
inclusion	15	19.13	24.66	6.37	5.48	32.79
Total	46	21.98	27.07	3.99	13.94	30.02

Descriptives^a

I felt superior to at least one other person in my train row

	Minimum	Maximum
argue	0	98
ostracism	0	70
inclusion	0	70
Total	0	98

a. Ostracism role = Target

ANOVA^a

I felt superior to at least one other person in my train row

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3350.907	2	1675.454	2.431	.100
Within Groups	29636.071	43	689.211		
Total	32986.978	45			

a. Ostracism role = Target

Ostracism role = source

Descriptives^a

I felt superior to at least one other person in my train row

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	30	41.23	26.80	4.89	31.23	51.24
ostracism	32	66.06	27.44	4.85	56.17	75.96
inclusion	30	32.47	29.62	5.41	21.41	43.53
Total	92	47.01	31.20	3.25	40.55	53.47

Descriptives^a

I felt superior to at least one other person in my train row

	Minimum	Maximum
argue	0	90
ostracism	5	100
inclusion	0	88
Total	0	100

a. Ostracism role = source

ANOVA^a

I felt superior to at least one other person in my train row

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	18962.281	2	9481.140	12.122	.000
Within Groups	69612.708	89	782.165		
Total	88574.989	91			

a. Ostracism role = source

condition = argue

Descriptives^a

I felt superior to at least one other person in my train row

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	15	33.80	33.20	8.57	15.41	52.19
source	30	41.23	26.80	4.89	31.23	51.24
Total	45	38.76	28.93	4.31	30.07	47.45

Descriptives^a

I felt superior to at least one other person in my train row

	Minimum	Maximum
Target	0	98
source	0	90
Total	0	98

a. condition = argue

ANOVA^a

I felt superior to at least one other person in my train row

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	552.544	1	552.544	.655	.423
Within Groups	36261.767	43	843.297		
Total	36814.311	44			

a. condition = argue

condition = ostracism

Descriptives^a

I felt superior to at least one other person in my train row

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	16	13.56	19.48	4.87	3.18	23.94
source	32	66.06	27.44	4.85	56.17	75.96
Total	48	48.56	35.26	5.09	38.32	58.80

Descriptives^a

I felt superior to at least one other person in my train row

	Minimum	Maximum
Target	0	70
source	5	100
Total	0	100

a. condition = ostracism

ANOVA^a

I felt superior to at least one other person in my train row

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	29400.000	1	29400.000	46.571	.000
Within Groups	29039.813	46	631.300		
Total	58439.813	47			

a. condition = ostracism

condition = inclusion**Descriptives^a**

I felt superior to at least one other person in my train row

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	15	19.13	24.66	6.37	5.48	32.79
source	30	32.47	29.62	5.41	21.41	43.53
Total	45	28.02	28.49	4.25	19.46	36.58

Descriptives^a

I felt superior to at least one other person in my train row

	Minimum	Maximum
Target	0	70
source	0	88
Total	0	88

a. condition = inclusion

ANOVA^a

I felt superior to at least one other person in my train row

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1777.778	1	1777.778	2.252	.141
Within Groups	33947.200	43	789.470		
Total	35724.978	44			

a. condition = inclusion

Meaningful Existence

Between-Subjects Factors

		Value Label	N
Ostracism role	1	Target	46
	2	source	92
condition	1	argue	45
	2	ostracism	48
	3	inclusion	45

Descriptive Statistics

Dependent Variable: average meaningful existence score

Ostracism role	condition	Mean	Std. Deviation	N
Target	argue	73.5556	20.7898	15
	ostracism	22.9375	14.2497	16
	inclusion	80.9778	23.8322	15
	Total	58.3696	32.7487	46
source	argue	81.3111	14.0478	30
	ostracism	88.1667	9.8064	32
	inclusion	85.7556	15.6729	30
	Total	85.1449	13.4947	92
Total	argue	78.7259	16.7708	45
	ostracism	66.4236	33.0737	48
	inclusion	84.1630	18.6496	45
	Total	76.2198	25.1737	138

Tests of Between-Subjects Effects

Dependent Variable: average meaningful existence score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	53942.951 ^b	5	10788.590	43.317	.000	.621
Intercept	637388.582	1	637388.582	2559.167	.000	.951
ROLE	20585.554	1	20585.554	82.653	.000	.385
CONDIT	17884.443	2	8942.221	35.904	.000	.352
ROLE * CONDIT	24229.215	2	12114.608	48.641	.000	.424
Error	32876.049	132	249.061			
Total	888524.333	138				
Corrected Total	86818.999	137				

Tests of Between-Subjects Effects

Dependent Variable: average meaningful existence score

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	216.585	1.000
Intercept	2559.167	1.000
ROLE	82.653	1.000
CONDIT	71.807	1.000
ROLE * CONDIT	97.282	1.000
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .621 (Adjusted R Squared = .607)

Post Hoc Tests

condition

Multiple Comparisons

Dependent Variable: average meaningful existence score

Bonferroni

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	12.3023*	3.2747	.001	4.3617	20.2430
	inclusion	-5.4370	3.3271	.314	-13.5048	2.6307
ostracism	argue	-12.3023*	3.2747	.001	-20.2430	-4.3617
	ostracism					
	inclusion	-17.7394*	3.2747	.000	-25.6800	-9.7987
inclusion	argue	5.4370	3.3271	.314	-2.6307	13.5048
	ostracism	17.7394*	3.2747	.000	9.7987	25.6800
	inclusion					

Based on observed means.

*. The mean difference is significant at the .05 level.

Simple Effects

Ostracism role = Target

Descriptives^a

average meaningful existence score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	15	73.5556	20.7898	5.3679	62.0425	85.0686
ostracism	16	22.9375	14.2497	3.5624	15.3443	30.5307
inclusion	15	80.9778	23.8322	6.1535	67.7799	94.1756
Total	46	58.3696	32.7487	4.8285	48.6444	68.0947

Descriptives^a

average meaningful existence score

	Minimum	Maximum
argue	29.67	100.00
ostracism	.00	50.00
inclusion	20.00	100.00
Total	.00	100.00

a. Ostracism role = Target

ANOVA^a

average meaningful existence score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	31213.084	2	15606.542	39.363	.000
Within Groups	17048.523	43	396.477		
Total	48261.606	45			

a. Ostracism role = Target

Ostracism role = source

Descriptives^a

average meaningful existence score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	30	81.3111	14.0478	2.5648	76.0656	86.5566
ostracism	32	88.1667	9.8064	1.7335	84.6311	91.7022
inclusion	30	85.7556	15.6729	2.8615	79.9032	91.6079
Total	92	85.1449	13.4947	1.4069	82.3502	87.9396

Descriptives^a

average meaningful existence score

	Minimum	Maximum
argue	46.67	100.00
ostracism	62.67	100.00
inclusion	42.00	100.00
Total	42.00	100.00

a. Ostracism role = source

ANOVA^a

average meaningful existence score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	744.319	2	372.160	2.093	.129
Within Groups	15827.526	89	177.837		
Total	16571.845	91			

a. Ostracism role = source

condition = argue**Descriptives^a**

average meaningful existence score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	15	73.5556	20.7898	5.3679	62.0425	85.0686
source	30	81.3111	14.0478	2.5648	76.0656	86.5566
Total	45	78.7259	16.7708	2.5000	73.6874	83.7644

Descriptives^a

average meaningful existence score

	Minimum	Maximum
Target	29.67	100.00
source	46.67	100.00
Total	29.67	100.00

a. condition = argue

ANOVA^a

average meaningful existence score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	601.486	1	601.486	2.197	.146
Within Groups	11773.911	43	273.812		
Total	12375.398	44			

a. condition = argue

condition = ostracism

Descriptives^a

average meaningful existence score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	16	22.9375	14.2497	3.5624	15.3443	30.5307
source	32	88.1667	9.8064	1.7335	84.6311	91.7022
Total	48	66.4236	33.0737	4.7738	56.8200	76.0272

Descriptives^a

average meaningful existence score

	Minimum	Maximum
Target	.00	50.00
source	62.67	100.00
Total	.00	100.00

a. condition = ostracism

ANOVA^a

average meaningful existence score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	45385.005	1	45385.005	346.397	.000
Within Groups	6026.938	46	131.020		
Total	51411.942	47			

a. condition = ostracism

condition = inclusion

Descriptives^a

average meaningful existence score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	15	80.9778	23.8322	6.1535	67.7799	94.1756
source	30	85.7556	15.6729	2.8615	79.9032	91.6079
Total	45	84.1630	18.6496	2.7801	78.5600	89.7659

Descriptives^a

average meaningful existence score

	Minimum	Maximum
Target	20.00	100.00
source	42.00	100.00
Total	20.00	100.00

a. condition = inclusion

ANOVA^a

average meaningful existence score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	228.272	1	228.272	.651	.424
Within Groups	15075.200	43	350.586		
Total	15303.472	44			

a. condition = inclusion

Anxiety

Between-Subjects Factors

		Value Label	N
Ostracism role	1	Target	42
	2	source	81
condition	1	argue	39
	2	ostracism	44
	3	inclusion	40

Descriptive Statistics

Dependent Variable: State anxiety minus trait anxiety

Ostracism role	condition	Mean	Std. Deviation	N
Target	argue	6.15	10.70	13
	ostracism	8.21	11.81	14
	inclusion	-6.93	8.89	15
	Total	2.17	12.35	42
source	argue	-1.69	10.46	26
	ostracism	-4.23	10.61	30
	inclusion	-7.00	11.35	25
	Total	-4.27	10.87	81
Total	argue	.92	11.05	39
	ostracism	-.27	12.35	44
	inclusion	-6.98	10.38	40
	Total	-2.07	11.75	123

Tests of Between-Subjects Effects

Dependent Variable: State anxiety minus trait anxiety

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	3466.454 ^b	5	693.291	6.060	.000	.206
Intercept	92.253	1	92.253	.806	.371	.007
ROLE	1268.454	1	1268.454	11.087	.001	.087
CONDIT	2038.292	2	1019.146	8.908	.000	.132
ROLE * CONDIT	738.984	2	369.492	3.230	.043	.052
Error	13385.888	117	114.409			
Total	17381.000	123				
Corrected Total	16852.341	122				

Tests of Between-Subjects Effects

Dependent Variable: State anxiety minus trait anxiety

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	30.299	.994
Intercept	.806	.145
ROLE	11.087	.910
CONDIT	17.816	.970
ROLE * CONDIT	6.459	.606
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .206 (Adjusted R Squared = .172)

Post Hoc Tests

condition

Multiple Comparisons

Dependent Variable: State anxiety minus trait anxiety

Bonferroni

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	1.20	2.35	1.000	-4.52	6.91
	inclusion	7.90*	2.41	.004	2.05	13.74
ostracism	argue	-1.20	2.35	1.000	-6.91	4.52
	ostracism					
	inclusion	6.70*	2.34	.015	1.03	12.38
inclusion	argue	-7.90*	2.41	.004	-13.74	-2.05
	ostracism	-6.70*	2.34	.015	-12.38	-1.03
	inclusion					

Based on observed means.

*. The mean difference is significant at the .05 level.

Simple Effects

Ostracism role = Target

Descriptives^a

State anxiety minus trait anxiety

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	13	6.15	10.70	2.97	-.31	12.62
ostracism	14	8.21	11.81	3.16	1.40	15.03
inclusion	15	-6.93	8.89	2.30	-11.86	-2.01
Total	42	2.17	12.35	1.91	-1.68	6.02

Descriptives^a

State anxiety minus trait anxiety

	Minimum	Maximum
argue	-4	29
ostracism	-15	30
inclusion	-22	10
Total	-22	30

a. Ostracism role = Target

ANOVA^a

State anxiety minus trait anxiety

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1960.851	2	980.425	8.907	.001
Within Groups	4292.983	39	110.076		
Total	6253.833	41			

a. Ostracism role = Target

Ostracism role = source

Descriptives^a

State anxiety minus trait anxiety

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	26	-1.69	10.46	2.05	-5.92	2.53
ostracism	30	-4.23	10.61	1.94	-8.19	-.27
inclusion	25	-7.00	11.35	2.27	-11.69	-2.31
Total	81	-4.27	10.87	1.21	-6.68	-1.87

Descriptives^a

State anxiety minus trait anxiety

	Minimum	Maximum
argue	-25	18
ostracism	-23	30
inclusion	-39	28
Total	-39	30

a. Ostracism role = source

ANOVA^a

State anxiety minus trait anxiety

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	359.120	2	179.560	1.540	.221
Within Groups	9092.905	78	116.576		
Total	9452.025	80			

a. Ostracism role = source

condition = argue**Descriptives^a**

State anxiety minus trait anxiety

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	13	6.15	10.70	2.97	-.31	12.62
source	26	-1.69	10.46	2.05	-5.92	2.53
Total	39	.92	11.05	1.77	-2.66	4.51

Descriptives^a

State anxiety minus trait anxiety

	Minimum	Maximum
Target	-4	29
source	-25	18
Total	-25	29

a. condition = argue

ANOVA^a

State anxiety minus trait anxiety

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	533.538	1	533.538	4.804	.035
Within Groups	4109.231	37	111.060		
Total	4642.769	38			

a. condition = argue

condition = ostracism

Descriptives^a

State anxiety minus trait anxiety

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	14	8.21	11.81	3.16	1.40	15.03
source	30	-4.23	10.61	1.94	-8.19	-.27
Total	44	-.27	12.35	1.86	-4.03	3.48

Descriptives^a

State anxiety minus trait anxiety

	Minimum	Maximum
Target	-15	30
source	-23	30
Total	-23	30

a. condition = ostracism

ANOVA^a

State anxiety minus trait anxiety

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1479.003	1	1479.003	12.238	.001
Within Groups	5075.724	42	120.851		
Total	6554.727	43			

a. condition = ostracism

condition = inclusion

Descriptives^a

State anxiety minus trait anxiety

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Target	15	-6.93	8.89	2.30	-11.86	-2.01
source	25	-7.00	11.35	2.27	-11.69	-2.31
Total	40	-6.98	10.38	1.64	-10.29	-3.66

Descriptives^a

State anxiety minus trait anxiety

	Minimum	Maximum
Target	-22	10
source	-39	28
Total	-39	28

a. condition = inclusion

ANOVA^a

State anxiety minus trait anxiety

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.167E-02	1	4.167E-02	.000	.985
Within Groups	4200.933	38	110.551		
Total	4200.975	39			

a. condition = inclusion

Ostracism role = Target

Descriptives^a

State anxiety minus trait anxiety

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	13	6.15	10.70	2.97	-.31	12.62
ostracism	14	8.21	11.81	3.16	1.40	15.03
inclusion	15	-6.93	8.89	2.30	-11.86	-2.01
Total	42	2.17	12.35	1.91	-1.68	6.02

Descriptives^a

State anxiety minus trait anxiety

	Minimum	Maximum
argue	-4	29
ostracism	-15	30
inclusion	-22	10
Total	-22	30

a. Ostracism role = Target

ANOVA^a

State anxiety minus trait anxiety

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1960.851	2	980.425	8.907	.001
Within Groups	4292.983	39	110.076		
Total	6253.833	41			

a. Ostracism role = Target

Ostracism role = source

Descriptives^a

State anxiety minus trait anxiety

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
argue	26	-1.69	10.46	2.05	-5.92	2.53
ostracism	30	-4.23	10.61	1.94	-8.19	-.27
inclusion	25	-7.00	11.35	2.27	-11.69	-2.31
Total	81	-4.27	10.87	1.21	-6.68	-1.87

Descriptives^a

State anxiety minus trait anxiety

	Minimum	Maximum
argue	-25	18
ostracism	-23	30
inclusion	-39	28
Total	-39	30

a. Ostracism role = source

ANOVA^a

State anxiety minus trait anxiety

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	359.120	2	179.560	1.540	.221
Within Groups	9092.905	78	116.576		
Total	9452.025	80			

a. Ostracism role = source

Tukey Tests

Ostracism role = Target

Between-Subjects Factors^a

		Value Label	N
condition	1	argue	15
	2	ostracism	16
	3	inclusion	15

a. Ostracism role = Target

Descriptive Statistics^a

Dependent Variable: average belonging score

condition	Mean	Std. Deviation	N
argue	25.2000	26.1826	15
ostracism	6.1875	8.0806	16
inclusion	54.0000	16.6990	15
Total	27.9783	26.8125	46

a. Ostracism role = Target

Tests of Between-Subjects Effects^c

Dependent Variable: average belonging score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	17870.141 ^b	2	8935.070	26.532	.000	.552
Intercept	37230.767	1	37230.767	110.555	.000	.720
CONDIT	17870.141	2	8935.070	26.532	.000	.552
Error	14480.837	43	336.764			
Total	68359.000	46				
Corrected Total	32350.978	45				

Tests of Between-Subjects Effects^c

Dependent Variable: average belonging score

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	53.064	1.000
Intercept	110.555	1.000
CONDIT	53.064	1.000
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .552 (Adjusted R Squared = .532)

c. Ostracism role = Target

Post Hoc Tests

condition

Multiple Comparisons^a

Dependent Variable: average belonging score

Tukey HSD

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	19.0125*	6.5953	.017	3.0027	35.0223
	inclusion	-28.8000*	6.7009	.000	-45.0660	-12.5340
ostracism	argue	-19.0125*	6.5953	.017	-35.0223	-3.0027
	ostracism					
	inclusion	-47.8125*	6.5953	.000	-63.8223	-31.8027
inclusion	argue	28.8000*	6.7009	.000	12.5340	45.0660
	ostracism	47.8125*	6.5953	.000	31.8027	63.8223
	inclusion					

Based on observed means.

*. The mean difference is significant at the .05 level.

a. Ostracism role = Target

Ostracism role = source

Between-Subjects Factors^a

		Value Label	N
condition	1	argue	30
	2	ostracism	32
	3	inclusion	30

a. Ostracism role = source

Descriptive Statistics^a

Dependent Variable: average belonging score

condition	Mean	Std. Deviation	N
argue	60.9833	16.9367	30
ostracism	80.2187	11.5346	32
inclusion	64.3667	16.6283	30
Total	68.7772	17.2431	92

a. Ostracism role = source

Tests of Between-Subjects Effects^c

Dependent Variable: average belonging score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	6595.005 ^b	2	3297.502	14.343	.000	.244
Intercept	431576.282	1	431576.282	1877.182	.000	.955
CONDIT	6595.005	2	3297.502	14.343	.000	.244
Error	20461.677	89	229.906			
Total	462244.250	92				
Corrected Total	27056.682	91				

Tests of Between-Subjects Effects^c

Dependent Variable: average belonging score

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	28.686	.998
Intercept	1877.182	1.000
CONDIT	28.686	.998
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .244 (Adjusted R Squared = .227)

c. Ostracism role = source

Post Hoc Tests

condition

Multiple Comparisons^a

Dependent Variable: average belonging score

Tukey HSD

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	-19.2354*	3.8533	.000	-28.4201	-10.0508
	inclusion	-3.3833	3.9150	.664	-12.7149	5.9483
ostracism	argue	19.2354*	3.8533	.000	10.0508	28.4201
	ostracism					
	inclusion	15.8521*	3.8533	.000	6.6674	25.0367
inclusion	argue	3.3833	3.9150	.664	-5.9483	12.7149
	ostracism	-15.8521*	3.8533	.000	-25.0367	-6.6674
	inclusion					

Based on observed means.

*. The mean difference is significant at the .05 level.

a. Ostracism role = source

Univariate Analysis of Variance

Ostracism role = Target

Between-Subjects Factors^a

		Value Label	N
condition	1	argue	15
	2	ostracism	16
	3	inclusion	15

a. Ostracism role = Target

Descriptive Statistics^a

Dependent Variable: average control score

condition	Mean	Std. Deviation	N
argue	30.2000	21.9071	15
ostracism	18.2188	26.0947	16
inclusion	60.7000	16.8828	15
Total	35.9783	28.1417	46

a. Ostracism role = Target

Tests of Between-Subjects Effects^c

Dependent Variable: average control score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	14714.694 ^b	2	7357.347	15.120	.000	.413
Intercept	60801.200	1	60801.200	124.954	.000	.744
CONDIT	14714.694	2	7357.347	15.120	.000	.413
Error	20923.284	43	486.588			
Total	95182.000	46				
Corrected Total	35637.978	45				

Tests of Between-Subjects Effects^c

Dependent Variable: average control score

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	30.241	.999
Intercept	124.954	1.000
CONDIT	30.241	.999
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .413 (Adjusted R Squared = .386)

c. Ostracism role = Target

Post Hoc Tests

condition

Multiple Comparisons^a

Dependent Variable: average control score

Tukey HSD

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	11.9813	7.9279	.296	-7.2632	31.2257
	inclusion	-30.5000*	8.0547	.001	-50.0523	-10.9477
ostracism	argue	-11.9813	7.9279	.296	-31.2257	7.2632
	ostracism					
	inclusion	-42.4812*	7.9279	.000	-61.7257	-23.2368
inclusion	argue	30.5000*	8.0547	.001	10.9477	50.0523
	ostracism	42.4812*	7.9279	.000	23.2368	61.7257
	inclusion					

Based on observed means.

*. The mean difference is significant at the .05 level.

a. Ostracism role = Target

Ostracism role = source

Between-Subjects Factors^a

		Value Label	N
condition	1	argue	30
	2	ostracism	32
	3	inclusion	30

a. Ostracism role = source

Descriptive Statistics^a

Dependent Variable: average control score

condition	Mean	Std. Deviation	N
argue	54.5833	17.6426	30
ostracism	72.4375	16.4340	32
inclusion	65.7667	15.7139	30
Total	64.4402	18.0274	92

a. Ostracism role = source

Tests of Between-Subjects Effects^c

Dependent Variable: average control score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	5014.138 ^b	2	2507.069	9.085	.000	.170
Intercept	379578.078	1	379578.078	1375.519	.000	.939
CONDIT	5014.138	2	2507.069	9.085	.000	.170
Error	24559.783	89	275.953			
Total	411607.750	92				
Corrected Total	29573.921	91				

Tests of Between-Subjects Effects^c

Dependent Variable: average control score

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	18.170	.971
Intercept	1375.519	1.000
CONDIT	18.170	.971
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .170 (Adjusted R Squared = .151)

c. Ostracism role = source

Post Hoc Tests

condition

Multiple Comparisons^a

Dependent Variable: average control score

Tukey HSD

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	-17.8542*	4.2216	.000	-27.9166	-7.7917
	inclusion	-11.1833*	4.2892	.029	-21.4068	-.9599
ostracism	argue	17.8542*	4.2216	.000	7.7917	27.9166
	ostracism					
	inclusion	6.6708	4.2216	.260	-3.3916	16.7333
inclusion	argue	11.1833*	4.2892	.029	.9599	21.4068
	ostracism	-6.6708	4.2216	.260	-16.7333	3.3916
	inclusion					

Based on observed means.

*. The mean difference is significant at the .05 level.

a. Ostracism role = source

Univariate Analysis of Variance

Ostracism role = Target

Between-Subjects Factors^a

		Value Label	N
condition	1	argue	15
	2	ostracism	16
	3	inclusion	15

a. Ostracism role = Target

Descriptive Statistics^a

Dependent Variable: average meaningful existence score

condition	Mean	Std. Deviation	N
argue	73.5556	20.7898	15
ostracism	22.9375	14.2497	16
inclusion	80.9778	23.8322	15
Total	58.3696	32.7487	46

a. Ostracism role = Target

Tests of Between-Subjects Effects^c

Dependent Variable: average meaningful existence score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	31213.084 ^b	2	15606.542	39.363	.000	.647
Intercept	160830.111	1	160830.111	405.648	.000	.904
CONDIT	31213.084	2	15606.542	39.363	.000	.647
Error	17048.523	43	396.477			
Total	204983.889	46				
Corrected Total	48261.606	45				

Tests of Between-Subjects Effects^c

Dependent Variable: average meaningful existence score

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	78.726	1.000
Intercept	405.648	1.000
CONDIT	78.726	1.000
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .647 (Adjusted R Squared = .630)

c. Ostracism role = Target

Post Hoc Tests

condition

Multiple Comparisons^a

Dependent Variable: average meaningful existence score

Tukey HSD

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	50.6181*	7.1562	.000	33.2467	67.9894
	inclusion	-7.4222	7.2707	.568	-25.0715	10.2271
ostracism	argue	-50.6181*	7.1562	.000	-67.9894	-33.2467
	ostracism					
	inclusion	-58.0403*	7.1562	.000	-75.4116	-40.6689
inclusion	argue	7.4222	7.2707	.568	-10.2271	25.0715
	ostracism	58.0403*	7.1562	.000	40.6689	75.4116
	inclusion					

Based on observed means.

*. The mean difference is significant at the .05 level.

a. Ostracism role = Target

Ostracism role = source

Between-Subjects Factors^a

		Value Label	N
condition	1	argue	30
	2	ostracism	32
	3	inclusion	30

a. Ostracism role = source

Descriptive Statistics^a

Dependent Variable: average meaningful existence score

condition	Mean	Std. Deviation	N
argue	81.3111	14.0478	30
ostracism	88.1667	9.8064	32
inclusion	85.7556	15.6729	30
Total	85.1449	13.4947	92

a. Ostracism role = source

Tests of Between-Subjects Effects^c

Dependent Variable: average meaningful existence score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	744.319 ^b	2	372.160	2.093	.129	.045
Intercept	665300.982	1	665300.982	3741.064	.000	.977
CONDIT	744.319	2	372.160	2.093	.129	.045
Error	15827.526	89	177.837			
Total	683540.444	92				
Corrected Total	16571.845	91				

Tests of Between-Subjects Effects^c

Dependent Variable: average meaningful existence score

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	4.185	.420
Intercept	3741.064	1.000
CONDIT	4.185	.420
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .045 (Adjusted R Squared = .023)

c. Ostracism role = source

Post Hoc Tests

condition

Multiple Comparisons^a

Dependent Variable: average meaningful existence score

Tukey HSD

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	-6.8556	3.3890	.113	-14.9335	1.2223
	inclusion	-4.4444	3.4432	.404	-12.6516	3.7627
ostracism	argue	6.8556	3.3890	.113	-1.2223	14.9335
	ostracism					
	inclusion	2.4111	3.3890	.757	-5.6668	10.4890
inclusion	argue	4.4444	3.4432	.404	-3.7627	12.6516
	ostracism	-2.4111	3.3890	.757	-10.4890	5.6668
	inclusion					

Based on observed means.

a. Ostracism role = source

Univariate Analysis of Variance

Ostracism role = Target

Between-Subjects Factors^a

		Value Label	N
condition	1	argue	15
	2	ostracism	16
	3	inclusion	15

a. Ostracism role = Target

Descriptive Statistics^a

Dependent Variable: I felt superior to at least one other person in my train row

condition	Mean	Std. Deviation	N
argue	33.80	33.20	15
ostracism	13.56	19.48	16
inclusion	19.13	24.66	15
Total	21.98	27.07	46

a. Ostracism role = Target

Tests of Between-Subjects Effects^c

Dependent Variable: I felt superior to at least one other person in my train row

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	3350.907 ^b	2	1675.454	2.431	.100	.102
Intercept	22578.872	1	22578.872	32.760	.000	.432
CONDIT	3350.907	2	1675.454	2.431	.100	.102
Error	29636.071	43	689.211			
Total	55207.000	46				
Corrected Total	32986.978	45				

Tests of Between-Subjects Effects^c

Dependent Variable: I felt superior to at least one other person in my train row

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	4.862	.463
Intercept	32.760	1.000
CONDIT	4.862	.463
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .102 (Adjusted R Squared = .060)

c. Ostracism role = Target

Post Hoc Tests

condition

Multiple Comparisons^a

Dependent Variable: I felt superior to at least one other person in my train row

Tukey HSD

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	20.24	9.44	.093	-2.67	43.14
	inclusion	14.67	9.59	.287	-8.60	37.94
ostracism	argue	-20.24	9.44	.093	-43.14	2.67
	ostracism					
	inclusion	-5.57	9.44	.826	-28.47	17.33
inclusion	argue	-14.67	9.59	.287	-37.94	8.60
	ostracism	5.57	9.44	.826	-17.33	28.47
	inclusion					

Based on observed means.

a. Ostracism role = Target

Ostracism role = source

Between-Subjects Factors^a

		Value Label	N
condition	1	argue	30
	2	ostracism	32
	3	inclusion	30

a. Ostracism role = source

Descriptive Statistics^a

Dependent Variable: I felt superior to at least one other person in my train row

condition	Mean	Std. Deviation	N
argue	41.23	26.80	30
ostracism	66.06	27.44	32
inclusion	32.47	29.62	30
Total	47.01	31.20	92

a. Ostracism role = source

Tests of Between-Subjects Effects^c

Dependent Variable: I felt superior to at least one other person in my train row

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	18962.281 ^b	2	9481.140	12.122	.000	.214
Intercept	199491.640	1	199491.640	255.050	.000	.741
CONDIT	18962.281	2	9481.140	12.122	.000	.214
Error	69612.708	89	782.165			
Total	291897.000	92				
Corrected Total	88574.989	91				

Tests of Between-Subjects Effects^c

Dependent Variable: I felt superior to at least one other person in my train row

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	24.243	.994
Intercept	255.050	1.000
CONDIT	24.243	.994
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .214 (Adjusted R Squared = .196)

c. Ostracism role = source

Post Hoc Tests

condition

Multiple Comparisons^a

Dependent Variable: I felt superior to at least one other person in my train row
Tukey HSD

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	-24.83*	7.11	.002	-41.77	-7.89
	inclusion	8.77	7.22	.448	-8.45	25.98
ostracism	argue	24.83*	7.11	.002	7.89	41.77
	ostracism					
	inclusion	33.60*	7.11	.000	16.65	50.54
inclusion	argue	-8.77	7.22	.448	-25.98	8.45
	ostracism	-33.60*	7.11	.000	-50.54	-16.65
	inclusion					

Based on observed means.

*. The mean difference is significant at the .05 level.

a. Ostracism role = source

Univariate Analysis of Variance

Ostracism role = Target

Between-Subjects Factors^a

		Value Label	N
condition	1	argue	15
	2	ostracism	16
	3	inclusion	15

a. Ostracism role = Target

Descriptive Statistics^a

Dependent Variable: reverse scored 'I felt badly'

condition	Mean	Std. Deviation	N
argue	46.3333	34.2546	15
ostracism	43.7500	31.1844	16
inclusion	86.6667	13.1131	15
Total	58.5870	33.6727	46

a. Ostracism role = Target

Tests of Between-Subjects Effects^c

Dependent Variable: reverse scored ' I felt badly'

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	17601.486 ^b	2	8800.743	11.323	.000	.345
Intercept	159526.277	1	159526.277	205.245	.000	.827
CONDIT	17601.486	2	8800.743	11.323	.000	.345
Error	33421.667	43	777.248			
Total	208915.000	46				
Corrected Total	51023.152	45				

Tests of Between-Subjects Effects^c

Dependent Variable: reverse scored ' I felt badly'

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	22.646	.989
Intercept	205.245	1.000
CONDIT	22.646	.989
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .345 (Adjusted R Squared = .315)

c. Ostracism role = Target

Post Hoc Tests

condition

Multiple Comparisons^a

Dependent Variable: reverse scored 'I felt badly'

Tukey HSD

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	2.5833	10.0197	.964	-21.7389	26.9056
	inclusion	-40.3333*	10.1800	.001	-65.0448	-15.6219
ostracism	argue	-2.5833	10.0197	.964	-26.9056	21.7389
	ostracism					
	inclusion	-42.9167*	10.0197	.000	-67.2389	-18.5944
inclusion	argue	40.3333*	10.1800	.001	15.6219	65.0448
	ostracism	42.9167*	10.0197	.000	18.5944	67.2389
	inclusion					

Based on observed means.

*. The mean difference is significant at the .05 level.

a. Ostracism role = Target

Ostracism role = source

Between-Subjects Factors^a

		Value Label	N
condition	1	argue	30
	2	ostracism	32
	3	inclusion	30

a. Ostracism role = source

Descriptive Statistics^a

Dependent Variable: reverse scored 'I felt badly'

condition	Mean	Std. Deviation	N
argue	63.1333	28.9503	30
ostracism	53.0313	30.5756	32
inclusion	82.2333	18.9622	30
Total	65.8478	29.1351	92

a. Ostracism role = source

Tests of Between-Subjects Effects^c

Dependent Variable: reverse scored 'I felt badly'

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	13532.067 ^b	2	6766.034	9.451	.000	.175
Intercept	401992.170	1	401992.170	561.531	.000	.863
CONDIT	13532.067	2	6766.034	9.451	.000	.175
Error	63713.802	89	715.885			
Total	476152.000	92				
Corrected Total	77245.870	91				

Tests of Between-Subjects Effects^c

Dependent Variable: reverse scored 'I felt badly'

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	18.903	.976
Intercept	561.531	1.000
CONDIT	18.903	.976
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .175 (Adjusted R Squared = .157)

c. Ostracism role = source

Post Hoc Tests

condition

Multiple Comparisons^a

Dependent Variable: reverse scored 'I felt badly'

Tukey HSD

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	10.1021	6.7996	.303	-6.1052	26.3093
	inclusion	-19.1000*	6.9084	.019	-35.5666	-2.6334
ostracism	argue	-10.1021	6.7996	.303	-26.3093	6.1052
	ostracism					
	inclusion	-29.2021*	6.7996	.000	-45.4093	-12.9948
inclusion	argue	19.1000*	6.9084	.019	2.6334	35.5666
	ostracism	29.2021*	6.7996	.000	12.9948	45.4093
	inclusion					

Based on observed means.

*. The mean difference is significant at the .05 level.

a. Ostracism role = source

Univariate Analysis of Variance

Ostracism role = Target

Between-Subjects Factors^a

		Value Label	N
condition	1	argue	13
	2	ostracism	14
	3	inclusion	15

a. Ostracism role = Target

Descriptive Statistics^a

Dependent Variable: State anxiety minus trait anxiety

condition	Mean	Std. Deviation	N
argue	6.15	10.70	13
ostracism	8.21	11.81	14
inclusion	-6.93	8.89	15
Total	2.17	12.35	42

a. Ostracism role = Target

Tests of Between-Subjects Effects^c

Dependent Variable: State anxiety minus trait anxiety

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1960.851 ^b	2	980.425	8.907	.001	.314
Intercept	257.077	1	257.077	2.335	.135	.056
CONDIT	1960.851	2	980.425	8.907	.001	.314
Error	4292.983	39	110.076			
Total	6451.000	42				
Corrected Total	6253.833	41				

Tests of Between-Subjects Effects^c

Dependent Variable: State anxiety minus trait anxiety

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	17.814	.962
Intercept	2.335	.320
CONDIT	17.814	.962
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .314 (Adjusted R Squared = .278)

c. Ostracism role = Target

Post Hoc Tests

condition

Multiple Comparisons^a

Dependent Variable: State anxiety minus trait anxiety

Tukey HSD

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	-2.06	4.04	.867	-11.91	7.78
	inclusion	13.09*	3.98	.006	3.40	22.77
ostracism	argue	2.06	4.04	.867	-7.78	11.91
	ostracism					
	inclusion	15.15*	3.90	.001	5.65	24.65
inclusion	argue	-13.09*	3.98	.006	-22.77	-3.40
	ostracism	-15.15*	3.90	.001	-24.65	-5.65
	inclusion					

Based on observed means.

*. The mean difference is significant at the .05 level.

a. Ostracism role = Target

Ostracism role = source

Between-Subjects Factors^a

		Value Label	N
condition	1	argue	26
	2	ostracism	30
	3	inclusion	25

a. Ostracism role = source

Descriptive Statistics^a

Dependent Variable: State anxiety minus trait anxiety

condition	Mean	Std. Deviation	N
argue	-1.69	10.46	26
ostracism	-4.23	10.61	30
inclusion	-7.00	11.35	25
Total	-4.27	10.87	81

a. Ostracism role = source

Tests of Between-Subjects Effects^c

Dependent Variable: State anxiety minus trait anxiety

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	359.120 ^b	2	179.560	1.540	.221	.038
Intercept	1494.453	1	1494.453	12.820	.001	.141
CONDIT	359.120	2	179.560	1.540	.221	.038
Error	9092.905	78	116.576			
Total	10930.000	81				
Corrected Total	9452.025	80				

Tests of Between-Subjects Effects^c

Dependent Variable: State anxiety minus trait anxiety

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	3.081	.318
Intercept	12.820	.942
CONDIT	3.081	.318
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .038 (Adjusted R Squared = .013)

c. Ostracism role = source

Post Hoc Tests

condition

Multiple Comparisons^a

Dependent Variable: State anxiety minus trait anxiety

Tukey HSD

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	2.54	2.89	.656	-4.37	9.45
	inclusion	5.31	3.02	.192	-1.92	12.53
ostracism	argue	-2.54	2.89	.656	-9.45	4.37
	ostracism					
	inclusion	2.77	2.92	.613	-4.22	9.75
inclusion	argue	-5.31	3.02	.192	-12.53	1.92
	ostracism	-2.77	2.92	.613	-9.75	4.22
	inclusion					

Based on observed means.

a. Ostracism role = source

Univariate Analysis of Variance

Ostracism role = Target

Between-Subjects Factors^a

		Value Label	N
condition	1	argue	14
	2	ostracism	14
	3	inclusion	15

a. Ostracism role = Target

Descriptive Statistics^a

Dependent Variable: Anxiety trait score

condition	Mean	Std. Deviation	N
argue	42.79	12.19	14
ostracism	38.21	9.10	14
inclusion	43.07	9.90	15
Total	41.40	10.45	43

a. Ostracism role = Target

Tests of Between-Subjects Effects^c

Dependent Variable: Anxiety trait score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	210.631 ^b	2	105.316	.962	.391	.046
Intercept	73464.385	1	73464.385	670.962	.000	.944
CONDIT	210.631	2	105.316	.962	.391	.046
Error	4379.648	40	109.491			
Total	78274.000	43				
Corrected Total	4590.279	42				

Tests of Between-Subjects Effects^c

Dependent Variable: Anxiety trait score

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	1.924	.205
Intercept	670.962	1.000
CONDIT	1.924	.205
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .046 (Adjusted R Squared = -.002)

c. Ostracism role = Target

Post Hoc Tests

condition

Multiple Comparisons^a

Dependent Variable: Anxiety trait score
Tukey HSD

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	4.57	3.95	.486	-5.05	14.20
	inclusion	-.28	3.89	.997	-9.75	9.18
ostracism	argue	-4.57	3.95	.486	-14.20	5.05
	ostracism					
	inclusion	-4.85	3.89	.433	-14.32	4.61
inclusion	argue	.28	3.89	.997	-9.18	9.75
	ostracism	4.85	3.89	.433	-4.61	14.32
	inclusion					

Based on observed means.

a. Ostracism role = Target

Ostracism role = source

Between-Subjects Factors^a

		Value Label	N
condition	1	argue	26
	2	ostracism	31
	3	inclusion	26

a. Ostracism role = source

Descriptive Statistics^a

Dependent Variable: Anxiety trait score

condition	Mean	Std. Deviation	N
argue	43.62	10.38	26
ostracism	41.48	7.68	31
inclusion	41.15	10.20	26
Total	42.05	9.35	83

a. Ostracism role = source

Tests of Between-Subjects Effects^c

Dependent Variable: Anxiety trait score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	94.527 ^b	2	47.263	.535	.588	.013
Intercept	145994.496	1	145994.496	1652.624	.000	.954
CONDIT	94.527	2	47.263	.535	.588	.013
Error	7067.280	80	88.341			
Total	153910.000	83				
Corrected Total	7161.807	82				

Tests of Between-Subjects Effects^c

Dependent Variable: Anxiety trait score

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	1.070	.135
Intercept	1652.624	1.000
CONDIT	1.070	.135
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .013 (Adjusted R Squared = -.011)

c. Ostracism role = source

Post Hoc Tests

condition

Multiple Comparisons^a

Dependent Variable: Anxiety trait score

Tukey HSD

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	2.13	2.50	.671	-3.84	8.10
	inclusion	2.46	2.61	.614	-3.76	8.69
ostracism	argue	-2.13	2.50	.671	-8.10	3.84
	ostracism					
	inclusion	.33	2.50	.990	-5.64	6.30
inclusion	argue	-2.46	2.61	.614	-8.69	3.76
	ostracism	-.33	2.50	.990	-6.30	5.64
	inclusion					

Based on observed means.

a. Ostracism role = source

Univariate Analysis of Variance

Ostracism role = Target

Between-Subjects Factors^a

		Value Label	N
condition	1	argue	14
	2	ostracism	16
	3	inclusion	15

a. Ostracism role = Target

Descriptive Statistics^a

Dependent Variable: state anxiety score

condition	Mean	Std. Deviation	N
argue	48.36	15.72	14
ostracism	46.13	10.31	16
inclusion	36.13	8.18	15
Total	43.49	12.61	45

a. Ostracism role = Target

Tests of Between-Subjects Effects^c

Dependent Variable: state anxiety score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1254.547 ^b	2	627.273	4.586	.016	.179
Intercept	85048.891	1	85048.891	621.800	.000	.937
CONDIT	1254.547	2	627.273	4.586	.016	.179
Error	5744.698	42	136.779			
Total	92107.000	45				
Corrected Total	6999.244	44				

Tests of Between-Subjects Effects^c

Dependent Variable: state anxiety score

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	9.172	.747
Intercept	621.800	1.000
CONDIT	9.172	.747
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .179 (Adjusted R Squared = .140)

c. Ostracism role = Target

Post Hoc Tests

condition

Multiple Comparisons^a

Dependent Variable: state anxiety score

Tukey HSD

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	2.23	4.28	.861	-8.17	12.63
	inclusion	12.22*	4.35	.020	1.66	22.78
ostracism	argue	-2.23	4.28	.861	-12.63	8.17
	ostracism					
	inclusion	9.99	4.20	.056	-.22	20.20
inclusion	argue	-12.22*	4.35	.020	-22.78	-1.66
	ostracism	-9.99	4.20	.056	-20.20	.22
	inclusion					

Based on observed means.

*. The mean difference is significant at the .05 level.

a. Ostracism role = Target

Ostracism role = source

Between-Subjects Factors^a

		Value Label	N
condition	1	argue	30
	2	ostracism	31
	3	inclusion	29

a. Ostracism role = source

Descriptive Statistics^a

Dependent Variable: state anxiety score

condition	Mean	Std. Deviation	N
argue	41.47	11.83	30
ostracism	37.84	8.73	31
inclusion	32.24	12.30	29
Total	37.24	11.54	90

a. Ostracism role = source

Tests of Between-Subjects Effects^c

Dependent Variable: state anxiety score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1271.652 ^b	2	635.826	5.229	.007	.107
Intercept	124334.585	1	124334.585	1022.511	.000	.922
CONDIT	1271.652	2	635.826	5.229	.007	.107
Error	10578.971	87	121.597			
Total	136694.000	90				
Corrected Total	11850.622	89				

Tests of Between-Subjects Effects^c

Dependent Variable: state anxiety score

Source	Noncent. Parameter	Observed Power ^a
Corrected Model	10.458	.820
Intercept	1022.511	1.000
CONDIT	10.458	.820
Error		
Total		
Corrected Total		

a. Computed using alpha = .05

b. R Squared = .107 (Adjusted R Squared = .087)

c. Ostracism role = source

Post Hoc Tests

condition

Multiple Comparisons^a

Dependent Variable: state anxiety score

Tukey HSD

(I) condition	(J) condition	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
argue	argue					
	ostracism	3.63	2.82	.408	-3.11	10.36
	inclusion	9.23*	2.87	.005	2.38	16.07
ostracism	argue	-3.63	2.82	.408	-10.36	3.11
	ostracism					
	inclusion	5.60	2.85	.127	-1.20	12.39
inclusion	argue	-9.23*	2.87	.005	-16.07	-2.38
	ostracism	-5.60	2.85	.127	-12.39	1.20
	inclusion					

Based on observed means.

*. The mean difference is significant at the .05 level.

a. Ostracism role = source

Experiment 4.1

Belonging

Between-Subjects Factors

		Value Label	N
IncOst	1	included	35
	2	ostracized	26
HumComp	1	human	32
	2	computer	29

Descriptive Statistics

Dependent Variable: average belonging scores (post2r + post 3 +post4r)

IncOst	HumComp	Mean	Std. Deviation	N
included	human	6.3704	1.4502	18
	computer	6.4706	1.6917	17
	Total	6.4190	1.5495	35
ostracized	human	3.3810	2.1318	14
	computer	3.7222	2.3087	12
	Total	3.5385	2.1768	26
Total	human	5.0625	2.3085	32
	computer	5.3333	2.3721	29
	Total	5.1913	2.3234	61

Tests of Between-Subjects Effects

Dependent Variable: average belonging scores (post2r + post 3 +post4r)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	124.627 ^a	3	41.542	11.884	.000	.385
Intercept	1477.919	1	1477.919	422.786	.000	.881
INCOST	122.323	1	122.323	34.993	.000	.380
HUMCOMP	.724	1	.724	.207	.651	.004
INCOST * HUMCOMP	.216	1	.216	.062	.805	.001
Error	199.253	57	3.496			
Total	1967.778	61				
Corrected Total	323.880	60				

a. R Squared = .385 (Adjusted R Squared = .352)

Control

Between-Subjects Factors

		Value Label	N
IncOst	1	included	35
	2	ostracized	26
HumComp	1	human	33
	2	computer	28

Descriptive Statistics

Dependent Variable: average control scores (post9+post10+post12)

IncOst	HumComp	Mean	Std. Deviation	N
included	human	6.3519	1.7206	18
	computer	5.7843	1.7398	17
	Total	6.0762	1.7284	35
ostracized	human	3.2444	1.6157	15
	computer	3.7576	1.8565	11
	Total	3.4615	1.7051	26
Total	human	4.9394	2.2768	33
	computer	4.9881	2.0215	28
	Total	4.9617	2.1457	61

Tests of Between-Subjects Effects

Dependent Variable: average control scores (post9+post10+post12)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	106.473 ^a	3	35.491	11.916	.000	.385
Intercept	1346.805	1	1346.805	452.184	.000	.888
INCOST	96.926	1	96.926	32.542	.000	.363
HUMCOMP	1.088E-02	1	1.088E-02	.004	.952	.000
INCOST * HUMCOMP	4.294	1	4.294	1.442	.235	.025
Error	169.771	57	2.978			
Total	1778.000	61				
Corrected Total	276.244	60				

a. R Squared = .385 (Adjusted R Squared = .353)

Self-esteem

Between-Subjects Factors

		Value Label	N
IncOst	1	included	34
	2	ostracized	27
HumComp	1	human	33
	2	computer	28

Descriptive Statistics

Dependent Variable: average self esteem scores (post5 + post6r +post8r)

IncOst	HumComp	Mean	Std. Deviation	N
included	human	7.0741	1.2237	18
	computer	6.8958	1.1203	16
	Total	6.9902	1.1619	34
ostracized	human	5.6444	2.1024	15
	computer	5.4722	2.1389	12
	Total	5.5679	2.0792	27
Total	human	6.4242	1.8033	33
	computer	6.2857	1.7538	28
	Total	6.3607	1.7673	61

Tests of Between-Subjects Effects

Dependent Variable: average self esteem scores (post5 + post6r +post8r)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	30.910 ^a	3	10.303	3.753	.016	.165
Intercept	2347.783	1	2347.783	855.165	.000	.938
INCOST	30.371	1	30.371	11.062	.002	.163
HUMCOMP	.458	1	.458	.167	.684	.003
INCOST * HUMCOMP	1.351E-04	1	1.351E-04	.000	.994	.000
Error	156.489	57	2.745			
Total	2655.333	61				
Corrected Total	187.399	60				

a. R Squared = .165 (Adjusted R Squared = .121)

Meaningful existence

Between-Subjects Factors

		Value Label	N
IncOst	1	included	35
	2	ostracized	27
HumComp	1	human	33
	2	computer	29

Descriptive Statistics

Dependent Variable: average meaningful existence (post7+post11r+post13r)

IncOst	HumComp	Mean	Std. Deviation	N
included	human	6.7593	1.4271	18
	computer	6.4902	1.4819	17
	Total	6.6286	1.4389	35
ostracized	human	3.7778	1.7578	15
	computer	3.6944	1.6905	12
	Total	3.7407	1.6955	27
Total	human	5.4040	2.1695	33
	computer	5.3333	2.0836	29
	Total	5.3710	2.1126	62

Tests of Between-Subjects Effects

Dependent Variable: average meaningful existence (post7+post11r+post13r)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	127.790 ^a	3	42.597	17.103	.000	.469
Intercept	1624.137	1	1624.137	652.105	.000	.918
INCOST	126.245	1	126.245	50.688	.000	.466
HUMCOMP	.470	1	.470	.189	.666	.003
INCOST * HUMCOMP	.130	1	.130	.052	.820	.001
Error	144.455	58	2.491			
Total	2060.778	62				
Corrected Total	272.246	61				

a. R Squared = .469 (Adjusted R Squared = .442)

Ancillary Variables

Between-Subjects Factors

		Value Label	N
IncOst	1	included	35
	2	ostracized	27
HumComp	1	human	33
	2	computer	29

Descriptive Statistics

Dependent Variable: I enjoyed playing the cyberball game

IncOst	HumComp	Mean	Std. Deviation	N
included	human	4.89	2.35	18
	computer	4.53	2.15	17
	Total	4.71	2.23	35
ostracized	human	2.80	2.01	15
	computer	2.92	2.50	12
	Total	2.85	2.20	27
Total	human	3.94	2.41	33
	computer	3.86	2.40	29
	Total	3.90	2.39	62

Tests of Between-Subjects Effects

Dependent Variable: I enjoyed playing the cyberball game

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	54.090 ^a	3	18.030	3.565	.019	.156
Intercept	866.435	1	866.435	171.320	.000	.747
INCOST	51.827	1	51.827	10.248	.002	.150
HUMCOMP	.223	1	.223	.044	.834	.001
INCOST * HUMCOMP	.858	1	.858	.170	.682	.003
Error	293.330	58	5.057			
Total	1292.000	62				
Corrected Total	347.419	61				

a. R Squared = .156 (Adjusted R Squared = .112)

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
IncOst	1	included	35
	2	ostracized	27
HumComp	1	human	33
	2	computer	29

Descriptive Statistics

Dependent Variable: I felt angry during the cyberball game

IncOst	HumComp	Mean	Std. Deviation	N
included	human	1.78	1.59	18
	computer	1.18	.39	17
	Total	1.49	1.20	35
ostracized	human	2.07	1.53	15
	computer	3.25	2.53	12
	Total	2.59	2.08	27
Total	human	1.91	1.55	33
	computer	2.03	1.92	29
	Total	1.97	1.72	62

Tests of Between-Subjects Effects

Dependent Variable: I felt angry during the cyberball game

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	31.170 ^a	3	10.390	4.051	.011	.173
Intercept	258.750	1	258.750	100.880	.000	.635
INCOST	21.110	1	21.110	8.230	.006	.124
HUMCOMP	1.281	1	1.281	.500	.483	.009
INCOST * HUMCOMP	12.047	1	12.047	4.697	.034	.075
Error	148.765	58	2.565			
Total	420.000	62				
Corrected Total	179.935	61				

a. R Squared = .173 (Adjusted R Squared = .130)

Manipulation checks

Between-Subjects Factors

		Value Label	N
IncOst	1	included	35
	2	ostracized	27
HumComp	1	human	33
	2	computer	29

Descriptive Statistics

Dependent Variable: To what extent were you included by the other participants during the game

IncOst	HumComp	Mean	Std. Deviation	N
included	human	7.11	1.57	18
	computer	6.06	1.75	17
	Total	6.60	1.72	35
ostracized	human	2.67	1.95	15
	computer	2.83	2.08	12
	Total	2.74	1.97	27
Total	human	5.09	2.83	33
	computer	4.72	2.46	29
	Total	4.92	2.65	62

Tests of Between-Subjects Effects

Dependent Variable: To what extent were you included by the other participants during the game

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	236.878 ^a	3	78.959	23.887	.000	.553
Intercept	1318.434	1	1318.434	398.861	.000	.873
INCOST	222.513	1	222.513	67.316	.000	.537
HUMCOMP	2.967	1	2.967	.897	.347	.015
INCOST * HUMCOMP	5.620	1	5.620	1.700	.197	.028
Error	191.719	58	3.305			
Total	1929.000	62				
Corrected Total	428.597	61				

a. R Squared = .553 (Adjusted R Squared = .530)

Between-Subjects Factors

		Value Label	N
IncOst	1	included	34
	2	ostracized	27
HumComp	1	human	33
	2	computer	28

Descriptive Statistics

Dependent Variable: rejected-accepted

IncOst	HumComp	Mean	Std. Deviation	N
included	human	6.83	1.54	18
	computer	6.19	1.87	16
	Total	6.53	1.71	34
ostracized	human	4.00	2.10	15
	computer	4.17	2.17	12
	Total	4.07	2.09	27
Total	human	5.55	2.29	33
	computer	5.32	2.21	28
	Total	5.44	2.24	61

Tests of Between-Subjects Effects

Dependent Variable: rejected-accepted

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	94.445 ^a	3	31.482	8.685	.000	.314
Intercept	1674.691	1	1674.691	462.030	.000	.890
INCOST	87.903	1	87.903	24.252	.000	.298
HUMCOMP	.857	1	.857	.236	.629	.004
INCOST * HUMCOMP	2.463	1	2.463	.679	.413	.012
Error	206.604	57	3.625			
Total	2108.000	61				
Corrected Total	301.049	60				

a. R Squared = .314 (Adjusted R Squared = .278)

Stress

Between-Subjects Factors

		Value Label	N
IncOst	1	included	33
	2	ostracized	27
HumComp	1	human	33
	2	computer	27

Descriptive Statistics

Dependent Variable: total stress score

IncOst	HumComp	Mean	Std. Deviation	N
included	human	1.11	1.13	18
	computer	1.20	1.93	15
	Total	1.15	1.52	33
ostracized	human	1.33	1.18	15
	computer	1.75	2.53	12
	Total	1.52	1.87	27
Total	human	1.21	1.14	33
	computer	1.44	2.19	27
	Total	1.32	1.68	60

Tests of Between-Subjects Effects

Dependent Variable: total stress score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	3.222 ^a	3	1.074	.367	.777	.019
Intercept	106.898	1	106.898	36.555	.000	.395
INCOST	2.191	1	2.191	.749	.390	.013
HUMCOMP	.939	1	.939	.321	.573	.006
INCOST * HUMCOMP	.395	1	.395	.135	.715	.002
Error	163.761	56	2.924			
Total	271.000	60				
Corrected Total	166.983	59				

a. R Squared = .019 (Adjusted R Squared = -.033)

Arousal

Between-Subjects Factors

		Value Label	N
IncOst	1	included	34
	2	ostracized	26
HumComp	1	human	32
	2	computer	28

Descriptive Statistics

Dependent Variable: total arousal score

IncOst	HumComp	Mean	Std. Deviation	N
included	human	4.76	1.89	17
	computer	4.47	3.08	17
	Total	4.62	2.52	34
ostracized	human	2.80	2.08	15
	computer	4.00	2.86	11
	Total	3.31	2.46	26
Total	human	3.84	2.19	32
	computer	4.29	2.95	28
	Total	4.05	2.56	60

Tests of Between-Subjects Effects

Dependent Variable: total arousal score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	35.156 ^a	3	11.719	1.866	.146	.091
Intercept	934.264	1	934.264	148.762	.000	.727
INCOST	21.549	1	21.549	3.431	.069	.058
HUMCOMP	2.982	1	2.982	.475	.494	.008
INCOST * HUMCOMP	8.111	1	8.111	1.292	.261	.023
Error	351.694	56	6.280			
Total	1371.000	60				
Corrected Total	386.850	59				

a. R Squared = .091 (Adjusted R Squared = .042)

Experiment 4.1 Simple Effects

Between-Subjects Factors

		Value Label	N
IncOst	1	included	35
	2	ostracized	27
HumComp	1	human	33
	2	computer	29

Descriptive Statistics

Dependent Variable: I felt angry during the cyberball game

IncOst	HumComp	Mean	Std. Deviation	N
included	human	1.78	1.59	18
	computer	1.18	.39	17
	Total	1.49	1.20	35
ostracized	human	2.07	1.53	15
	computer	3.25	2.53	12
	Total	2.59	2.08	27
Total	human	1.91	1.55	33
	computer	2.03	1.92	29
	Total	1.97	1.72	62

Tests of Between-Subjects Effects

Dependent Variable: I felt angry during the cyberball game

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	31.170 ^a	3	10.390	4.051	.011
Intercept	258.750	1	258.750	100.880	.000
INCOST	21.110	1	21.110	8.230	.006
HUMCOMP	1.281	1	1.281	.500	.483
INCOST * HUMCOMP	12.047	1	12.047	4.697	.034
Error	148.765	58	2.565		
Total	420.000	62			
Corrected Total	179.935	61			

a. R Squared = .173 (Adjusted R Squared = .130)

IncOst = included

Between-Subjects Factors^a

		Value Label	N
HumComp	1	human	18
	2	computer	17

a. IncOst = included

Descriptive Statistics^a

Dependent Variable: I felt angry during the cyberball game

HumComp	Mean	Std. Deviation	N
human	1.78	1.59	18
computer	1.18	.39	17
Total	1.49	1.20	35

a. IncOst = included

Tests of Between-Subjects Effects^b

Dependent Variable: I felt angry during the cyberball game

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3.161 ^a	1	3.161	2.289	.140
Intercept	76.304	1	76.304	55.242	.000
HUMCOMP	3.161	1	3.161	2.289	.140
Error	45.582	33	1.381		
Total	126.000	35			
Corrected Total	48.743	34			

a. R Squared = .065 (Adjusted R Squared = .037)

b. IncOst = included

IncOst = ostracized

Between-Subjects Factors^a

	Value Label	N
HumComp 1	human	15
2	computer	12

a. IncOst = ostracized

Descriptive Statistics^a

Dependent Variable: I felt angry during the cyberball game

HumComp	Mean	Std. Deviation	N
human	2.07	1.53	15
computer	3.25	2.53	12
Total	2.59	2.08	27

a. IncOst = ostracized

Tests of Between-Subjects Effects^b

Dependent Variable: I felt angry during the cyberball game

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9.335 ^a	1	9.335	2.262	.145
Intercept	188.446	1	188.446	45.658	.000
HUMCOMP	9.335	1	9.335	2.262	.145
Error	103.183	25	4.127		
Total	294.000	27			
Corrected Total	112.519	26			

a. R Squared = .083 (Adjusted R Squared = .046)

b. IncOst = ostracized

HumComp = human

Between-Subjects Factors^a

	Value Label	N
IncOst 1	included	18
2	ostracized	15

a. HumComp = human

Descriptive Statistics^a

Dependent Variable: I felt angry during the cyberball game

IncOst	Mean	Std. Deviation	N
included	1.78	1.59	18
ostracized	2.07	1.53	15
Total	1.91	1.55	33

a. HumComp = human

Tests of Between-Subjects Effects^b

Dependent Variable: I felt angry during the cyberball game

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.683 ^a	1	.683	.278	.602
Intercept	120.925	1	120.925	49.296	.000
INCOST	.683	1	.683	.278	.602
Error	76.044	31	2.453		
Total	197.000	33			
Corrected Total	76.727	32			

a. R Squared = .009 (Adjusted R Squared = -.023)

b. HumComp = human

HumComp = computer

Between-Subjects Factors^a

		Value Label	N
IncOst	1	included	17
	2	ostracized	12

a. HumComp = computer

Descriptive Statistics^a

Dependent Variable: I felt angry during the cyberball game

IncOst	Mean	Std. Deviation	N
included	1.18	.39	17
ostracized	3.25	2.53	12
Total	2.03	1.92	29

a. HumComp = computer

Tests of Between-Subjects Effects^b

Dependent Variable: I felt angry during the cyberball game

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	30.245 ^a	1	30.245	11.229	.002
Intercept	137.831	1	137.831	51.175	.000
INCOST	30.245	1	30.245	11.229	.002
Error	72.721	27	2.693		
Total	223.000	29			
Corrected Total	102.966	28			

a. R Squared = .294 (Adjusted R Squared = .268)

b. HumComp = computer

Experiment 4.2

Belonging

Between-Subjects Factors

		Value Label	N
OST/INC	1	ostracised	38
	2	included	39
Comp/Hum	1	human	38
	2	computer	39
Script/Spont	1	scripted	37
	2	unscripted	40

Descriptive Statistics

Dependent Variable: average belonging scores

OST/INC	Comp/Hum	Script/Spont	Mean	Std. Deviation	N
ostracised	human	scripted	3.62	1.86	7
		unscripted	2.79	1.18	11
		Total	3.11	1.49	18
	computer	scripted	2.96	1.37	9
		unscripted	2.73	1.32	11
		Total	2.83	1.31	20
	Total	scripted	3.25	1.58	16
		unscripted	2.76	1.22	22
		Total	2.96	1.39	38
included	human	scripted	5.78	1.53	12
		unscripted	6.25	2.01	8
		Total	5.97	1.71	20
	computer	scripted	5.81	1.56	9
		unscripted	6.40	1.42	10
		Total	6.12	1.48	19
	Total	scripted	5.79	1.51	21
		unscripted	6.33	1.66	18
		Total	6.04	1.58	39
Total	human	scripted	4.98	1.93	19
		unscripted	4.25	2.33	19
		Total	4.61	2.14	38
	computer	scripted	4.39	2.05	18
		unscripted	4.48	2.31	21
		Total	4.44	2.16	39
	Total	scripted	4.69	1.98	37
		unscripted	4.37	2.29	40
		Total	4.52	2.14	77

Tests of Between-Subjects Effects

Dependent Variable: average belonging scores

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	189.216 ^a	7	27.031	11.723	.000
Intercept	1544.118	1	1544.118	669.660	.000
OST	172.481	1	172.481	74.803	.000
SOURCE	.328	1	.328	.142	.707
SCRIPTED	1.045E-04	1	1.045E-04	.000	.995
OST * SOURCE	.955	1	.955	.414	.522
OST * SCRIPTED	5.276	1	5.276	2.288	.135
SOURCE * SCRIPTED	.587	1	.587	.255	.616
OST * SOURCE * SCRIPTED	.272	1	.272	.118	.732
Error	159.102	69	2.306		
Total	1924.111	77			
Corrected Total	348.317	76			

a. R Squared = .543 (Adjusted R Squared = .497)

Control

Between-Subjects Factors

		Value Label	N
OST/INC	1	ostracised	38
	2	included	39
Comp/Hum	1	human	38
	2	computer	39
Script/Spont	1	scripted	37
	2	unscripted	40

Descriptive Statistics

Dependent Variable: average control scores

OST/INC	Comp/Hum	Script/Spont	Mean	Std. Deviation	N
ostracised	human	scripted	2.67	.90	7
		unscripted	3.15	1.54	11
		Total	2.96	1.32	18
	computer	scripted	2.89	.96	9
		unscripted	3.18	1.62	11
		Total	3.05	1.34	20
	Total	scripted	2.79	.91	16
		unscripted	3.17	1.55	22
		Total	3.01	1.31	38
included	human	scripted	5.83	1.60	12
		unscripted	6.83	2.19	8
		Total	6.23	1.87	20
	computer	scripted	4.70	.98	9
		unscripted	5.53	2.26	10
		Total	5.14	1.78	19
	Total	scripted	5.35	1.46	21
		unscripted	6.11	2.26	18
		Total	5.70	1.89	39
Total	human	scripted	4.67	2.08	19
		unscripted	4.70	2.58	19
		Total	4.68	2.31	38
	computer	scripted	3.80	1.32	18
		unscripted	4.30	2.25	21
		Total	4.07	1.88	39
	Total	scripted	4.24	1.78	37
		unscripted	4.49	2.39	40
		Total	4.37	2.11	77

Tests of Between-Subjects Effects

Dependent Variable: average control scores

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	160.689 ^a	7	22.956	8.900	.000
Intercept	1415.436	1	1415.436	548.768	.000
OST	141.864	1	141.864	55.001	.000
SOURCE	5.542	1	5.542	2.149	.147
SCRIPTED	7.949	1	7.949	3.082	.084
OST * SOURCE	8.412	1	8.412	3.261	.075
OST * SCRIPTED	1.294	1	1.294	.502	.481
SOURCE * SCRIPTED	.153	1	.153	.060	.808
OST * SOURCE * SCRIPTED	5.430E-04	1	5.430E-04	.000	.988
Error	177.971	69	2.579		
Total	1810.667	77			
Corrected Total	338.661	76			

a. R Squared = .474 (Adjusted R Squared = .421)

Self-esteem

Between-Subjects Factors

		Value Label	N
OST/INC	1	ostracised	38
	2	included	39
Comp/Hum	1	human	38
	2	computer	39
Script/Spont	1	scripted	37
	2	unscripted	40

Descriptive Statistics

Dependent Variable: average self-esteem scores

OST/INC	Comp/Hum	Script/Spont	Mean	Std. Deviation	N
ostracised	human	scripted	6.05	1.74	7
		unscripted	5.06	1.90	11
		Total	5.44	1.85	18
	computer	scripted	4.48	1.68	9
		unscripted	5.42	1.42	11
		Total	5.00	1.57	20
	Total	scripted	5.17	1.83	16
		unscripted	5.24	1.65	22
		Total	5.21	1.70	38
	human	scripted	6.92	1.04	12
		unscripted	7.58	1.32	8
		Total	7.18	1.17	20
included	computer	scripted	6.33	2.13	9
		unscripted	7.67	1.58	10
		Total	7.04	1.93	19
	Total	scripted	6.67	1.58	21
		unscripted	7.63	1.43	18
		Total	7.11	1.57	39
	human	scripted	6.60	1.36	19
		unscripted	6.12	2.08	19
		Total	6.36	1.75	38
	computer	scripted	5.41	2.09	18
		unscripted	6.49	1.86	21
		Total	5.99	2.02	39
	Total	scripted	6.02	1.83	37
		unscripted	6.32	1.95	40
		Total	6.17	1.89	77

Tests of Between-Subjects Effects

Dependent Variable: average self-esteem scores

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	90.730 ^a	7	12.961	4.979	.000
Intercept	2866.631	1	2866.631	1101.154	.000
OST	65.527	1	65.527	25.171	.000
SOURCE	3.389	1	3.389	1.302	.258
SCRIPTED	4.472	1	4.472	1.718	.194
OST * SOURCE	.577	1	.577	.222	.639
OST * SCRIPTED	4.886	1	4.886	1.877	.175
SOURCE * SCRIPTED	7.883	1	7.883	3.028	.086
OST * SOURCE *	1.866	1	1.866	.717	.400
SCRIPTED					
Error	179.628	69	2.603		
Total	3204.667	77			
Corrected Total	270.358	76			

a. R Squared = .336 (Adjusted R Squared = .268)

Meaningful existence

Between-Subjects Factors

		Value Label	N
OST/INC	1	ostracised	38
	2	included	39
Comp/Hum	1	human	38
	2	computer	39
Script/Spont	1	scripted	37
	2	unscripted	40

Descriptive Statistics

Dependent Variable: average meaningful existence scoresm (3 items, no death item)

OST/INC	Comp/Hum	Script/Spont	Mean	Std. Deviation	N
ostracised	human	scripted	2.81	1.36	7
		unscripted	3.61	2.14	11
		Total	3.30	1.87	18
	computer	scripted	3.67	1.80	9
		unscripted	3.73	1.28	11
		Total	3.70	1.49	20
	Total	scripted	3.29	1.63	16
		unscripted	3.67	1.72	22
		Total	3.51	1.67	38
included	human	scripted	6.11	1.58	12
		unscripted	7.63	1.09	8
		Total	6.72	1.57	20
	computer	scripted	5.70	1.39	9
		unscripted	6.17	1.29	10
		Total	5.95	1.32	19
	Total	scripted	5.94	1.48	21
		unscripted	6.81	1.39	18
		Total	6.34	1.49	39
Total	human	scripted	4.89	2.19	19
		unscripted	5.30	2.68	19
		Total	5.10	2.42	38
	computer	scripted	4.69	1.88	18
		unscripted	4.89	1.77	21
		Total	4.79	1.80	39
	Total	scripted	4.79	2.02	37
		unscripted	5.08	2.22	40
		Total	4.94	2.12	77

Tests of Between-Subjects Effects

Dependent Variable: average meaningful existence scoresm (3 items, no death item)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	176.543 ^a	7	25.220	10.540	.000
Intercept	1816.611	1	1816.611	759.204	.000
OST	162.726	1	162.726	68.007	.000
SOURCE	.921	1	.921	.385	.537
SCRIPTED	9.391	1	9.391	3.925	.052
OST * SOURCE	9.458	1	9.458	3.953	.051
OST * SCRIPTED	1.466	1	1.466	.613	.436
SOURCE * SCRIPTED	3.733	1	3.733	1.560	.216
OST * SOURCE * SCRIPTED	.116	1	.116	.048	.826
Error	165.102	69	2.393		
Total	2223.556	77			
Corrected Total	341.645	76			

a. R Squared = .517 (Adjusted R Squared = .468)

Selected Manipulation checks

Between-Subjects Factors

		Value Label	N
OST/INC	1	ostracised	38
	2	included	39
Comp/Hum	1	human	38
	2	computer	39
Script/Spont	1	scripted	37
	2	unscripted	40

Descriptive Statistics

Dependent Variable: 25-included

OST/INC	Comp/Hum	Script/Spont	Mean	Std. Deviation	N
ostracised	human	scripted	2.43	.53	7
		unscripted	2.64	1.50	11
		Total	2.56	1.20	18
	computer	scripted	2.22	.44	9
		unscripted	2.55	.69	11
		Total	2.40	.60	20
	Total	scripted	2.31	.48	16
		unscripted	2.59	1.14	22
		Total	2.47	.92	38
included	human	scripted	6.17	1.53	12
		unscripted	6.88	2.03	8
		Total	6.45	1.73	20
	computer	scripted	5.33	1.66	9
		unscripted	6.00	1.89	10
		Total	5.68	1.77	19
	Total	scripted	5.81	1.60	21
		unscripted	6.39	1.94	18
		Total	6.08	1.77	39
Total	human	scripted	4.79	2.23	19
		unscripted	4.42	2.73	19
		Total	4.61	2.47	38
	computer	scripted	3.78	1.99	18
		unscripted	4.19	2.23	21
		Total	4.00	2.10	39
	Total	scripted	4.30	2.15	37
		unscripted	4.30	2.45	40
		Total	4.30	2.29	77

Tests of Between-Subjects Effects

Dependent Variable: 25-included

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	261.046 ^a	7	37.292	18.501	.000
Intercept	1368.240	1	1368.240	678.787	.000
OST	247.279	1	247.279	122.676	.000
SOURCE	4.703	1	4.703	2.333	.131
SCRIPTED	4.248	1	4.248	2.107	.151
OST * SOURCE	2.328	1	2.328	1.155	.286
OST * SCRIPTED	.833	1	.833	.413	.522
SOURCE * SCRIPTED	6.364E-03	1	6.364E-03	.003	.955
OST * SOURCE * SCRIPTED	2.886E-02	1	2.886E-02	.014	.905
Error	139.084	69	2.016		
Total	1823.000	77			
Corrected Total	400.130	76			

a. R Squared = .652 (Adjusted R Squared = .617)

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
OST/INC	1	ostracised	38
	2	included	39
Comp/Hum	1	human	38
	2	computer	39
Script/Spont	1	scripted	37
	2	unscripted	40

Descriptive Statistics

Dependent Variable: 30d-rejectd

OST/INC	Comp/Hum	Script/Spont	Mean	Std. Deviation	N
ostracised	human	scripted	4.43	2.07	7
		unscripted	4.18	1.99	11
		Total	4.28	1.96	18
	computer	scripted	3.44	2.07	9
		unscripted	3.45	1.86	11
		Total	3.45	1.90	20
	Total	scripted	3.88	2.06	16
		unscripted	3.82	1.92	22
		Total	3.84	1.95	38
	human	scripted	6.25	1.82	12
		unscripted	6.88	2.17	8
		Total	6.50	1.93	20
included	computer	scripted	6.33	1.94	9
		unscripted	5.70	2.58	10
		Total	6.00	2.26	19
	Total	scripted	6.29	1.82	21
		unscripted	6.22	2.41	18
		Total	6.26	2.09	39
	human	scripted	5.58	2.06	19
		unscripted	5.32	2.43	19
		Total	5.45	2.23	38
	computer	scripted	4.89	2.45	18
		unscripted	4.52	2.46	21
		Total	4.69	2.43	39
	Total	scripted	5.24	2.25	37
		unscripted	4.90	2.45	40
		Total	5.06	2.35	77

Tests of Between-Subjects Effects

Dependent Variable: 30d-rejectd

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	125.150 ^a	7	17.879	4.203	.001
Intercept	1933.820	1	1933.820	454.590	.000
OST	108.862	1	108.862	25.591	.000
SOURCE	9.187	1	9.187	2.160	.146
SCRIPTED	7.018E-02	1	7.018E-02	.016	.898
OST * SOURCE	.449	1	.449	.106	.746
OST * SCRIPTED	6.095E-02	1	6.095E-02	.014	.905
SOURCE * SCRIPTED	1.173	1	1.173	.276	.601
OST * SOURCE * SCRIPTED	2.684	1	2.684	.631	.430
Error	293.525	69	4.254		
Total	2394.000	77			
Corrected Total	418.675	76			

a. R Squared = .299 (Adjusted R Squared = .228)

Stress

Between-Subjects Factors

		Value Label	N
OST/INC	1	ostracised	38
	2	included	39
Comp/Hum	1	human	38
	2	computer	39
Script/Spont	1	scripted	37
	2	unscripted	40

Descriptive Statistics

Dependent Variable: total stress score

OST/INC	Comp/Hum	Script/Spont	Mean	Std. Deviation	N
ostracised	human	scripted	1.43	2.23	7
		unscripted	3.36	2.84	11
		Total	2.61	2.73	18
	computer	scripted	2.89	2.47	9
		unscripted	1.91	1.81	11
		Total	2.35	2.13	20
	Total	scripted	2.25	2.41	16
		unscripted	2.64	2.44	22
		Total	2.47	2.40	38
included	human	scripted	1.33	1.56	12
		unscripted	1.00	.93	8
		Total	1.20	1.32	20
	computer	scripted	1.67	1.50	9
		unscripted	.60	.70	10
		Total	1.11	1.24	19
	Total	scripted	1.48	1.50	21
		unscripted	.78	.81	18
		Total	1.15	1.27	39
Total	human	scripted	1.37	1.77	19
		unscripted	2.37	2.50	19
		Total	1.87	2.20	38
	computer	scripted	2.28	2.08	18
		unscripted	1.29	1.52	21
		Total	1.74	1.85	39
	Total	scripted	1.81	1.96	37
		unscripted	1.80	2.09	40
		Total	1.81	2.01	77

Tests of Between-Subjects Effects

Dependent Variable: total stress score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	60.954 ^a	7	8.708	2.431	.028
Intercept	235.447	1	235.447	65.739	.000
OST	29.117	1	29.117	8.130	.006
SOURCE	4.336E-03	1	4.336E-03	.001	.972
SCRIPTED	.231	1	.231	.065	.800
OST * SOURCE	6.136E-03	1	6.136E-03	.002	.967
OST * SCRIPTED	6.486	1	6.486	1.811	.183
SOURCE * SCRIPTED	15.562	1	15.562	4.345	.041
OST * SOURCE * SCRIPTED	5.565	1	5.565	1.554	.217
Error	247.124	69	3.582		
Total	559.000	77			
Corrected Total	308.078	76			

a. R Squared = .198 (Adjusted R Squared = .116)

Arousal

Between-Subjects Factors

		Value Label	N
OST/INC	1	ostracised	38
	2	included	39
Comp/Hum	1	human	38
	2	computer	39
Script/Spont	1	scripted	37
	2	unscripted	40

Descriptive Statistics

Dependent Variable: total arousal score

OST/INC	Comp/Hum	Script/Spont	Mean	Std. Deviation	N
ostracised	human	scripted	1.86	2.48	7
		unscripted	3.45	2.58	11
		Total	2.83	2.60	18
	computer	scripted	2.89	1.83	9
		unscripted	3.45	2.81	11
		Total	3.20	2.38	20
	Total	scripted	2.44	2.13	16
		unscripted	3.45	2.63	22
		Total	3.03	2.45	38
included	human	scripted	4.25	2.99	12
		unscripted	5.25	3.33	8
		Total	4.65	3.08	20
	computer	scripted	3.67	2.87	9
		unscripted	4.20	2.70	10
		Total	3.95	2.72	19
	Total	scripted	4.00	2.88	21
		unscripted	4.67	2.95	18
		Total	4.31	2.89	39
Total	human	scripted	3.37	2.99	19
		unscripted	4.21	2.97	19
		Total	3.79	2.97	38
	computer	scripted	3.28	2.37	18
		unscripted	3.81	2.71	21
		Total	3.56	2.54	39
	Total	scripted	3.32	2.67	37
		unscripted	4.00	2.81	40
		Total	3.68	2.75	77

Tests of Between-Subjects Effects

Dependent Variable: total arousal score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	56.333 ^a	7	8.048	1.075	.389
Intercept	984.838	1	984.838	131.553	.000
OST	38.144	1	38.144	5.095	.027
SOURCE	.423	1	.423	.057	.813
SCRIPTED	15.976	1	15.976	2.134	.149
OST * SOURCE	8.305	1	8.305	1.109	.296
OST * SCRIPTED	.464	1	.464	.062	.804
SOURCE * SCRIPTED	2.625	1	2.625	.351	.556
OST * SOURCE * SCRIPTED	.373	1	.373	.050	.824
Error	516.551	69	7.486		
Total	1613.000	77			
Corrected Total	572.883	76			

a. R Squared = .098 (Adjusted R Squared = .007)

Ancillary variables

Between-Subjects Factors

		Value Label	N
OST/INC	1	ostracised	38
	2	included	39
Comp/Hum	1	human	38
	2	computer	39
Script/Spont	1	scripted	37
	2	unscripted	40

Descriptive Statistics

Dependent Variable: 14-enjoyed

OST/INC	Comp/Hum	Script/Spont	Mean	Std. Deviation	N
ostracised	human	scripted	3.29	1.50	7
		unscripted	3.00	1.73	11
		Total	3.11	1.60	18
	computer	scripted	3.33	2.18	9
		unscripted	3.45	1.75	11
		Total	3.40	1.90	20
	Total	scripted	3.31	1.85	16
		unscripted	3.23	1.72	22
		Total	3.26	1.75	38
included	human	scripted	4.58	2.27	12
		unscripted	6.63	1.77	8
		Total	5.40	2.28	20
	computer	scripted	5.11	1.83	9
		unscripted	5.20	2.15	10
		Total	5.16	1.95	19
	Total	scripted	4.81	2.06	21
		unscripted	5.83	2.07	18
		Total	5.28	2.10	39
Total	human	scripted	4.11	2.08	19
		unscripted	4.53	2.50	19
		Total	4.32	2.28	38
	computer	scripted	4.22	2.16	18
		unscripted	4.29	2.10	21
		Total	4.26	2.10	39
	Total	scripted	4.16	2.09	37
		unscripted	4.40	2.27	40
		Total	4.29	2.18	77

Tests of Between-Subjects Effects

Dependent Variable: 14-enjoyed

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	100.278 ^a	7	14.325	3.810	.001
Intercept	1399.246	1	1399.246	372.145	.000
OST	83.407	1	83.407	22.183	.000
SOURCE	.182	1	.182	.049	.826
SCRIPTED	4.520	1	4.520	1.202	.277
OST * SOURCE	2.290	1	2.290	.609	.438
OST * SCRIPTED	6.159	1	6.159	1.638	.205
SOURCE * SCRIPTED	2.794	1	2.794	.743	.392
OST * SOURCE * SCRIPTED	6.511	1	6.511	1.732	.193
Error	259.436	69	3.760		
Total	1774.000	77			
Corrected Total	359.714	76			

a. R Squared = .279 (Adjusted R Squared = .206)

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
OST/INC	1	ostracised	38
	2	included	39
Comp/Hum	1	human	38
	2	computer	39
Script/Spont	1	scripted	37
	2	unscripted	40

Descriptive Statistics

Dependent Variable: 15-angry

OST/INC	Comp/Hum	Script/Spont	Mean	Std. Deviation	N
ostracised	human	scripted	2.14	1.35	7
		unscripted	2.82	1.83	11
		Total	2.56	1.65	18
	computer	scripted	4.00	2.24	9
		unscripted	4.00	2.19	11
		Total	4.00	2.15	20
	Total	scripted	3.19	2.07	16
		unscripted	3.41	2.06	22
		Total	3.32	2.04	38
included	human	scripted	1.83	1.75	12
		unscripted	2.00	2.07	8
		Total	1.90	1.83	20
	computer	scripted	2.22	1.48	9
		unscripted	1.00	.00	10
		Total	1.58	1.17	19
	Total	scripted	2.00	1.61	21
		unscripted	1.44	1.42	18
		Total	1.74	1.53	39
Total	human	scripted	1.95	1.58	19
		unscripted	2.47	1.93	19
		Total	2.21	1.76	38
	computer	scripted	3.11	2.05	18
		unscripted	2.57	2.18	21
		Total	2.82	2.11	39
	Total	scripted	2.51	1.89	37
		unscripted	2.53	2.04	40
		Total	2.52	1.96	77

Tests of Between-Subjects Effects

Dependent Variable: 15-angry

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	77.505 ^a	7	11.072	3.575	.002
Intercept	468.486	1	468.486	151.255	.000
OST	40.778	1	40.778	13.166	.001
SOURCE	6.892	1	6.892	2.225	.140
SCRIPTED	.169	1	.169	.055	.816
OST * SOURCE	15.578	1	15.578	5.030	.028
OST * SCRIPTED	3.503	1	3.503	1.131	.291
SOURCE * SCRIPTED	4.982	1	4.982	1.609	.209
OST * SOURCE * SCRIPTED	.595	1	.595	.192	.662
Error	213.716	69	3.097		
Total	780.000	77			
Corrected Total	291.221	76			

a. R Squared = .266 (Adjusted R Squared = .192)

Experiment 4.2 Simple Effects

Meaningful existence

OST/INC = ostracised

Between-Subjects Factors^a

		Value Label	N
Comp/Hum	1	human	18
	2	computer	20

a. OST/INC = ostracised

Descriptive Statistics^a

Dependent Variable: average meaningful existence scoresm (3 items, no death item)

Comp/Hum	Mean	Std. Deviation	N
human	3.30	1.87	18
computer	3.70	1.49	20
Total	3.51	1.67	38

a. OST/INC = ostracised

Tests of Between-Subjects Effects^b

Dependent Variable: average meaningful existence scoresm (3 items, no death item)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1.544 ^a	1	1.544	.546	.465
Intercept	463.719	1	463.719	164.099	.000
SOURCE	1.544	1	1.544	.546	.465
Error	101.731	36	2.826		
Total	571.111	38			
Corrected Total	103.275	37			

a. R Squared = .015 (Adjusted R Squared = -.012)

b. OST/INC = ostracised

OST/INC = included

Between-Subjects Factors^a

		Value Label	N
Comp/Hum	1	human	20
	2	computer	19

a. OST/INC = included

Descriptive Statistics^a

Dependent Variable: average meaningful existence scoresm (3 items, no death item)

Comp/Hum	Mean	Std. Deviation	N
human	6.72	1.57	20
computer	5.95	1.32	19
Total	6.34	1.49	39

a. OST/INC = included

Tests of Between-Subjects Effects^b

Dependent Variable: average meaningful existence scoresm (3 items, no death item)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5.766 ^a	1	5.766	2.731	.107
Intercept	1562.655	1	1562.655	740.125	.000
SOURCE	5.766	1	5.766	2.731	.107
Error	78.120	37	2.111		
Total	1652.444	39			
Corrected Total	83.886	38			

a. R Squared = .069 (Adjusted R Squared = .044)

b. OST/INC = included

Comp/Hum = human

Between-Subjects Factors^a

	Value Label	N
OST/INC 1	ostracised	18
2	included	20

a. Comp/Hum = human

Descriptive Statistics^a

Dependent Variable: average meaningful existence scoresm (3 items, no death item)

OST/INC	Mean	Std. Deviation	N
ostracised	3.30	1.87	18
included	6.72	1.57	20
Total	5.10	2.42	38

a. Comp/Hum = human

Tests of Between-Subjects Effects^b

Dependent Variable: average meaningful existence scoresm (3 items, no death item)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	110.832 ^a	1	110.832	37.549	.000
Intercept	949.826	1	949.826	321.797	.000
OST	110.832	1	110.832	37.549	.000
Error	106.259	36	2.952		
Total	1204.111	38			
Corrected Total	217.091	37			

a. R Squared = .511 (Adjusted R Squared = .497)

b. Comp/Hum = human

Comp/Hum = computer

Between-Subjects Factors^a

	Value Label	N
OST/INC 1	ostracised	20
2	included	19

a. Comp/Hum = computer

Descriptive Statistics^a

Dependent Variable: average meaningful existence scoresm (3 items, no death item)

OST/INC	Mean	Std. Deviation	N
ostracised	3.70	1.49	20
included	5.95	1.32	19
Total	4.79	1.80	39

a. Comp/Hum = computer

Tests of Between-Subjects Effects^b

Dependent Variable: average meaningful existence scoresm (3 items, no death item)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	49.212 ^a	1	49.212	24.742	.000
Intercept	906.853	1	906.853	455.941	.000
OST	49.212	1	49.212	24.742	.000
Error	73.592	37	1.989		
Total	1019.444	39			
Corrected Total	122.803	38			

a. R Squared = .401 (Adjusted R Squared = .385)

b. Comp/Hum = computer

ANGER

OST/INC = ostracised

Between-Subjects Factors^a

		Value Label	N
Comp/Hum	1	human	18
	2	computer	20

a. OST/INC = ostracised

Descriptive Statistics^a

Dependent Variable: 15-angry

Comp/Hum	Mean	Std. Deviation	N
human	2.56	1.65	18
computer	4.00	2.15	20
Total	3.32	2.04	38

a. OST/INC = ostracised

Tests of Between-Subjects Effects^b

Dependent Variable: 15-angry

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	19.766 ^a	1	19.766	5.293	.027
Intercept	407.135	1	407.135	109.018	.000
SOURCE	19.766	1	19.766	5.293	.027
Error	134.444	36	3.735		
Total	572.000	38			
Corrected Total	154.211	37			

a. R Squared = .128 (Adjusted R Squared = .104)

b. OST/INC = ostracised

OST/INC = included

Between-Subjects Factors^a

		Value Label	N
Comp/Hum	1	human	20
	2	computer	19

a. OST/INC = included

Descriptive Statistics^a

Dependent Variable: 15-angry

Comp/Hum	Mean	Std. Deviation	N
human	1.90	1.83	20
computer	1.58	1.17	19
Total	1.74	1.53	39

a. OST/INC = included

Tests of Between-Subjects Effects^b

Dependent Variable: 15-angry

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1.004 ^a	1	1.004	.420	.521
Intercept	117.927	1	117.927	49.341	.000
SOURCE	1.004	1	1.004	.420	.521
Error	88.432	37	2.390		
Total	208.000	39			
Corrected Total	89.436	38			

a. R Squared = .011 (Adjusted R Squared = -.015)

b. OST/INC = included

Comp/Hum = human

Between-Subjects Factors^a

	Value Label	N
OST/INC 1	ostracised	18
2	included	20

a. Comp/Hum = human

Descriptive Statistics^a

Dependent Variable: 15-angry

OST/INC	Mean	Std. Deviation	N
ostracised	2.56	1.65	18
included	1.90	1.83	20
Total	2.21	1.76	38

a. Comp/Hum = human

Tests of Between-Subjects Effects^b

Dependent Variable: 15-angry

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4.071 ^a	1	4.071	1.329	.256
Intercept	188.071	1	188.071	61.414	.000
OST	4.071	1	4.071	1.329	.256
Error	110.244	36	3.062		
Total	300.000	38			
Corrected Total	114.316	37			

a. R Squared = .036 (Adjusted R Squared = .009)

b. Comp/Hum = human

Comp/Hum = computer

Between-Subjects Factors^a

		Value Label	N
OST/INC	1	ostracised	20
	2	included	19

a. Comp/Hum = computer

Descriptive Statistics^a

Dependent Variable: 15-angry

OST/INC	Mean	Std. Deviation	N
ostracised	4.00	2.15	20
included	1.58	1.17	19
Total	2.82	2.11	39

a. Comp/Hum = computer

Tests of Between-Subjects Effects^b

Dependent Variable: 15-angry

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	57.112 ^a	1	57.112	18.762	.000
Intercept	303.266	1	303.266	99.624	.000
OST	57.112	1	57.112	18.762	.000
Error	112.632	37	3.044		
Total	480.000	39			
Corrected Total	169.744	38			

a. R Squared = .336 (Adjusted R Squared = .319)

b. Comp/Hum = computer

STRESS

Comp/Hum = human

Between-Subjects Factors^a

		Value Label	N
Script/Spont	1	scripted	19
	2	unscripted	19

a. Comp/Hum = human

Descriptive Statistics^a

Dependent Variable: total stress score

Script/Spont	Mean	Std. Deviation	N
scripted	1.37	1.77	19
unscripted	2.37	2.50	19
Total	1.87	2.20	38

a. Comp/Hum = human

Tests of Between-Subjects Effects^b

Dependent Variable: total stress score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9.500 ^a	1	9.500	2.026	.163
Intercept	132.658	1	132.658	28.285	.000
SCRIPTED	9.500	1	9.500	2.026	.163
Error	168.842	36	4.690		
Total	311.000	38			
Corrected Total	178.342	37			

a. R Squared = .053 (Adjusted R Squared = .027)

b. Comp/Hum = human

Comp/Hum = computer

Between-Subjects Factors^a

	Value Label	N
Script/Spont 1	scripted	18
2	unscripted	21

a. Comp/Hum = computer

Descriptive Statistics^a

Dependent Variable: total stress score

Script/Spont	Mean	Std. Deviation	N
scripted	2.28	2.08	18
unscripted	1.29	1.52	21
Total	1.74	1.85	39

a. Comp/Hum = computer

Tests of Between-Subjects Effects^b

Dependent Variable: total stress score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9.539 ^a	1	9.539	2.944	.095
Intercept	123.078	1	123.078	37.982	.000
SCRIPTED	9.539	1	9.539	2.944	.095
Error	119.897	37	3.240		
Total	248.000	39			
Corrected Total	129.436	38			

a. R Squared = .074 (Adjusted R Squared = .049)

b. Comp/Hum = computer

Script/Spont = scripted

Between-Subjects Factors^a

		Value Label	N
Comp/Hum	1	human	19
	2	computer	18

a. Script/Spont = scripted

Descriptive Statistics^a

Dependent Variable: total stress score

Comp/Hum	Mean	Std. Deviation	N
human	1.37	1.77	19
computer	2.28	2.08	18
Total	1.81	1.96	37

a. Script/Spont = scripted

Tests of Between-Subjects Effects^b

Dependent Variable: total stress score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7.644 ^a	1	7.644	2.057	.160
Intercept	122.887	1	122.887	33.077	.000
SOURCE	7.644	1	7.644	2.057	.160
Error	130.032	35	3.715		
Total	259.000	37			
Corrected Total	137.676	36			

a. R Squared = .056 (Adjusted R Squared = .029)

b. Script/Spont = scripted

Script/Spont = unscripted

Between-Subjects Factors^a

		Value Label	N
Comp/Hum	1	human	19
	2	computer	21

a. Script/Spont = unscripted

Descriptive Statistics^a

Dependent Variable: total stress score

Comp/Hum	Mean	Std. Deviation	N
human	2.37	2.50	19
computer	1.29	1.52	21
Total	1.80	2.09	40

a. Script/Spont = unscripted

Tests of Between-Subjects Effects^b

Dependent Variable: total stress score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	11.693 ^a	1	11.693	2.800	.102
Intercept	133.193	1	133.193	31.891	.000
SOURCE	11.693	1	11.693	2.800	.102
Error	158.707	38	4.176		
Total	300.000	40			
Corrected Total	170.400	39			

a. R Squared = .069 (Adjusted R Squared = .044)

b. Script/Spont = unscripted

Experiment 4.1 Psychophysiology Analyses

Baseline

Between-Subjects Factors

		Value Label	N
ostracism or inclusion	1	ostracism	27
	2	inclusion	32
human or computer	1	human	32
	2	computer	27

Descriptive Statistics

Dependent Variable: HR

ostracism or inclusion	human or computer	Mean	Std. Deviation	N
ostracism	human	75.350000	8.096004	15
	computer	80.975000	11.822237	12
	Total	77.850000	10.126108	27
inclusion	human	82.261765	12.795710	17
	computer	80.124444	11.446809	15
	Total	81.259896	12.035562	32
Total	human	79.021875	11.242208	32
	computer	80.502469	11.396108	27
	Total	79.699435	11.239370	59

Tests of Between-Subjects Effects

Dependent Variable: HR

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	417.612 ^a	3	139.204	1.108	.354
Intercept	368713.066	1	368713.066	2935.126	.000
OSTINCL	133.356	1	133.356	1.062	.307
HUMANCOM	44.154	1	44.154	.351	.556
OSTINCL * HUMANCOM	218.714	1	218.714	1.741	.192
Error	6909.147	55	125.621		
Total	382094.756	59			
Corrected Total	7326.759	58			

a. R Squared = .057 (Adjusted R Squared = .006)

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
ostracism or inclusion	1	ostracism	27
	2	inclusion	32
human or computer	1	human	32
	2	computer	27

Descriptive Statistics

Dependent Variable: CO

ostracism or inclusion	human or computer	Mean	Std. Deviation	N
ostracism	human	6.520444	1.751515	15
	computer	6.371250	2.012893	12
	Total	6.454136	1.836246	27
inclusion	human	6.242157	1.743975	17
	computer	7.337333	2.769873	15
	Total	6.755521	2.311484	32
Total	human	6.372604	1.724861	32
	computer	6.907963	2.466717	27
	Total	6.617599	2.095268	59

Tests of Between-Subjects Effects

Dependent Variable: CO

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	11.036 ^a	3	3.679	.831	.483
Intercept	2543.552	1	2543.552	574.301	.000
OSTINCL	1.717	1	1.717	.388	.536
HUMANCOM	3.248	1	3.248	.733	.395
OSTINCL * HUMANCOM	5.621	1	5.621	1.269	.265
Error	243.592	55	4.429		
Total	2838.393	59			
Corrected Total	254.629	58			

a. R Squared = .043 (Adjusted R Squared = -.009)

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
ostracism or inclusion	1	ostracism	27
	2	inclusion	32
human or computer	1	human	32
	2	computer	27

Descriptive Statistics

Dependent Variable: PEP

ostracism or inclusion	human or computer	Mean	Std. Deviation	N
ostracism	human	.117800	9.58467E-03	15
	computer	.124465	1.19057E-02	12
	Total	.120762	1.09921E-02	27
inclusion	human	.119279	1.27259E-02	17
	computer	.118178	1.76758E-02	15
	Total	.118763	1.49999E-02	32
Total	human	.118586	1.12088E-02	32
	computer	.120972	1.54383E-02	27
	Total	.119678	1.32450E-02	59

Tests of Between-Subjects Effects

Dependent Variable: PEP

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3.644E-04 ^a	3	1.215E-04	.681	.567
Intercept	.835	1	.835	4683.190	.000
OSTINCL	8.391E-05	1	8.391E-05	.470	.496
HUMANCOM	1.124E-04	1	1.124E-04	.630	.431
OSTINCL * HUMANCOM	2.190E-04	1	2.190E-04	1.228	.273
Error	9.811E-03	55	1.784E-04		
Total	.855	59			
Corrected Total	1.017E-02	58			

a. R Squared = .036 (Adjusted R Squared = -.017)

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
ostracism or inclusion	1	ostracism	27
	2	inclusion	32
human or computer	1	human	32
	2	computer	27

Descriptive Statistics

Dependent Variable: SP

ostracism or inclusion	human or computer	Mean	Std. Deviation	N
ostracism	human	114.933333	13.429534	15
	computer	112.416667	10.148518	12
	Total	113.814815	11.929398	27
inclusion	human	117.294118	9.298956	17
	computer	116.266667	9.059065	15
	Total	116.812500	9.053381	32
Total	human	116.187500	11.292125	32
	computer	114.555556	9.568913	27
	Total	115.440678	10.481957	59

Tests of Between-Subjects Effects

Dependent Variable: SP

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	182.230 ^a	3	60.743	.540	.657
Intercept	771129.986	1	771129.986	6851.374	.000
OSTINCL	140.019	1	140.019	1.244	.270
HUMANCOM	45.594	1	45.594	.405	.527
OSTINCL * HUMANCOM	8.050	1	8.050	.072	.790
Error	6190.313	55	112.551		
Total	792639.000	59			
Corrected Total	6372.542	58			

a. R Squared = .029 (Adjusted R Squared = -.024)

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
ostracism or inclusion	1	ostracism	27
	2	inclusion	32
human or computer	1	human	32
	2	computer	27

Descriptive Statistics

Dependent Variable: DP

ostracism or inclusion	human or computer	Mean	Std. Deviation	N
ostracism	human	63.000000	6.989788	15
	computer	62.000000	4.512609	12
	Total	62.555556	5.931230	27
inclusion	human	65.705882	6.640451	17
	computer	63.733333	4.802777	15
	Total	64.781250	5.846059	32
Total	human	64.437500	6.834153	32
	computer	62.962963	4.669718	27
	Total	63.762712	5.940333	59

Tests of Between-Subjects Effects

Dependent Variable: DP

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	110.215 ^a	3	36.738	1.043	.381
Intercept	234996.800	1	234996.800	6674.450	.000
OSTINCL	71.533	1	71.533	2.032	.160
HUMANCOM	32.074	1	32.074	.911	.344
OSTINCL * HUMANCOM	3.433	1	3.433	.098	.756
Error	1936.463	55	35.208		
Total	241922.000	59			
Corrected Total	2046.678	58			

a. R Squared = .054 (Adjusted R Squared = .002)

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
ostracism or inclusion	1	ostracism	27
	2	inclusion	32
human or computer	1	human	32
	2	computer	27

Descriptive Statistics

Dependent Variable: MAP

ostracism or inclusion	human or computer	Mean	Std. Deviation	N
ostracism	human	78.200000	7.389181	15
	computer	76.333333	5.432785	12
	Total	77.370370	6.540690	27
inclusion	human	80.411765	7.228925	17
	computer	78.733333	4.876572	15
	Total	79.625000	6.199636	32
Total	human	79.375000	7.272352	32
	computer	77.666667	5.173899	27
	Total	78.593220	6.403444	59

Tests of Between-Subjects Effects

Dependent Variable: MAP

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	120.120 ^a	3	40.040	.975	.411
Intercept	357160.290	1	357160.290	8699.200	.000
OSTINCL	77.202	1	77.202	1.880	.176
HUMANCOM	45.619	1	45.619	1.111	.296
OSTINCL * HUMANCOM	.129	1	.129	.003	.956
Error	2258.118	55	41.057		
Total	366815.000	59			
Corrected Total	2378.237	58			

a. R Squared = .051 (Adjusted R Squared = -.001)

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
ostracism or inclusion	1	ostracism	27
	2	inclusion	32
human or computer	1	human	32
	2	computer	27

Descriptive Statistics

Dependent Variable: TPR

ostracism or inclusion	human or computer	Mean	Std. Deviation	N
ostracism	human	999.288889	314.722298	15
	computer	1005.2222	320.554297	12
	Total	1001.9259	311.154307	27
inclusion	human	1058.0392	275.933614	17
	computer	917.511111	313.144773	15
	Total	992.166667	297.756823	32
Total	human	1030.5000	291.405739	32
	computer	956.493827	313.444203	27
	Total	996.632768	301.349542	59

Tests of Between-Subjects Effects

Dependent Variable: TPR

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	158997.499 ^a	3	52999.166	.571	.637
Intercept	57500736.053	1	57500736.053	619.126	.000
OSTINCL	3044.490	1	3044.490	.033	.857
HUMANCOM	65758.247	1	65758.247	.708	.404
OSTINCL * HUMANCOM	77864.668	1	77864.668	.838	.364
Error	5108072.211	55	92874.040		
Total	63870405.335	59			
Corrected Total	5267069.710	58			

a. R Squared = .030 (Adjusted R Squared = -.023)

Reactivity Scores: Game - Baseline

Between-Subjects Factors

		Value Label	N
ostracism or inclusion	1	ostracism	27
	2	inclusion	32
human or computer	1	human	32
	2	computer	27

Descriptive Statistics

Dependent Variable: HR

		Mean	Std. Deviation	N
ostracism or inclusion	ostracism	.712222	3.279388	15
	computer	-2.411111	2.830117	12
	Total	-.675926	3.417721	27
inclusion	human	-2.127451	2.664810	17
	computer	-1.006667	5.136150	15
	Total	-1.602083	3.987682	32
Total	human	-.796354	3.254965	32
	computer	-1.630864	4.254298	27
	Total	-1.178249	3.735229	59

Tests of Between-Subjects Effects

Dependent Variable: HR

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	87.606 ^a	3	29.202	2.226	.095
Intercept	84.787	1	84.787	6.462	.014
OSTINCL	7.477	1	7.477	.570	.454
HUMANCOM	14.557	1	14.557	1.109	.297
OSTINCL * HUMANCOM	65.384	1	65.384	4.983	.030
Error	721.606	55	13.120		
Total	891.120	59			
Corrected Total	809.212	58			

a. R Squared = .108 (Adjusted R Squared = .060)

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
ostracism or inclusion	1	ostracism	27
	2	inclusion	32
human or computer	1	human	32
	2	computer	27

Descriptive Statistics

Dependent Variable: CO

ostracism or inclusion	human or computer	Mean	Std. Deviation	N
ostracism	human	-.037111	.555047	15
	computer	-.252083	.312726	12
	Total	-.132654	.468095	27
inclusion	human	-.362843	.586137	17
	computer	-.269000	.657901	15
	Total	-.318854	.612419	32
Total	human	-.210156	.586281	32
	computer	-.261481	.523941	27
	Total	-.233644	.554471	59

Tests of Between-Subjects Effects

Dependent Variable: CO

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.886 ^a	3	.295	.959	.419
Intercept	3.079	1	3.079	9.994	.003
OSTINCL	.426	1	.426	1.383	.245
HUMANCOM	5.326E-02	1	5.326E-02	.173	.679
OSTINCL * HUMANCOM	.346	1	.346	1.124	.294
Error	16.945	55	.308		
Total	21.052	59			
Corrected Total	17.831	58			

a. R Squared = .050 (Adjusted R Squared = -.002)

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
ostracism or inclusion	1	ostracism	27
	2	inclusion	32
human or computer	1	human	32
	2	computer	27

Descriptive Statistics

Dependent Variable: PEP

ostracism or inclusion	human or computer	Mean	Std. Deviation	N
ostracism	human	-.001411	4.34425E-03	15
	computer	.001326	4.87009E-03	12
	Total	-.000194	4.70298E-03	27
inclusion	human	.001407	9.31056E-03	17
	computer	-.000772	7.46875E-03	15
	Total	.000385	8.43528E-03	32
Total	human	8.594E-05	7.43679E-03	32
	computer	.000160	6.41874E-03	27
	Total	.000120	6.93040E-03	59

Tests of Between-Subjects Effects

Dependent Variable: PEP

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9.272E-05 ^a	3	3.091E-05	.631	.598
Intercept	1.098E-06	1	1.098E-06	.022	.882
OSTINCL	1.878E-06	1	1.878E-06	.038	.845
HUMANCOM	1.132E-06	1	1.132E-06	.023	.880
OSTINCL * HUMANCOM	8.774E-05	1	8.774E-05	1.792	.186
Error	2.693E-03	55	4.896E-05		
Total	2.787E-03	59			
Corrected Total	2.786E-03	58			

a. R Squared = .033 (Adjusted R Squared = -.019)

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
ostracism or inclusion	1	ostracism	27
	2	inclusion	32
human or computer	1	human	32
	2	computer	27

Descriptive Statistics

Dependent Variable: SP

ostracism or inclusion	human or computer	Mean	Std. Deviation	N
ostracism	human	2.333333	4.369810	15
	computer	2.333333	9.038638	12
	Total	2.333333	6.696727	27
inclusion	human	2.235294	8.437486	17
	computer	-.200000	9.799417	15
	Total	1.093750	9.035269	32
Total	human	2.281250	6.735723	32
	computer	.925926	9.376427	27
	Total	1.661017	8.007777	59

Tests of Between-Subjects Effects

Dependent Variable: SP

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	69.762 ^a	3	23.254	.350	.789
Intercept	163.041	1	163.041	2.457	.123
OSTINCL	25.134	1	25.134	.379	.541
HUMANCOM	21.528	1	21.528	.324	.571
OSTINCL * HUMANCOM	21.528	1	21.528	.324	.571
Error	3649.459	55	66.354		
Total	3882.000	59			
Corrected Total	3719.220	58			

a. R Squared = .019 (Adjusted R Squared = -.035)

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
ostracism or inclusion	1	ostracism	27
	2	inclusion	32
human or computer	1	human	32
	2	computer	27

Descriptive Statistics

Dependent Variable: DP

ostracism or inclusion	human or computer	Mean	Std. Deviation	N
ostracism	human	3.266667	5.650116	15
	computer	.250000	6.210329	12
	Total	1.925926	5.986690	27
inclusion	human	1.176471	8.079568	17
	computer	-2.333333	6.275424	15
	Total	-.468750	7.392168	32
Total	human	2.156250	7.016613	32
	computer	-1.185185	6.263674	27
	Total	.627119	6.835249	59

Tests of Between-Subjects Effects

Dependent Variable: DP

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	242.809 ^a	3	80.936	1.804	.157
Intercept	20.214	1	20.214	.451	.505
OSTINCL	79.284	1	79.284	1.768	.189
HUMANCOM	154.615	1	154.615	3.447	.069
OSTINCL * HUMANCOM	.883	1	.883	.020	.889
Error	2466.987	55	44.854		
Total	2733.000	59			
Corrected Total	2709.797	58			

a. R Squared = .090 (Adjusted R Squared = .040)

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
ostracism or inclusion	1	ostracism	27
	2	inclusion	32
human or computer	1	human	32
	2	computer	27

Descriptive Statistics

Dependent Variable: MAP

ostracism or inclusion	human or computer	Mean	Std. Deviation	N
ostracism	human	1.466667	4.580497	15
	computer	1.083333	5.160309	12
	Total	1.296296	4.754066	27
inclusion	human	1.588235	6.000613	17
	computer	-2.266667	6.496886	15
	Total	-.218750	6.439467	32
Total	human	1.531250	5.297500	32
	computer	-.777778	6.072215	27
	Total	.474576	5.733615	59

Tests of Between-Subjects Effects

Dependent Variable: MAP

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	153.011 ^a	3	51.004	1.600	.200
Intercept	12.715	1	12.715	.399	.530
OSTINCL	37.834	1	37.834	1.187	.281
HUMANCOM	65.202	1	65.202	2.045	.158
OSTINCL * HUMANCOM	43.747	1	43.747	1.372	.247
Error	1753.701	55	31.885		
Total	1920.000	59			
Corrected Total	1906.712	58			

a. R Squared = .080 (Adjusted R Squared = .030)

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
ostracism or inclusion	1	ostracism	27
	2	inclusion	32
human or computer	1	human	32
	2	computer	27

Descriptive Statistics

Dependent Variable: TPR

ostracism or inclusion	human or computer	Mean	Std. Deviation	N
ostracism	human	26.666667	93.393178	15
	computer	74.333333	113.701541	12
	Total	47.851852	103.676244	27
inclusion	human	86.588235	136.322714	17
	computer	10.400000	119.837138	15
	Total	50.875000	132.549571	32
Total	human	58.500000	120.223806	32
	computer	38.814815	119.375202	27
	Total	49.491525	119.210965	59

Tests of Between-Subjects Effects

Dependent Variable: TPR

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	61537.028 ^a	3	20512.343	1.479	.230
Intercept	142289.424	1	142289.424	10.261	.002
OSTINCL	58.420	1	58.420	.004	.948
HUMANCOM	2952.845	1	2952.845	.213	.646
OSTINCL * HUMANCOM	55682.696	1	55682.696	4.015	.050
Error	762715.718	55	13867.559		
Total	968768.000	59			
Corrected Total	824252.746	58			

a. R Squared = .075 (Adjusted R Squared = .024)

Simple effects for TPR interaction

ostracism or inclusion = ostracism

Descriptives^a

TPR

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
human	15	26.666667	93.393178	24.114015	-25.052751	78.386085
computer	12	74.333333	113.701541	32.822808	2.090821	146.575846
Total	27	47.851852	103.676244	19.952502	6.838896	88.864808

Descriptives^a

TPR

	Minimum	Maximum
human	-80.0000	224.0000
computer	-80.0000	293.3333
Total	-80.0000	293.3333

a. ostracism or inclusion = ostracism

ANOVA^a

TPR

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15147.407	1	15147.407	1.433	.243
Within Groups	264320.444	25	10572.818		
Total	279467.852	26			

a. ostracism or inclusion = ostracism

ostracism or inclusion = inclusion

Descriptives^a

TPR

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
human	17	86.588235	136.322714	33.063115	16.497563	156.678907
computer	15	10.400000	119.837138	30.941816	-55.963595	76.763595
Total	32	50.875000	132.549571	23.431675	3.085783	98.664217

Descriptives^a

TPR

	Minimum	Maximum
human	-146.667	386.6667
computer	-240.000	160.0000
Total	-240.000	386.6667

a. ostracism or inclusion = inclusion

ANOVA^a

TPR

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	46255.782	1	46255.782	2.784	.106
Within Groups	498395.273	30	16613.176		
Total	544651.056	31			

a. ostracism or inclusion = inclusion

Oneway

human or computer = human

Descriptives^a

TPR

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	15	26.666667	93.393178	24.114015	-25.052751	78.386085
inclusion	17	86.588235	136.322714	33.063115	16.497563	156.678907
Total	32	58.500000	120.223806	21.252767	15.154696	101.845304

Descriptives^a

TPR

	Minimum	Maximum
ostracism	-80.0000	224.0000
inclusion	-146.667	386.6667
Total	-146.667	386.6667

a. human or computer = human

ANOVA^a

TPR

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	28612.549	1	28612.549	2.046	.163
Within Groups	419454.118	30	13981.804		
Total	448066.667	31			

a. human or computer = human

human or computer = computer

Descriptives^a

TPR

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
ostracism	12	74.333333	113.701541	32.822808	2.090821	146.575846
inclusion	15	10.400000	119.837138	30.941816	-55.963595	76.763595
Total	27	38.814815	119.375202	22.973768	-8.408442	86.038072

Descriptives^a

TPR

	Minimum	Maximum
ostracism	-80.0000	293.3333
inclusion	-240.000	160.0000
Total	-240.000	293.3333

a. human or computer = computer

ANOVA^a

TPR

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	27249.807	1	27249.807	1.985	.171
Within Groups	343261.600	25	13730.464		
Total	370511.407	26			

a. human or computer = computer

Absolute Differences

Human players

ostracism or inclusion = ostracism

One-Sample Statistics^a

	N	Mean	Std. Deviation	Std. Error Mean
HR	15	.712222	3.279388	.846734
CO	15	-.037111	.555047	.143313
CI	15	-.023222	.326198	.084224
SV	15	-1.659889	5.037955	1.300794
PEP	15	-.001411	4.34425E-03	.001122
ET	15	.000428	7.96227E-03	.002056
SP	15	2.333333	4.369810	1.128280
DP	15	3.266667	5.650116	1.458854
MAP	15	1.466667	4.580497	1.182679
MAX	15	-.084244	.182104	.047019
ZO	15	-.143000	.740638	.191232
TPR	15	26.666667	93.393178	24.114015
RPP	15	267.858889	538.857470	139.132400
HI	15	-.309333	1.091435	.281807
MI	15	-1.089111	3.576086	.923341
STQ	15	-.654444	2.311178	.596744
TFVI	15	.038444	.111625	.028821

a. ostracism or inclusion = ostracism

One-Sample Test^a

Test Value = 0						
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
HR	.841	14	.414	.712222	-1.103842	2.528287
CO	-.259	14	.799	-.037111	-.344486	.270264
CI	-.276	14	.787	-.023222	-.203864	.157420
SV	-1.276	14	.223	-1.659889	-4.449816	1.130038
PEP	-1.258	14	.229	-.001411	-.003817	.000995
ET	.208	14	.838	.000428	-.003982	.004837
SP	2.068	14	.058	2.333333	-.086587	4.753253
DP	2.239	14	.042	3.266667	.137737	6.395597
MAP	1.240	14	.235	1.466667	-1.069928	4.003261
MAX	-1.792	14	.095	-.084244	-.185090	.016601
ZO	-.748	14	.467	-.143000	-.553152	.267152
TPR	1.106	14	.287	26.666667	-25.052751	78.386085
RPP	1.925	14	.075	267.858889	-30.550431	566.268209
HI	-1.098	14	.291	-.309333	-.913750	.295083
MI	-1.180	14	.258	-1.089111	-3.069481	.891259
STQ	-1.097	14	.291	-.654444	-1.934332	.625443
TFVI	1.334	14	.204	.038444	-.023371	.100260

a. ostracism or inclusion = ostracism

ostracism or inclusion = inclusion

One-Sample Statistics^a

	N	Mean	Std. Deviation	Std. Error Mean
HR	17	-2.127451	2.664810	.646311
CO	17	-.362843	.586137	.142159
CI	17	-.231078	.365676	.088690
SV	17	-2.228824	8.660210	2.100409
PEP	17	.001407	9.31056E-03	.002258
ET	17	.003951	8.32714E-03	.002020
SP	17	2.235294	8.437486	2.046391
DP	17	1.176471	8.079568	1.959583
MAP	17	1.588235	6.000613	1.455362
MAX	17	-.083529	.280508	.068033
ZO	17	.201275	.564131	.136822
TPR	17	86.588235	136.322714	33.063115
RPP	17	-52.228431	878.764793	213.131768
HI	17	-.604902	1.432638	.347466
MI	17	-1.946961	4.203465	1.019490
STQ	17	-.333431	3.565333	.864720
TFVI	17	-.044020	9.35434E-02	.022688

a. ostracism or inclusion = inclusion

One-Sample Test^a

Test Value = 0						
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
HR	-3.292	16	.005	-2.127451	-3.497570	-.757332
CO	-2.552	16	.021	-.362843	-.664207	-.061479
CI	-2.605	16	.019	-.231078	-.419092	-.043065
SV	-1.061	16	.304	-2.228824	-6.681492	2.223845
PEP	.623	16	.542	.001407	-.003380	.006194
ET	1.956	16	.068	.003951	-.000330	.008232
SP	1.092	16	.291	2.235294	-2.102861	6.573449
DP	.600	16	.557	1.176471	-2.977660	5.330601
MAP	1.091	16	.291	1.588235	-1.496995	4.673466
MAX	-1.228	16	.237	-.083529	-.227753	.060694
ZO	1.471	16	.161	.201275	-.088775	.491324
TPR	2.619	16	.019	86.588235	16.497563	156.678907
RPP	-.245	16	.810	-52.228431	-504.04760	399.590734
HI	-1.741	16	.101	-.604902	-1.341497	.131693
MI	-1.910	16	.074	-1.946961	-4.108183	.214261
STQ	-.386	16	.705	-.333431	-2.166556	1.499693
TFVI	-1.940	16	.070	-.044020	-.092115	.004076

a. ostracism or inclusion = inclusion

Computer players

ostracism or inclusion = ostracism

One-Sample Statistics^a

	N	Mean	Std. Deviation	Std. Error Mean
HR	12	-2.411111	2.830117	.816984
CO	12	-.252083	.312726	.090276
CI	12	-.147778	.170898	.049334
SV	12	-.375000	5.512339	1.591275
PEP	12	.001326	4.87009E-03	.001406
ET	12	.003250	1.00318E-02	.002896
SP	12	2.333333	9.038638	2.609230
DP	12	.250000	6.210329	1.792767
MAP	12	1.083333	5.160309	1.489653
MAX	12	-.092667	.124276	.035875
ZO	12	-.130833	.288440	.083266
TPR	12	74.333333	113.701541	32.822808
RPP	12	-90.275000	873.044277	252.026174
HI	12	-.586528	.878003	.253458
MI	12	-1.334583	2.010671	.580431
STQ	12	.072361	3.370114	.972868
TFVI	12	.026528	5.03345E-02	.014530

a. ostracism or inclusion = ostracism

One-Sample Test^a

Test Value = 0						
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
HR	-2.951	11	.013	-2.411111	-4.209282	-.612941
CO	-2.792	11	.018	-.252083	-.450780	-.053387
CI	-2.995	11	.012	-.147778	-.256361	-.039194
SV	-.236	11	.818	-.375000	-3.877373	3.127373
PEP	.943	11	.366	.001326	-.001768	.004421
ET	1.122	11	.286	.003250	-.003124	.009624
SP	.894	11	.390	2.333333	-3.409543	8.076210
DP	.139	11	.892	.250000	-3.695855	4.195855
MAP	.727	11	.482	1.083333	-2.195371	4.362037
MAX	-2.583	11	.025	-.092667	-.171628	-.013706
ZO	-1.571	11	.144	-.130833	-.314099	.052433
TPR	2.265	11	.045	74.333333	2.090821	146.575846
RPP	-.358	11	.727	-90.275000	-644.98087	464.430869
HI	-2.314	11	.041	-.586528	-1.144385	-.028671
MI	-2.299	11	.042	-1.334583	-2.612103	-.057064
STQ	.074	11	.942	.072361	-2.068907	2.213629
TFVI	1.826	11	.095	.026528	-.005453	.058509

a. ostracism or inclusion = ostracism

ostracism or inclusion = inclusion

One-Sample Statistics^a

	N	Mean	Std. Deviation	Std. Error Mean
HR	15	-1.006667	5.136150	1.326148
CO	15	-.269000	.657901	.169869
CI	15	-.144667	.340086	.087810
SV	15	-.347667	9.230804	2.383383
PEP	15	-.000772	7.46875E-03	.001928
ET	15	.001189	8.01013E-03	.002068
SP	15	-.200000	9.799417	2.530199
DP	15	-2.333333	6.275424	1.620308
MAP	15	-2.266667	6.496886	1.677489
MAX	15	.015133	.177235	.045762
ZO	15	.337556	.335863	.086719
TPR	15	10.400000	119.837138	30.941816
RPP	15	-158.99333	1200.836498	310.054651
HI	15	.064667	1.170959	.302340
MI	15	.157667	4.037288	1.042423
STQ	15	-.599333	3.169105	.818259
TFVI	15	-.054889	5.84165E-02	.015083

a. ostracism or inclusion = inclusion

One-Sample Test^a

Test Value = 0						
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
HR	-.759	14	.460	-1.006667	-3.850971	1.837638
CO	-1.584	14	.136	-.269000	-.633334	.095334
CI	-1.648	14	.122	-.144667	-.333000	.043667
SV	-.146	14	.886	-.347667	-5.459515	4.764182
PEP	-.400	14	.695	-.000772	-.004908	.003364
ET	.575	14	.575	.001189	-.003247	.005625
SP	-.079	14	.938	-.200000	-5.626736	5.226736
DP	-1.440	14	.172	-2.333333	-5.808548	1.141881
MAP	-1.351	14	.198	-2.266667	-5.864522	1.331189
MAX	.331	14	.746	.015133	-.083016	.113283
ZO	3.893	14	.002	.337556	.151561	.523550
TPR	.336	14	.742	10.400000	-55.963595	76.763595
RPP	-.513	14	.616	-158.993333	-823.99442	506.007754
HI	.214	14	.834	.064667	-.583789	.713122
MI	.151	14	.882	.157667	-2.078109	2.393442
STQ	-.732	14	.476	-.599333	-2.354325	1.155659
TFVI	-3.639	14	.003	-.054889	-.087239	-.022539

a. ostracism or inclusion = inclusion