

**IMPACT OF SELF- AND GROUP-AFFIRMATION ON
RESPONSE TO INGROUP AND OUTGROUP OSTRACISM**

by

Injung Ko

B.A., Sungkyunkwan University, 2008

M.A., Sungkyunkwan University, 2010

Submitted to the Graduate Faculty of the
Kenneth P. Dietrich School of Arts and Sciences in partial fulfillment
of the requirements for the degree of
Master of Science

University of Pittsburgh

2016

UNIVERSITY OF PITTSBURGH
THE KENNETH P. DIETRICH SCHOOL OF ARTS AND SCIENCES

This thesis was presented

by

Injung Ko

It was defended on

August 9, 2016

and approved by

Edward Orehek, Assistant Professor, Department of Psychology

Karina Schumann, Assistant Professor, Department of Psychology

Committee Chair: John M. Levine, Professor, Department of Psychology

Copyright © by Injung Ko

2016

**IMPACT OF SELF- AND GROUP-AFFIRMATION ON RESPONSE TO INGROUP
AND OUTGROUP OSTRACISM**

Injung Ko, M.S.

University of Pittsburgh, 2016

Two studies examined the effectiveness of self- and group-affirmation in reducing the aversiveness of ingroup and outgroup ostracism. It was hypothesized that in the case of ingroup ostracism, self-affirmation (but not group-affirmation) would be more effective in buffering against negative reactions than no-affirmation, whereas in the case of outgroup ostracism, group-affirmation (but not self-affirmation) would be more effective than no-affirmation. Both studies employed a 3 (affirmation: self vs. group vs. no) \times 2 (ostracism: ingroup vs. outgroup) between-participants design. After completing a self-affirming, group-affirming, or non-affirming writing task, undergraduates were ostracized by either ingroup or outgroup members in a three-person Cyberball game. Participants in Study 1 (strong ostracism) and Study 2 (moderate ostracism) received the ball on 6.7% and 16.7% out of thirty tosses, respectively. In Study 1, participants reported uniformly high levels of aversiveness and negative emotions across the six conditions. In Study 2, in the ingroup ostracism condition, self-affirmed participants, but not group-affirmed participants, reported significantly lower aversiveness and less negative emotion than did non-affirmed participants. In the outgroup ostracism condition, neither self- nor group-affirmation reduced negative responses relative to no affirmation. Implications and suggestions for future studies are discussed.

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	SELF- AND GROUP-AFFIRMATION	3
1.2	SELECTIVE EFFECTIVENESS OF SELF- AND GROUP-AFFIRMATION	5
1.3	CURRENT STUDIES	6
2.0	PILOT STUDY.....	8
2.1	METHOD	8
	2.1.1 Participants and procedure	8
	2.1.2 Materials.....	9
2.2	RESULTS	9
3.0	STUDY 1	11
3.1	METHOD	11
	3.1.1 Participants and design.....	11
	3.1.2 Procedure	12
	3.1.3 Measures.....	15
	3.1.3.1 Manipulation checks.....	15
	3.1.3.2 Ostracism aversiveness	16
	3.1.3.3 Emotional reactions	16
	3.1.3.4 Hostility	17

3.2	RESULTS	17
3.2.1	Manipulation checks	17
3.2.1.1	Effectiveness of ostracism induction	17
3.2.1.2	Attribution for exclusion	18
3.2.2	Ostracism aversiveness	19
3.2.3	Emotional reactions	20
3.2.4	Hostility	20
3.3	DISCUSSION	21
4.0	STUDY 2	23
4.1	METHOD	23
4.1.1	Participants and design	23
4.1.2	Procedure	24
4.2	RESULTS	25
4.2.1	Manipulation checks	25
4.2.1.1	Effectiveness of ostracism induction	25
4.2.1.2	Attribution for exclusion	26
4.2.2	Ostracism aversiveness	27
4.2.3	Emotional reactions	28
4.2.4	Hostility	30
4.3	DISCUSSION	30
5.0	GENERAL DISCUSSION	32
5.1	FUTURE DIRECTIONS	35
5.2	CONCLUSION	37

APPENDIX A	38
APPENDIX B	45
BIBLIOGRAPHY.....	47
FOOTNOTES.....	52

LIST OF TABLES

Table 1. Means and standard deviations of the two attitude indices in the pilot study	38
Table 2. Means and standard deviations of aversiveness scores in Study 1	39
Table 3. Means and standard deviations of emotional reaction scores in Study 1	40
Table 4. Means and standard deviations of hostility scores in Study 1	41
Table 5. Means and standard deviations of aversiveness scores in Study 2	42
Table 6. Means and standard deviations of emotional reaction scores in Study 2	43
Table 7. Means and standard deviations of hostility scores in Study 2	44

LIST OF FIGURES

Figure 1. Depiction of the Cyberball game for the ingroup ostracism condition	45
Figure 2. Depiction of the Cyberball game for the outgroup ostracism condition	46

1.0 INTRODUCTION

Human beings are social animals. As many psychologists have pointed out, the desire to be accepted by others is one of the most basic and pervasive human needs (Baumeister & Leary, 1995), and thus people put great value on social connections and are responsive to how other people treat them. Given the fundamental nature of belonging needs, it is not surprising that fulfillment of a need to belong leads to a variety of positive outcomes. For example, a secure connection with others serves as the major source of positive self-regard (e.g., Leary, Tambor, Terdal, & Downs, 1995; Tajfel & Turner, 1979) and positively affects both physical health (e.g., Holt-Lunstad, Smith, & Layton, 2010; Uchino, 2004) and mental health (e.g., Feeney & Collins, 2014; Lakey & Orehek, 2011).

Just as social acceptance is rewarding and beneficial to well-being, so lack of social connections, including being excluded by others, is threatening and painful (e.g., MacDonald & Leary, 2005; Williams, 2009). Indeed, evidence suggests that ostracism -- being excluded or ignored by others -- produces a variety of negative consequences. Ostracism is often studied using the Cyberball paradigm (Williams & Jarvis, 2006), in which participants are included or excluded by two other ostensible players (who are in fact computer-controlled avatars) while playing a computerized ball-toss game. Whereas participants in the inclusion condition receive the ball the same number of times as the other players, those in the exclusion condition typically

receive the ball twice at the beginning and never again for the remainder of the game (which lasts for approximately 2.5 minutes).

A large body of research using this paradigm suggests that ostracism is highly threatening because it threatens fundamental human needs (i.e., belonging, self-esteem, control, meaningful existence; for a review, see Williams, 2009). The aversive impact of ostracism is revealed on a variety of self-report measures as well as physiological measures, such as blood pressure and cortisol level (e.g., Stroud, Tanofsky-Kraff, Wilfley, & Salovey, 2000). Evidence also indicates that ostracism activates the brain regions associated with physical pain (e.g., Eisenberger, Lieberman, & Williams, 2003). Moreover, the negative impact of ostracism is quite robust. For example, negative responses to ostracism are not moderated by personal characteristics of recipients, such as trait-level self-esteem (Leary, Haupt, Strausser, & Chokel, 1998), gender (Williams & Sommer, 1997), or social anxiety (Zadro, Boland, & Richardson, 2006). In addition, ostracism is highly aversive even when ostracizers are computer-programmed (Zadro, Williams, & Richardson, 2004) or when the exclusion is ostensibly unintentional (Eisenberger et al., 2003). Moreover, whether ostracism involves people who belong to the recipient's own group (i.e., ingroup members) or a different group (i.e., outgroup members) has little impact on its aversiveness. This is true when recipients and ostracizers use the same or different computer platforms (Williams, Cheung, & Choi, 2000), are of the same or different genders (Wirth & Williams, 2009), belong to the same or different ethnic groups (Goodwin et al., 2010), go to the same or different schools (Williams et al., 2002, Study 2), or have the same or different opinions or values (Gonsalkorale & Williams, 2007; Williams et al., 2002, Study 3).

Although both ingroup and outgroup ostracism are highly aversive, the psychological mechanisms that underlie their aversiveness may differ. In the case of ostracism by ingroup

members, rejection is likely to be attributed to the ostracizers' negative evaluations of one's personal characteristics. This attribution, in turn, should threaten the positivity of one's self-image, or personal identity. In contrast, in the case of ostracism by outgroup members, rejection is likely to be attributed to the ostracizers' negative evaluations of one's group. This attribution, in turn, should threaten the positivity of one's ingroup-image, or social identity (cf. Branscombe, Ellemers, Spears, & Doosje, 1999).

To the extent that ingroup and outgroup ostracism induce different kinds of threat -- to personal and social identity, respectively -- then different buffers may be effective in reducing the aversiveness of the two kinds of ostracism. More specifically, in the case of ingroup ostracism, bolstering a recipients' personal identity may be particularly useful in reducing aversiveness. In contrast, in the case of outgroup ostracism, bolstering a recipient's social identity may be particularly useful. Following this logic, in the present studies, we tested the efficacy of two threat-alleviating strategies for reducing the aversiveness of ingroup and outgroup ostracism -- self-affirmation and group-affirmation.

1.1 SELF- AND GROUP-AFFIRMATION

Self-affirmation theory (Sherman & Cohen, 2006; Steele, 1988) suggests that people are motivated to maintain a global sense of self-worth. According to this theory, threatening events or information that call self-worth into question trigger defensive reactions aimed to reduce the threat. However, when people are able to strengthen their sense of self-worth, they view themselves as capable and adaptive and thus have less need to respond defensively to the threat.

A standard technique for enhancing self-worth is self-affirmation, which is often induced by asking participants to write about a value that is important to them as an individual (see McQueen & Klein, 2006, for a discussion of self-affirmation inductions). Engaging in this activity is assumed to strengthen participants' sense of self-worth (Sherman, 2013) and thereby help them cope with threat. A large body of research supports this assumption. For example, self-affirmation reduces people's tendency to engage in dissonance-motivated justifications and self-serving judgments (Sherman & Cohen, 2002; Steele & Liu, 1983), lowers their defensive responses to fear of death (Schmeichel & Martens, 2005), increases their scrutiny of persuasive messages that challenge their viewpoint (Correll, Spencer, & Zanna, 2004), promotes their open-mindedness to threatening health information (Epton & Harris, 2008), and attenuates their physiological reactions to stress (Creswell et al., 2005; Sherman, Bunyan, Creswell, & Jaremka, 2009).

Extending the idea that self-affirmation can reduce threat to personal identity, several studies have examined the impact of group-affirmation on threat to social identity. Group-affirmation is usually induced by asking participants to write about a value that is important to their ingroup (Sherman & Cohen, 2006). Research has shown that group-affirmation is effective in reducing defensiveness against collective threat and promoting open-mindedness to ingroup-threatening events or information (for exceptions, see Čehajić-Clancy et al., 2011, and Ehrlich & Gramzow, 2015). For example, group-affirmation reduces people's group-serving attributions in the face of the ingroup's failure (Sherman, Kinias, Major, Kim, & Prenovost, 2007), increases the likelihood they will acknowledge the ingroup's wrongdoing and feel guilt and shame about the wrongdoing (Gunn & Wilson, 2011; Miron, Branscombe, & Biernat, 2010), reduces their dissonance-driven discomfort when the ingroup's behavior does not fit with their personal beliefs

(Glasford, Dovidio, & Pratto, 2009), and reduces their defensiveness during intergroup competition (Pettit & Lount, 2010). Evidence suggests that such effects are more pronounced for members who are more strongly identified with their ingroup (e.g., Derks, Van Laar, & Ellemers, 2009; Glasford et al., 2009; Sherman et al., 2007).

1.2 SELECTIVE EFFECTIVENESS OF SELF- AND GROUP-AFFIRMATION

Most prior affirmation studies induced either self- or group-affirmation and examined its effect relative to a no-affirmation control condition (see McQueen & Klein, 2006; Sherman & Cohen, 2006), whereas a few studies manipulated both kinds of affirmation without explicit predictions regarding when each would be more effective (e.g., Derks et al., 2009; Glasford et al., 2009; Pettit & Lount, 2010; Sherman et al., 2007). Importantly, no prior study addressed our major question, namely the relative efficacy of self- and group-affirmation in reducing personal and social identity threat. In the present studies, we assumed that the match between the level of identity being threatened by ostracism and the level of identity being bolstered by affirmation would be critical in determining the efficacy of affirmation. Specifically, we predicted that when personal identity is threatened, self-affirmation would be particularly effective in buffering against ostracism threat. In contrast, when social identity is threatened, group-affirmation would be particularly effective.

Some prior work is consistent with this “matching” hypothesis. For example, in the context of stereotype threat, Shapiro, Williams, and Hambarchyan (2012) compared two kinds of threat-alleviating strategies, one designed to protect personal identity (self-affirmation) and one designed to protect social identity (ingroup role model intervention). They found that self-

affirmation, but not the ingroup role model intervention, alleviated threat when members of the stigmatized group perceived the stereotype threat as *personally* relevant. In contrast, when members perceived the stereotype threat as *ingroup* relevant, the ingroup role model intervention, but not self-affirmation, alleviated threat. This finding suggests that threat-alleviating strategies are effective primarily when they enhance the specific identity being threatened. In addition, past research has shown that self-affirmation led to increased accessibility of cognitions associated with personal identity, whereas group-affirmation led to increased accessibility of cognitions associated with social identity (Derks et al., 2009). These findings suggest that self-affirmation may provide psychological resources required to buffer against a threat to personal identity, because it reminds individuals of other valued aspects of themselves and thus enables them to construe the threat situation in a broader perspective (Critcher & Dunning, 2014). Likewise, when a threat is posed to social identity, group-affirmation may remind individuals of other positive characteristics of the ingroup, which serve as psychological resources to buffer against the threat to their social identity (see Lalonde, 1992).

1.3 CURRENT STUDIES

In two studies, we examined the effectiveness of self- and group-affirmation in reducing the aversiveness of ingroup and outgroup ostracism. We assumed that ingroup and outgroup ostracism threaten different levels of identity -- exclusion by ingroup members is likely to threaten personal identity, whereas exclusion by outgroup members is likely to threaten social identity. We hypothesized that in the case of ingroup ostracism, self-affirmation (but not group-affirmation) would be more effective in buffering against negative reactions than no-affirmation,

whereas in the case of outgroup ostracism, group-affirmation (but not self-affirmation) would be more effective than no-affirmation. Both studies employed a 3 (affirmation: self vs. group vs. no) \times 2 (ostracism: ingroup vs. outgroup) between-participants design. After completing a self-affirming, group-affirming, or non-affirming writing task, undergraduates were ostracized by either ingroup or outgroup members in a three-person Cyberball game. The studies differed in level of ostracism – strong in Study 1 and moderate in Study 2.

2.0 PILOT STUDY

As noted above, prior research has operationalized ingroup and outgroup ostracism in various ways, one of which involves varying whether the ostracizers are from the participants' own school or another school (e.g., Williams et al., 2002). We used this manipulation in the current studies because it has also been used in research on self- vs. group-affirmation (e.g., Pettit & Lount, 2010; Sherman et al., 2007). The aim of this pilot study was to choose an appropriate source of outgroup ostracism for University of Pittsburgh (Pitt) students. To accomplish this goal, we tested the suitability of several neighboring universities.

2.1 METHOD

2.1.1 Participants and procedure

Forty-nine (14 men) undergraduates at the University of Pittsburgh (Pitt) participated for course credit in an introductory psychology course. After being informed that they were participating in a survey on intergroup perception, they completed a questionnaire concerning five universities -- Carnegie Mellon University (CMU), Penn State University (PSU), West Virginia University (WVU), Syracuse University (SU), and Indiana University of Pennsylvania (IUP). After filling out the questionnaire, participants were debriefed and dismissed.

2.1.2 Materials

For each of the five universities, Pitt students' attitudes toward students of that university and Pitt students' assumptions about the attitudes of those (outgroup) students toward Pitt students were measured. For the former, participants used 7-point scales to indicate their perceptions of outgroup students on six dimensions (1 = *warm* to 7 = *cold*, 1 = *lazy* to 7 = *industrious*, 1 = *intelligent* to 7 = *unintelligent*, 1 = *arrogant* to 7 = *modest*, 1 = *prejudiced* to 7 = *unprejudiced*, and 1 = *academically motivated* to 7 = *not academically motivated*). In addition, participants used 7-point scales (1 = *not at all* to 7 = *a great deal*) to indicate Pitt students' feelings of similarity to outgroup students (i.e., "How similar do Pitt students feel to XXX students?") and Pitt students' evaluations of those students (i.e., "How much do Pitt students like and respect XXX students?"). Parallel items were used to measure the assumed attitudes of outgroup students toward Pitt students (e.g., "How similar do XXX students feel to Pitt students?"). The order of the five outgroup universities was counterbalanced across participants.

2.2 RESULTS

Participants' responses to the eight items measuring Pitt students' attitudes toward outgroup students were highly inter-correlated for each school (Cronbach's alphas > .62). Similarly, participants' responses to the eight items measuring Pitt students' assumptions about the attitudes of outgroup students toward Pitt students were highly inter-correlated for each school (Cronbach's alphas > .63). Therefore, two composite scores were computed by reverse-coding responses to appropriate items and averaging the eight responses, resulting in two attitude indices

(Pitt attitude; Outgroup attitude) for each of the five outgroup universities. For both indices, higher values reflected more positive attitudes.

Two criteria were used to select an outgroup for the ostracism manipulation. The first concerned the absolute values of the two composite scores. Our goal was to identify universities that Pitt students viewed negatively and that they assumed reciprocated this view. Thus, we were interested in universities for which both attitude indices were lower than the mid-point of the response scale (4). Two schools satisfied this criterion: WVU ($M_{\text{Pitt attitude}} = 2.93$, $SD_{\text{Pitt attitude}} = 1.07$; $M_{\text{Outgroup attitude}} = 3.67$; $SD_{\text{Outgroup attitude}} = 0.83$) and PSU ($M_{\text{Pitt attitude}} = 3.46$, $SD_{\text{Pitt attitude}} = 0.94$; $M_{\text{Outgroup attitude}} = 3.85$; $SD_{\text{Outgroup attitude}} = 0.83$). All other schools had at least one mean above the mid-point of the scale. The second criterion concerned the difference between the two composite indices. This difference reflects the similarity between Pitt students' attitudes toward outgroup students and Pitt students' assumptions about the attitudes of outgroup students toward Pitt students. Our goal was to identify the university (WVU or PSU) that yielded the smaller difference score. Because PSU ($M_{\text{discrepancy}} = 0.65$, $SD_{\text{discrepancy}} = 0.77$) yielded a smaller difference score than did WVU ($M_{\text{discrepancy}} = 0.83$, $SD_{\text{discrepancy}} = 0.78$), PSU was chosen as the outgroup for the ostracism manipulation (see Table 1 for M s and SD s of composite attitude indices for all five universities).

3.0 STUDY 1

In this study, participants (Pitt undergraduates) completed an affirmation writing task and then engaged in a computerized ball-toss game (Cyberball) which was pre-programmed to exclude them. Two independent variables were manipulated – type of affirmation (self, group, none) and source of ostracism (ingroup, outgroup). After completing the game, participants responded to a questionnaire assessing their experience during the game. It was predicted that, in the case of ingroup ostracism, self-affirmation (but not group-affirmation) would be more effective than no-affirmation in buffering against negative reactions, whereas in the case of outgroup ostracism, group-affirmation (but not self-affirmation) would be more effective than no-affirmation.

3.1 METHOD

3.1.1 Participants and design

Participants were 151 undergraduates (68 men) at the University of Pittsburgh who participated for course credit in an introductory psychology course. Participants were randomly assigned to a 3 (type of affirmation: self vs. group vs. none) \times 2 (source of ostracism: ingroup vs. outgroup) between-participants design. Fourteen participants were excluded from data analysis, thirteen who showed suspicion about the Cyberball task and one who did not correctly recall his or her

co-players' university affiliation. The final number of participants in each of the six conditions was: self-affirmation/ingroup (23), self-affirmation/outgroup (22), group-affirmation/ingroup (21), group-affirmation/outgroup (24), no-affirmation/ingroup (24), and no-affirmation/outgroup (23).¹

3.1.2 Procedure

From two to six participants were brought to the laboratory, which contained six cubicles equipped with computers. Participants were informed that they were participating a computer-based mental visualization study and that they would be asked to exercise their visualization skills while interacting with others in an online setting. After completing informed consent forms, participants completed a 10-item questionnaire supposedly measuring their mental visualization tendencies. This questionnaire has been used to enhance the plausibility of ostracism manipulations in prior studies (e.g., Bernstein, Sacco, Young, Hugenberg, & Cook, 2010; Sacco, Bernstein, Young, & Hugenberg, 2014). In addition, the questionnaire contained four additional items, adapted from Luhtanen and Crocker (1992), to assess participants' level of group identification (e.g., 'Being a Pitt student is an important reflection of who I am'). These items were included because previous research has suggested that group identification can moderate the effect of group-affirmation (e.g., Derks, et al., 2009; Glasford et al., 2009; Sherman, et al., 2007).² Participants responded to each item using a 7-point scale (1 = *strongly disagree* to 7 = *strongly agree*).

After completing the questionnaire, participants were informed about the main part of the experiment. They were told that, because this study was a joint project with researchers at PSU, another session was running simultaneously at PSU. In addition, they were told that another

session at Pitt was also running. Participants were further informed that they would play an online ball-toss game with two other students who were located either in the lab at PSU or in the other lab at Pitt. In reality, there were no other sessions, and the other “participants” were actually computer-controlled avatars.

The experimenter then told participants that he needed to contact the other labs by email to check whether they were ready to start. In the meantime, participants were asked to complete a writing task, which was introduced as an unrelated study. This task was used to manipulate type of affirmation. In the self-affirmation condition, participants were instructed to think about a value that was important to them personally and that they viewed as positive. They were then asked to describe why the value was important and meaningful to them as an individual and how they demonstrated the importance of the value. In the group-affirmation condition, participants were instructed to think about a value that was important to University of Pittsburgh students and that they viewed as positive. They were then asked to describe why the value was important and meaningful to University of Pittsburgh students and how Pitt students demonstrated the importance of the value. In the no-affirmation condition, participants were instructed to think about a value that was important to middle-aged Americans but was not important to them. They were then asked to describe why the value might be important and meaningful to middle-aged Americans and how middle-aged Americans demonstrated the importance of the value. Similar writing tasks have been used in prior research on self- and group-affirmation (e.g., Miron et al., 2010; Sherman et al., 2007; see also McQueen & Klein, 2006).

After five minutes, the experimenter collected participants’ written materials and made two simulated phone calls, one to each of the other ostensible labs, to check whether they were ready to begin. After the phone calls, participants were directed to start Cyberball by turning on

the computer monitors in their booths. They then saw a brief description of the Cyberball game, which emphasized that they should mentally visualize the game situation as vividly as possible during their subsequent play. The program then took a few seconds to ostensibly check whether “all players” were online, after which it asked participants to indicate their university affiliation and briefly introduce themselves to their co-players, describing their hometown, hobbies, favorite foods, etc., by typing in a text box. Participants sent this information to their ostensible co-players by clicking “Submit your information.” After a few seconds, information from co-players, which indicated their university affiliation and their personal information, appeared on participants’ screens (for a similar procedure, see Schaafsma & Williams, 2012). Although the content of co-players’ comments was held constant across the six conditions, their university affiliation was manipulated according to the ostracism condition. In the ingroup ostracism condition, co-players were both Pitt students. In the outgroup ostracism condition, co-players were both PSU students.

Participants then began the ball-toss game by clicking “Start to play.” The game depicted three avatars, the middle one representing the participant and labeled as “You.” The two co-players’ avatars were labeled “Player 1” and “Player 2,” and both were given the designation of either “Pitt” or “Penn State” (see Figures 1 and 2). Participants were instructed that, whenever they received the ball, they should toss it to one of the two avatars by clicking on the chosen avatar. The game consisted of 30 throws and lasted approximately 2.5 minutes. During the game, participants were ostracized by their co-players, in that they received the ball twice at the beginning of the game and never again for the remaining throws. This ratio of receptions to total throws (6.7%) has been used to induce ostracism in many prior studies (e.g., Van Beest, Carter-Sowell, Van Dijk, & Williams, 2012; Van Beest & Williams, 2006; Wirth & Williams, 2009;

Zadro et al., 2006). Upon completion of the Cyberball game, participants filled out a questionnaire assessing their experience during the game. At the end of the session, participants were debriefed about the methods and aims of the study and dismissed.

3.1.3 Measures

3.1.3.1 Manipulation checks Two kinds of manipulation checks were included, one measuring the effectiveness of the ostracism induction and the other measuring the attribution for exclusion.

Effectiveness of ostracism induction. We assessed whether the ostracism induction was successful using two items (“I was ignored” and “I was excluded”). Participants responded to each item using a 5-point scale (1 = *not at all* to 5 = *extremely*). Because the ratings of the two items were highly correlated ($r = .55, p < .001$), they were averaged to produce a combined score. Also, participants responded to the question, “Assuming the ball should be thrown to each person equally (33%), what percentage of the throws did you receive?,” by reporting the percent of throws they received during the game.

Attribution for exclusion. We also assessed whether ingroup ostracism and outgroup ostracism were attributed to different causes, namely participants’ personal characteristics in the former case and participants’ group membership in the latter case. Two items were used to assess attributions to personal characteristics (“During the game, I thought the other players chose to throw or not throw the ball to me because of my personal characteristics” and “During the game, I thought the other players chose to throw or not throw the ball to me because of things that are unique to me”). In addition, two items were used to assess attributions to group membership (“During the game, I thought the other players chose to throw or not throw the ball to me

because of the university I attend” and “During the game, I thought the other players chose to throw or not throw the ball to me because of their view about Pitt students”). Participants responded to each question using a 7-point scale (1 = *strongly disagree* to 7 = *strongly agree*). Responses to the former two questions were averaged to create an index of personal attribution ($r = .74, p < .001$), and responses to the latter two questions were averaged to create an index of group membership attribution ($r = .84, p < .001$), with higher scores reflecting stronger attributions in both cases.

3.1.3.2 Ostracism aversiveness One measure of the impact of ostracism was based on participants’ responses to a 20-item Need Satisfaction Scale developed by Williams (Williams, 2009; Williams et al., 2000; Zadro et al., 2004). This scale was designed to assess the negative impact of ostracism on four human needs, belonging (e.g., ‘I felt I belonged to the group’), self-esteem (e.g., ‘I felt good about myself’), control (e.g., ‘I felt I had control over the course of the game’), and meaningful existence (e.g., ‘I felt important’). For each item, participants were asked to indicate how they felt during the Cyberball game using a 5-point scale (1 = *not at all* to 5 = *extremely*). Consistent with prior research, an overall aversiveness score was computed for each participant by reverse-coding responses to appropriate items and then averaging responses across the 20 items (Cronbach’s alpha = .86), with higher scores reflecting greater aversiveness.

3.1.3.3 Emotional reactions A second measure of the impact of ostracism was based on participants’ assessments of their emotional reactions during the game. Participants responded to six items, three reflecting positive emotions (*good, pleasant, happy*) and three reflecting negative emotions (*bad, sad, angry*), using a 5-point scale (1 = *not at all* to 5 = *extremely*). Separate indices of emotional reaction were computed by averaging responses to positive items

(Cronbach's alpha = .88) and negative items (Cronbach's alpha = .76), with higher scores indicating stronger emotion in both cases.

3.1.3.4 Hostility For exploratory purposes, we assessed participants' hostility toward (a) the co-players who had ostracized them and (b) the co-players' group (Schaafsma & Williams, 2014). Hostility toward co-players was assessed by four items ("I would like to swear at the other players," "I would like to continue playing with the other players," "I would like to insult the other players," and "I would like to make fun of the other players") using a 7-point scale (1 = *strongly disagree* to 7 = *strongly agree*). Hostility toward co-players' group was assessed by four items with the following instructions, "Please describe how you feel when thinking about the university your co-players attend" (1 = *not angry* to 7 = *angry*, 1 = *not aggressive* to 7 = *aggressive*, 1 = *not hostile* to 7 = *hostile*, and 1 = *not friendly* to 7 = *friendly*). Responses to the first set of items were averaged to create an index of hostility toward co-players (Cronbach's alpha = .74), and responses to the second set of items were averaged to create an index of hostility toward co-players' group (Cronbach's alpha = .85), with higher scores indicating greater hostility in both cases.

3.2 RESULTS

3.2.1 Manipulation checks

3.2.1.1 Effectiveness of ostracism induction To determine the extent to which participants felt excluded during the Cyberball game, we analyzed the combined score based on the two

exclusion items using a 3 (type of affirmation: self vs. group vs. none) \times 2 (source of ostracism: ingroup vs. outgroup) ANOVA. Results revealed that neither of the main effects (type of affirmation, source of ostracism) nor the interaction was statistically significant, all F s $<$ 0.47, p s $>$.64, indicating that perceived exclusion was similar across the six conditions. Moreover, the overall level of perceived exclusion ($M_{\text{grand}} = 4.49$, $SD_{\text{grand}} = 0.79$) was significantly higher than the mid-point of the response scale (3), $t(136) = 22.04$, $p < .001$. In addition, we performed a 3 \times 2 ANOVA on the percentage of throws that participants believed they received during the game. Results showed that neither of the main effects nor the interaction was statistically significant, all F s $<$ 1.48, p s $>$.23. Participants reported receiving an average of 5.61% ($SD = 3.42$) of the throws during the game, which was significantly lower than the 6.7% of throws they actually received, $t(136) = 3.74$, $p < .001$. Taken together, these findings indicated that participants experienced a high level of ostracism.

3.2.1.2 Attribution for exclusion We also assessed whether participants excluded by ingroup members attributed the ostracism to their personal characteristics, whereas those excluded by outgroup members attributed it to their group membership. To answer this question, we analyzed responses to the two attribution index scores using a 3 (type of affirmation: self vs. group vs. none) \times 2 (source of ostracism: ingroup vs. outgroup) \times (2) (attribution type: personal characteristics vs. group membership) mixed ANOVA with type of affirmation and source of ostracism as between-participants variables and attribution type as a within-participants variable.

We obtained two significant main effects and one significant interaction. The source of ostracism main effect indicated that outgroup ostracism ($M = 4.18$, $SD = 1.58$) triggered stronger overall attributions than did ingroup ostracism ($M = 2.27$, $SD = 1.15$), $F(1, 131) = 122.87$, $p < .001$. The attribution type main effect indicated that participants attributed exclusion more to

group membership ($M = 3.50, SD = 2.39$) than to personal characteristics ($M = 2.97, SD = 1.59$), $F(1, 131) = 9.59, p = .002$. Of greater interest was the source of ostracism \times attribution type interaction, $F(1, 131) = 167.05, p < .001$. This interaction revealed that, as expected, participants excluded by ingroup members attributed their treatment more to their personal characteristics ($M = 3.12, SD = 1.53$) than to their group membership ($M = 1.43, SD = 0.76$), $F(1, 131) = 48.64, p < .001$, while those excluded by outgroup members attributed their treatment more to their group membership ($M = 5.54, SD = 1.52$) than to their personal characteristics ($M = 2.82, SD = 1.64$), $F(1, 131) = 129.23, p < .001$.

3.2.2 Ostracism aversiveness

We predicted that self- and group-affirmation would selectively reduce the aversiveness of ingroup and outgroup ostracism, respectively. More specifically, we predicted that in the case of ingroup ostracism, self-affirmation (but not group-affirmation) would be more effective than no-affirmation, whereas in the case of outgroup ostracism, group-affirmation (but not self-affirmation) would be more effective than no-affirmation. To test this hypothesis, we analyzed aversiveness scores using a 3 (type of affirmation: self vs. group vs. none) \times 2 (source of ostracism: ingroup vs. outgroup) ANOVA (see Table 2). Neither of the main effects nor the interaction attained statistical significance, all F s $< 0.67, p$ s $> .41$. Overall, the aversiveness of the Cyberball game ($M_{\text{grand}} = 4.12, SD_{\text{grand}} = 0.52$) was significantly higher than the mid-point of the response scale (3), $t(136) = 25.20, p < .001$. Thus, although participants generally viewed the Cyberball game as aversive, our prediction that self- and group-affirmation would selectively reduce the aversiveness of ingroup and outgroup ostracism, respectively, was not supported.

3.2.3 Emotional reactions

We analyzed the two emotion indices using 3×2 ANOVAs (see Table 3). For positive emotions, neither of the main effects nor the interaction attained statistical significance, all F s < 1.41 , p s $> .24$. Overall, participants' level of positive emotion during the game ($M_{\text{grand}} = 2.21$, $SD_{\text{grand}} = 0.88$) was significantly lower than the mid-point of the response scale (3), $t(136) = 10.53$, $p < .001$.

For negative emotions, neither of the main effects nor the interaction attained statistical significance, all F s < 0.54 , p s $> .59$. Overall, participants' level of negative emotion during the game ($M_{\text{grand}} = 3.20$, $SD_{\text{grand}} = 0.99$) was significantly higher than the mid-point of the response scale (3), $t(136) = 2.42$, $p = .02$.

3.2.4 Hostility

The two hostility index scores (hostility toward co-players and hostility toward co-players' group) were analyzed using 3 (type of affirmation: self vs. group vs. none) $\times 2$ (source of ostracism: ingroup vs. outgroup) ANOVAs (see Table 4). For hostility toward co-players, neither of the main effects nor the interaction attained statistical significance, all F s < 1.67 , p s $> .19$. Overall, participants' hostility toward co-players ($M_{\text{grand}} = 3.75$, $SD_{\text{grand}} = 1.35$) was significantly lower than the mid-point of the response scale (4), $t(136) = 2.17$, $p = .03$. For hostility toward co-players' group, the source of ostracism main effect was significant, $F(1, 131) = 14.48$, $p < .001$, indicating that participants who were excluded by outgroup members ($M = 3.44$, $SD = 1.49$) felt stronger hostility than did those who were excluded by ingroup members ($M = 2.54$, $SD = 1.27$).

The type of affirmation main effect and the interaction did not attain statistical significance, both $F_s < 0.85$, $p_s > .43$.

3.3 DISCUSSION

Based on the assumption that ingroup ostracism would induce threat to personal identity and that outgroup ostracism would induce threat to social identity, the current study attempted to test the selective effectiveness of self- and group-affirmation in reducing the aversiveness of ingroup and outgroup ostracism, respectively. Our manipulations were successful, in that participants experienced a high level of ostracism. Moreover, participants ostracized by ingroup members attributed their exclusion predominantly to personal characteristics, while those ostracized by outgroup members attributed their exclusion predominantly to group membership. Nonetheless, our hypothesis regarding the differential impact of self- and group-affirmation on responses to ingroup and outgroup ostracism was not supported. In fact, neither kind of affirmation was effective in reducing the negative effects of either form of ostracism relative to the no-affirmation condition. Thus, even though participants had an opportunity to affirm at the personal level or group level, they reported that exclusion from both ingroup and outgroup members was relatively aversive (produced low need satisfaction) and that this exclusion elicited relatively low positive emotions and relatively high negative emotions. Finally, only one significant finding emerged regarding hostility -- participants excluded by outgroup members revealed greater hostility toward co-players' group than did participants excluded by ingroup members. This finding is perhaps not surprising, because, in the case of ingroup ostracism, co-players' group was also participants' group (see also Schaafsma & Williams, 2009).

Why did we not obtain support for our hypothesis? One possible reason concerns the magnitude of the ostracism in our study. As in prior studies, we induced “extreme” ostracism by giving participants the ball only twice at the beginning of the game and never again. As expected, participants in all conditions reported substantial exclusion. Our failure to find effects of source of ostracism and type of affirmation is consistent with prior studies indicating that responses to ostracism do not vary as a function of various situational variables, including whether ostracizers are ostensibly real people vs. computer-programmed avatars (Zadro et al, 2004), whether exclusion is ostensibly intentional vs. unintentional (Eisenberger et al., 2003), and whether ostracizers are ostensibly ingroup vs. outgroup members (e.g., Gonsalkorale & Williams, 2007). In other words, the pain of ostracism in our study may have been so overwhelming that our situational variables were unable to produce effects. Based on this speculation, Study 2 attempted to test our hypothesis using a milder form of ostracism.

4.0 STUDY 2

The aim of Study 2 was to examine the effect of self- and group-affirmation on responses to “moderate” ingroup and outgroup ostracism. As in Study 1, we predicted that in the case of ingroup ostracism, self-affirmation (but not group-affirmation) would be more effective than no-affirmation, whereas in the case of outgroup ostracism, group-affirmation (but not self-affirmation) would be more effective than no-affirmation. The same procedure as that in Study 1 was used, with two exceptions. First, participants experienced milder ostracism (i.e., five, rather than two, throws out of 30). Second, participants’ delayed (as well as immediate) responses to ostracism were measured. This was done because of evidence suggesting that, in some cases, situational moderators have a larger effect on delayed than on immediate reactions to ostracism (e.g., Goodwin et al., 2010; Van Beest & Williams, 2006; Van Beest, Williams, & Van Dijk, 2011; Warburton, Williams, & Cairns, 2006; Wirth & Williams, 2008).

4.1 METHOD

4.1.1 Participants and design

Participants were 184 undergraduates (91 men) at the University of Pittsburgh who participated for course credit as part of an introductory psychology course. As in Study 1, participants were

randomly assigned to a 3 (type of affirmation: self vs. group vs. none) \times 2 (source of ostracism: ingroup vs. outgroup) between-participants design. Twenty-nine participants were excluded from data analysis, five who did not follow experimental procedures, one who did not correctly recall co-players' university affiliation, seven who had learned about Cyberball in class and were aware of its purpose, and 16 who showed suspicion about the Cyberball task. The final number of participants in each of the six conditions was: self-affirmation/ingroup (25), self-affirmation/outgroup (24), group-affirmation/ingroup (28), group-affirmation/outgroup (25), no-affirmation/ingroup (26), and no-affirmation/outgroup (27).³

4.1.2 Procedure

The procedure in Study 2 was identical to that in Study 1, with two exceptions. First, to induce moderate ostracism, participants received five out of 30 throws from their co-players (16.7%). The order of throws was randomly determined with the constraint that one throw occurred in each of the five blocks of six trials. Thus, participants received half of the throws they would expect if the ball were thrown equally to all three players. Second, in addition to the questionnaire items used in Study 1, which assessed participants' (reflexive) reactions *during* the Cyberball game, participants also answered questions assessing their *current* (reflective) reactions to the game. Thus, for reflective aversiveness, participants were instructed to respond to the 20-item Need Satisfaction Scale based on how they were feeling "right now." Similarly, for reflective emotional reactions, participants were instructed to answer the six emotion items based on their current feelings. This way of measuring reflective responses has been used in prior studies (e.g., Goodwin et al., 2010; Wirth & Williams, 2009; Zadro et al., 2004). For both

reflexive and reflective measures, aversiveness scores and emotional indices were calculated as in Study 1.

4.2 RESULTS

4.2.1 Manipulation checks

4.2.1.1 Effectiveness of ostracism induction To determine the extent to which participants felt excluded during the Cyberball game, we analyzed the combined score based on the two exclusion items ($r = .81, p < .001$) using a 3 (type of affirmation: self vs. group vs. none) \times 2 (source of ostracism: ingroup vs. outgroup) ANOVA. Results revealed that neither of the main effects nor the interaction was statistically significant, all $F_s < 1.35, p_s > .25$, indicating that perceived exclusion was similar across the six conditions. Moreover, the overall level of perceived exclusion ($M_{\text{grand}} = 4.02, SD_{\text{grand}} = 0.96$) was significantly higher than the mid-point of the response scale (3), $t(154) = 13.27, p < .001$. This value was also significantly *lower* than the overall level of perceived exclusion in Study1 ($M_{\text{grand}} = 4.49, SD_{\text{grand}} = 0.79$), $t(290) = 4.57, p < .001$. In addition, we performed a 3 \times 2 ANOVA on the percentage of throws that participants believed they received during the game. Results showed that neither of the main effects nor the interaction was statistically significant, all $F_s < 0.67, p_s > .52$. Participants reported receiving an average of 12.59% ($SD = 6.65$) of the throws during the game, which was significantly lower than the 16.7% of throws they actually received, $t(154) = 7.69, p < .001$. This value was also significantly *higher* than that in Study 1 ($M = 5.61\%, SD = 3.42$), $t(290) = 10.69, p < .001$. Taken

together, these findings indicated that, although participants experienced substantial ostracism, this ostracism was lower than that in Study 1.

4.2.1.2 Attribution for exclusion The index scores reflecting personal attribution ($r = .66, p < .001$) and group membership attribution ($r = .88, p < .001$) were submitted to a 3 (type of affirmation: self vs. group vs. none) \times 2 (source of ostracism: ingroup vs. outgroup) \times (2) (attribution type: personal characteristics vs. group membership) mixed ANOVA with type of affirmation and source of ostracism as between-participants variables and attribution type as a within-participants variable.

We obtained three significant main effects and one significant interaction. The source of ostracism main effect indicated that outgroup ostracism ($M = 4.39, SD = 1.46$) triggered stronger overall attributions more than did ingroup ostracism ($M = 2.42, SD = 1.48$), $F(1, 149) = 140.20, p < .001$. The attribution type main effect indicated that participants attributed exclusion more to group membership ($M = 3.62, SD = 2.43$) than to personal characteristics ($M = 3.17, SD = 1.59$), $F(1, 149) = 14.33, p < .001$. Finally, the type of affirmation main effect, $F(2, 149) = 3.31, p = .039$, which was decomposed by pairwise comparisons, indicated that non-affirmed participants ($M = 3.64, SD = 1.77$) showed stronger attributions than self-affirmed participants ($M = 3.12, SD = 1.84$), $p = .012$, but not group-affirmed participants ($M = 3.46, SD = 1.91$), $p = .36$. No difference was found between self-affirmed and group-affirmed participants, $p = .21$. Of greater interest was the source of ostracism \times attribution type interaction, $F(1, 149) = 167.05, p < .001$. As in Study 1, this interaction revealed that participants excluded by ingroup members attributed their treatment more to their personal characteristics ($M = 3.39, SD = 1.69$) than to their group membership ($M = 1.46, SD = 0.90$), $F(1, 149) = 109.94, p < .001$, while those excluded by outgroup members attributed their treatment more to their group membership ($M = 5.86, SD =$

1.13) than to their personal characteristics ($M = 2.94$, $SD = 1.47$), $F(1, 149) = 242.19$, $p < .001$. Remaining interactions did not attain statistical significance, all F s < 1.42 , p s $> .24$.

4.2.2 Ostracism aversiveness

For responses to the Need Satisfaction Scale, separate aversiveness scores were computed by averaging participants' responses to the 20 items assessing reflexive responses (Cronbach's alpha = .91) and the 20 items assessing reflective responses (Cronbach's alpha = .91). For both indices, higher scores indicated greater aversiveness. The two kinds of scores were analyzed using 3 (type of affirmation: self- vs. group- vs. none) \times 2 (source of ostracism: ingroup vs. outgroup) ANOVAs (see Table 5).

For reflexive aversiveness, neither of the main effects nor the interaction attained statistical significance, all F s < 1.21 , p s $> .30$. Overall, the aversiveness of the Cyberball game ($M_{\text{grand}} = 3.71$, $SD_{\text{grand}} = 0.61$) was significantly higher than the mid-point of the response scale (3), $t(154) = 14.69$, $p < .001$. Although the predicted interaction was not significant, the pattern of means was consistent with our hypothesis. Therefore, we performed planned contrasts within each of the two ostracism conditions. We found, as predicted, that in the ingroup ostracism condition self-affirmed participants ($M = 3.49$, $SD = 0.53$) reported significantly lower aversiveness than did non-affirmed participants ($M = 3.84$, $SD = 0.67$), $F(1, 149) = 4.15$, $p = .04$, whereas group-affirmed ($M = 3.74$, $SD = 0.46$) and non-affirmed participants reported similar aversiveness, $F(1, 149) = 0.38$, $p = .54$. In contrast, in the outgroup ostracism condition, although group-affirmed participants ($M = 3.68$, $SD = 0.62$) reported lower aversiveness than did non-affirmed participants ($M = 3.78$, $SD = 0.66$), this difference was not statistically significant, $F(1,$

149) = 0.33, $p = .57$. In addition, self-affirmed participants ($M = 3.75$, $SD = 0.67$) and non-affirmed participants reported similar aversiveness, $F(1, 149) = 0.03$, $p = .87$.

For reflective aversiveness, neither of the main effects nor the interaction attained statistical significance, all $F_s < 0.37$, $p_s > .68$, and the pattern of means was not consistent with our hypothesis. Overall, the aversiveness of the game ($M_{\text{grand}} = 3.16$, $SD_{\text{grand}} = 0.67$) was significantly higher than the mid-point of the response scale (3), $t(154) = 3.06$, $p = .003$.

4.2.3 Emotional reactions

For positive emotions, two index scores were computed by averaging participants' responses to the three items assessing reflexive responses (Cronbach's alpha = .85) and the three items assessing reflective responses (Cronbach's alpha = .83). The two indices were analyzed using 3 (type of affirmation: self- vs. group- vs. none) \times 2 (source of ostracism: ingroup vs. outgroup) ANOVAs (see Table 6).

For reflexive positive emotions, neither of the main effects nor the interaction attained statistical significance, all $F_s < 0.83$, $p_s > .44$. Overall, participants' level of positive emotion during the game ($M_{\text{grand}} = 2.40$, $SD_{\text{grand}} = 0.83$) was significantly lower than the mid-point of the response scale (3), $t(154) = 8.94$, $p < .001$. Because the pattern of means was consistent with our hypothesis, we also performed planned contrasts parallel to those reported above. However, no significant differences were found within either of the ostracism conditions, all $F_s < 0.92$, $p_s > .34$.

For reflective positive emotions, neither of the main effects nor the interaction attained statistical significance, all $F_s < 0.51$, $p_s > .57$, and the pattern of means was not consistent with

our hypothesis. Overall, participants' level of positive emotion ($M_{\text{grand}} = 3.02$, $SD_{\text{grand}} = 0.78$) did not differ significantly from the mid-point of the response scale (3), $t(154) = 0.35$, $p = .73$.

Similarly, two index scores were computed for negative emotions by averaging participants' responses to the three items assessing reflexive responses (Cronbach's alpha = .79) and the three items assessing reflective responses (Cronbach's alpha = .87). The two indices were analyzed using 3×2 ANOVAs (see Table 6).

For reflexive negative emotions, neither of the main effects was significant, both $F_s < 0.83$, $p_s > .44$, but the type of affirmation \times source of ostracism interaction was significant, $F(2,149) = 3.49$, $p = .03$. To decompose this interaction, planned contrasts were performed within each of the two ostracism conditions. In the ingroup ostracism condition, as predicted, self-affirmed participants ($M = 2.37$, $SD = 0.85$) reported significantly lower negative emotion than did non-affirmed participants ($M = 3.09$, $SD = 0.87$), $F(1, 149) = 6.37$, $p = .01$, whereas group-affirmed participants ($M = 3.02$, $SD = 0.73$) and non-affirmed participants reported similar negative emotion, $F(1, 149) = 0.06$, $p = .81$. In contrast, in the outgroup ostracism condition, neither group-affirmed participants ($M = 2.61$, $SD = 1.26$) nor self-affirmed participants ($M = 2.88$, $SD = 1.07$) reported significantly lower negative emotion than did non-affirmed participants ($M = 2.65$, $SD = 1.21$), all $F_s < 0.60$, $p_s > .44$.

For reflective negative emotions, neither of the main effects nor the interaction attained statistical significance, $F_s < 1.73$, $p_s > .18$. Overall, participants' level of negative emotion ($M_{\text{grand}} = 2.02$, $SD_{\text{grand}} = 1.00$) was significantly lower than the mid-point of the response scale (3), $t(154) = 12.06$, $p < .001$. We also performed planned contrasts parallel to those reported above because the pattern of means was consistent with our hypothesis. However, no significant differences were found within either of the ostracism conditions, $F_s < 2.46$, $p_s > .12$.

4.2.4 Hostility

The two hostility index scores -- hostility toward co-players (Cronbach's alpha = .76) and hostility toward co-players' group (Cronbach's alpha = .86) -- were analyzed using 3 (type of affirmation: self vs. group vs. none) \times 2 (source of ostracism: ingroup vs. outgroup) ANOVAs (see Table 7). For hostility toward co-players, neither of the main effects nor the interaction attained statistical significance, all F s $<$ 2.91, $ps >$.09. Overall, participants' hostility toward co-players ($M_{\text{grand}} = 3.31$, $SD_{\text{grand}} = 1.26$) was significantly lower than the mid-point of the response scale (4), $t(154) = 6.79$, $p <$.001. For hostility toward co-players' group, the source of ostracism main effect was significant, $F(1,149) = 41.62$, $p <$.001, indicating that participants excluded by outgroup members ($M = 3.46$, $SD = 1.43$) reported greater hostility than did those excluded by ingroup members ($M = 2.12$, $SD = 1.16$). The type of affirmation main effect and the interaction did not attain statistical significance, both F s $<$ 0.64, $ps >$.53.

4.3 DISCUSSION

The goal of Study 2 was to examine the effect of self- and group-affirmation on responses to “moderate” ingroup and outgroup ostracism. Our induction of moderate ostracism was successful -- Participants in all conditions felt excluded during the game, but the level of perceived exclusion was lower than that in Study 1. Also, as in Study 1, participants made “correct” attributions for their exclusion as a function of the source of their ostracism. Individuals ostracized by ingroup members attributed their exclusion primarily to their personal

characteristics, while those ostracized by outgroup members attributed their exclusion primarily to their group membership.

We obtained mixed evidence for our hypotheses about the impact of self- and group-affirmation on responses to ingroup and outgroup ostracism. On *reflexive* measures, we found, as predicted, that self-affirmation was more effective than group-affirmation in reducing the pain of ingroup ostracism. More specifically, self-affirmed (but not group-affirmed) participants reported significantly lower aversiveness and negative emotions than did non-affirmed participants when the source of ostracism was ingroup members. However, our prediction in the outgroup ostracism condition was not supported on reflexive measures. Here, group-affirmed participants did not report significantly lower aversiveness or negative emotions than did non-affirmed participants. On *reflective* measures, neither of our hypotheses was confirmed. Instead, participants reported uniformly high aversiveness and negative emotions in all three affirmation conditions. Finally, participants' reports of positive emotions did vary significantly across the six conditions on either reflexive or reflective measures. This finding is not surprising, given that positive emotions are probably not salient to participants in ostracism situations.

As in Study 1, a significant effect of source of ostracism emerged regarding hostility toward co-players' outgroup. Participants excluded by outgroup members revealed greater hostility toward co-players' group than did participants excluded by ingroup members.

5.0 GENERAL DISCUSSION

In two studies, we examined the effectiveness of self- and group-affirmation in reducing the aversiveness of ostracism by ingroup and outgroup members. We hypothesized that in the case of ingroup ostracism, which was assumed to threaten personal identity, self-affirmation (but not group-affirmation) would be more effective than no-affirmation in buffering against negative reactions, whereas in the case of outgroup ostracism, which was assumed to threaten social identity, group-affirmation (but not self-affirmation) would be more effective than no-affirmation. In both experiments, participants completed either a self-affirming, group-affirming, or non-affirming writing task, after which they were excluded by either ingroup or outgroup members while playing a Cyberball game. In Study 1, strong ostracism was induced by giving participants 6.7% of the throws, whereas in Study 2, moderate ostracism was induced by giving participants 16.7% of the throws. Our manipulations of the level of ostracism and its source (ingroup vs. outgroup) were successful in both studies.

We found in both studies that negative responses to ostracism (aversiveness ratings, negative emotions) did not differ between the two ostracism conditions. Regardless of whether ostracizers were ingroup or outgroup members, participants perceived the ostracism as highly aversive. This finding is consistent with prior studies showing that the magnitude of negative responses to ostracism does not fluctuate as a function of the ostracizers' ingroup vs. outgroup membership (e.g., Gonsalkorale & Williams, 2007).

We also obtained evidence consistent with the assumption that ingroup and outgroup ostracism trigger different psychological responses. Specifically, in both experiments, participants who were excluded by ingroup members attributed their treatment predominantly to their personal characteristics, whereas those who were excluded by outgroup members attributed their treatment predominantly to their group membership. These findings suggest that ingroup ostracism threatens the positivity of personal identity, whereas outgroup ostracism threatens the positivity of social identity.

Concerning the differential effectiveness of self- and group-affirmation in reducing the aversiveness of ingroup and outgroup ostracism, we found that, when ostracism was strong (Study 1), neither kind of affirmation mitigated reflexive negative responses to either kind of ostracism. In contrast, when ostracism was moderate (Study 2), we found some evidence for differential effectiveness of self- and group-affirmation in the reducing the aversiveness of ingroup and outgroup ostracism. As hypothesized, in the case of ingroup ostracism, self-affirmation, but not group-affirmation, reduced reflexive aversiveness ratings and negative emotions compared to no affirmation. In contrast, in the case of outgroup ostracism, our hypothesis that group-affirmation, but not self-affirmation, would reduce reflexive aversiveness ratings and negative responses compared to no affirmation was not supported. Finally, we did not obtain support for our hypotheses on reflective measures in Study 2, and positive emotions did not vary as a function of condition in either study.

Three aspects of our findings are particularly interesting -- (1) stronger support for our hypotheses in a moderate ostracism than in a strong ostracism situation, (2) significant results on reflexive but not on reflective measures, and (3) hypothesis-consistent results involving self-affirmation in the ingroup ostracism condition but not group-affirmation in the outgroup

ostracism condition. The first and second aspects are relevant to the temporal need-threat model of ostracism (Williams, 2009), which posits that (strong) ostracism is extremely painful and produces immediate (reflexive) negative responses that are not moderated by personal or situational variables. According to the model, however, such variables can exert effects on subsequent (reflective) responses. The fact that we obtained stronger support for our hypotheses (which involve moderation by situational variables) in Study 2 than in Study 1 is consistent with Williams's assumption that moderation is more likely to occur when the pain of ostracism is "reduced." However, the fact we obtained significant results on reflexive but not on reflective measures does not seem consistent with Williams's model. It may be the case, however, that in Study 2, where the pain of ostracism was initially moderate rather than high (as in Williams's studies), this pain dissipated so much by the time the reflective measures were obtained that no moderation effects could be detected.

How might we explain the third aspect of our results, namely the effects of self- and group-affirmation in the ingroup and outgroup ostracism conditions? The fact that self-affirmation, but not group affirmation, was effective in the ingroup ostracism condition is consistent with our argument that the match between the level of identity being threatened by ostracism and the level of identity being bolstered by affirmation is critical in determining the efficacy of affirmation. But why was group-affirmation not effective in the outgroup ostracism condition? One possible explanation involves our dependent variables -- aversiveness and (negative) emotional reactions. Given that all the relevant questionnaire items assessed participants' *personal* feelings regarding ostracism, these items may not have captured participants' *group-based* feelings, which are likely to be more closely aligned with their social identity. If so, our dependent measures may not have allowed an adequate test of the group-

affirmation hypothesis. Another possible explanation involves the complexity of group-affirmation. Although a majority of past studies found that group-affirmation decreased collective defense and group-serving biases (e.g., Derks et al., 2009; Gunn & Wilson, 2011; Sherman et al., 2007), this was not always the case (e.g., Čehajić-Clancy et al., 2011; Ehrlich & Gramzow, 2015). Group affirmation was not effective in studies in which the group was affirmed in the same domain as they were threatened (see Blanton, Cooper, Skurnik, & Aronson, 1997). The fact that participants in our studies were in this situation may at least partially explain why we did not obtain the predicted effect of group-affirmation in the outgroup ostracism condition. Supporting this notion, a recent study found that affirming an *alternative* group membership was effective in protecting participants' self-esteem from a threat to their ingroup (Spencer-Rodger, Major, Forster, & Peng, 2016). Clearly, more work on the impact of group affirmation in ostracism situations is warranted.

5.1 FUTURE DIRECTIONS

Several directions for future research should be noted. One direction concerns the need for direct evidence that ingroup ostracism threatens the positivity of personal identity, whereas outgroup ostracism threatens the positivity of social identity. Although our attributional findings are consistent with this assumption, future research should assess the two kinds of threat in more direct ways. A second direction, mentioned earlier, concerns the need for better measurement of participants' *group-based* feelings in the context of group-affirmation. Using different items to assess personal feelings in response to self-affirmation and group-based feelings in response to group-affirmation seems highly advisable. A third direction concerns the mechanisms underlying

the effectiveness of self- and group-affirmation. For example, we suggested earlier that self- and group-affirmation increase the accessibility of cognitions about positive characteristics of personal and social identity, respectively (Derks, et al., 2009), which serve as psychological resources in coping with threats (see Critcher & Dunning, 2014; Lalonde, 1992). In future work, it would be useful to explore the psychological processes mediating the relation between self- and group-affirmation and response to ingroup and outgroup ostracism.

At a more general level, future research would benefit from a deeper exploration of situational factors that might moderate responses to ostracism. Considering that prior studies that failed to find evidence for moderation focused primarily on factors that are present in the ostracism context, such as source characteristics (e.g., Gonsalkorale & Williams, 2007) and intentionality of exclusion (e.g., Eisenberger et al., 2003), our work suggests that factors that precede ostracism (i.e., self-affirmation) may have a greater potential for moderating negative responses to ostracism. For example, some studies have found that fostering certain psychological states before ostracism, such as holding a posture that signals dominance (Welker, Oberleitner, Cain, & Carré, 2013) and having the companionship of a close other (Teng & Chen, 2012), reduced negative responses to ostracism. This may occur because these factors, like self-affirmation, fortify participants' positive self-image prior to ostracism. Putting it in another way, because individuals immediately react to ostracism once it is detected (Williams, 2009), threat-alleviating interventions may be more effective when they precede the exclusion than when they follow it. Future research addressing this possibility is therefore likely to make a substantial contribution to the literature on ostracism and coping strategies.

5.2 CONCLUSION

Our study was the first to connect two important bodies of social psychological research -- ostracism and affirmation -- and to test the hypothesis that the efficacy of affirmation in reducing the pain of ostracism depends on the match between the level of identity being threatened by ostracism and the level of identity being bolstered by affirmation. We found that when the source of ostracism was ingroup members *and* the level of ostracism was moderate, self-affirmation was an effective intervention in mitigating negative responses to ostracism. These findings suggest the utility of future research designed to clarify the buffering effect of different kinds of affirmation on responses to different kinds of ostracism.

APPENDIX A

TABLES

Table 1. Means and standard deviations of the two attitude indices in the pilot study

Target	Pitt attitude	Outgroup attitude	Difference
CMU	4.80 (0.71)	4.08 (0.79)	0.85 (0.63)
PSU	3.46 (0.94)	3.85 (0.83)	0.65 (0.77)
WVU	2.93 (1.07)	3.67 (0.83)	0.83 (0.78)
SYC	4.30 (0.65)	4.22 (0.63)	0.45 (0.44)
IUP	3.45 (0.89)	4.27 (0.70)	0.97 (0.99)

Note. Standard deviations appear in parentheses. CMU = Carnegie Mellon University; PSU = Penn State University; WVU = West Virginia University; SYC = Syracuse University; IUP = Indiana University of Pennsylvania. Pitt attitude = Pitt students' attitudes toward outgroup students; Outgroup attitude = Pitt students' assumptions about the attitudes of outgroup students toward Pitt students. Higher values indicate more positive attitudes. Difference scores reflect the absolute difference between the two attitude indices.

Table 2. Means and standard deviations of aversiveness scores in Study 1

Type of affirmation	Source of ostracism		
	Ingroup members	Outgroup members	Overall
Self-affirmation	4.13 (0.36)	4.19 (0.66)	4.16 (0.52)
Group-affirmation	4.10 (0.64)	4.12 (0.50)	4.11 (0.56)
No-affirmation	4.04 (0.43)	4.17 (0.54)	4.11 (0.49)
Overall	4.09 (0.48)	4.16 (0.56)	4.12 (0.52)

Note. Standard deviations appear in parentheses. Higher scores reflect greater aversiveness.

Table 3. Means and standard deviations of emotional reaction scores in Study 1

		Source of ostracism		
Type of affirmation		Ingroup members	Outgroup members	Overall
Positive emotion	Self-affirmation	2.13 (0.62)	2.03 (0.88)	2.08 (0.75)
	Group-affirmation	2.35 (1.07)	2.35 (0.96)	2.35 (1.00)
	No-affirmation	2.42 (0.81)	1.99 (0.88)	2.21 (0.86)
	Overall	2.30 (0.84)	2.13 (0.91)	2.21 (0.88)
Negative emotion	Self-affirmation	3.30 (0.88)	3.35 (1.09)	3.33 (0.98)
	Group-affirmation	3.22 (1.10)	3.00 (1.02)	3.10 (1.05)
	No-affirmation	3.13 (0.92)	3.25 (0.98)	3.18 (0.94)
	Overall	3.22 (0.96)	3.19 (1.02)	3.20 (0.99)

Note. Standard deviations appear in parentheses. Higher scores reflect stronger emotion.

Table 4. Means and standard deviations of hostility scores in Study 1

		Source of ostracism			
		Type of affirmation	Ingroup members	Outgroup members	Overall
Hostility toward co-players	Self-affirmation		3.66 (1.29)	4.25 (1.66)	3.95 (1.50)
	Group-affirmation		3.93 (1.50)	3.48 (0.96)	3.69 (1.24)
	No-affirmation		3.61 (1.17)	3.62 (1.43)	3.62 (1.26)
	Overall		3.73 (1.31)	3.77 (1.39)	3.75 (1.35)
Hostility toward co-players' group	Self-affirmation		2.49 (1.36)	3.49 (1.59)	2.98 (1.53)
	Group-affirmation		2.30 (1.34)	3.53 (1.52)	2.96 (1.55)
	No-affirmation		2.80 (1.10)	3.29 (1.45)	3.04 (1.29)
	Overall		2.54 (1.27)	3.44 (1.49)	2.99 (1.45)

Note. Standard deviations appear in parentheses. Higher scores reflect stronger hostility.

Table 5. Means and standard deviations of aversiveness scores in Study 2

		Source of ostracism		
Type of affirmation		Ingroup members	Outgroup members	Overall
Reflexive response	Self-affirmation	3.49 (0.53)	3.75 (0.67)	3.62 (0.61)
	Group-affirmation	3.74 (0.46)	3.68 (0.62)	3.71 (0.54)
	No-affirmation	3.84 (0.67)	3.78 (0.66)	3.81 (0.66)
	Overall	3.69 (0.57)	3.74 (0.64)	3.71 (0.61)
Reflective response	Self- affirmation	3.14 (0.70)	3.19 (0.58)	3.16 (0.64)
	Group-affirmation	3.04 (0.59)	3.19 (0.81)	3.11 (0.70)
	No-affirmation	3.25 (0.72)	3.18 (0.62)	3.22 (0.67)
	Overall	3.14 (0.67)	3.19 (0.67)	3.16 (0.67)

Note. Standard deviations appear in parentheses. Higher scores reflect greater aversiveness.

Table 6. Means and standard deviations of emotional reaction scores in Study 2

		Source of ostracism			
		Type of affirmation	Ingroup members	Outgroup members	Overall
Positive emotion	Reflexive response	Self-affirmation	2.53 (0.89)	2.40 (0.83)	2.47 (0.86)
		Group-affirmation	2.46 (0.71)	2.47 (0.80)	2.47 (0.75_)
		No-affirmation	2.31 (0.70)	2.26 (1.04)	2.28 (0.88)
		Overall	2.43 (0.76)	2.37 (0.90)	2.40 (0.83)
	Reflective response	Self-affirmation	2.89 (0.61)	3.06 (0.77)	2.97 (0.69)
		Group-affirmation	3.11 (0.80)	3.00 (0.74)	3.06 (0.76)
		No-affirmation	2.95 (0.84)	3.11 (0.91)	3.03 (0.87)
		Overall	2.99 (0.75)	3.06 (0.87)	3.02 (0.78)
Negative emotion	Reflexive response	Self-affirmation	2.37 (0.85)	2.88 (1.07)	2.62 (0.99)
		Group-affirmation	3.02 (0.73)	2.61 (1.26)	2.83 (1.03)
		No-affirmation	3.09 (0.87)	2.65 (1.21)	2.87 (1.07)
		Overall	2.84 (0.87)	2.71 (1.17)	2.78 (1.03)
	Reflective response	Self-affirmation	1.77 (0.90)	2.21 (1.00)	1.99 (0.96)
		Group-affirmation	2.07 (0.87)	1.93 (1.12)	2.00 (0.99)
		No-affirmation	2.22 (1.16)	1.95 (1.00)	2.08 (1.08)
		Overall	2.03 (0.99)	2.02 (1.03)	2.02 (1.00)

Note. Standard deviations appear in parentheses. Higher scores reflect stronger emotion.

Table 7. Means and standard deviations of hostility scores in Study 2

		Source of ostracism			
		Type of affirmation	Ingroup members	Outgroup members	Overall
Hostility toward co-players	Self-affirmation		3.07 (1.38)	3.67 (1.28)	3.36 (1.35)
	Group-affirmation		3.28 (1.29)	3.25 (1.11)	3.26 (1.20)
	No-affirmation		3.08 (0.81)	3.55 (1.56)	3.32 (1.26)
	Overall		3.15 (1.17)	3.49 (1.33)	3.31 (1.26)
Hostility toward co-players' group	Self-affirmation		1.79 (0.93)	3.47 (1.14)	2.61 (1.33)
	Group-affirmation		2.35 (1.28)	3.49 (1.43)	2.89 (1.46)
	No-affirmation		2.19 (1.19)	3.44 (1.69)	2.83 (1.58)
	Overall		2.12 (1.16)	3.46 (1.43)	2.78 (1.46)

Note. Standard deviations appear in parentheses. Participants responded to all items using a 7-point scale. Higher scores reflect stronger hostility.

APPENDIX B

FIGURES

You can throw the ball by clicking on the name or picture of another player

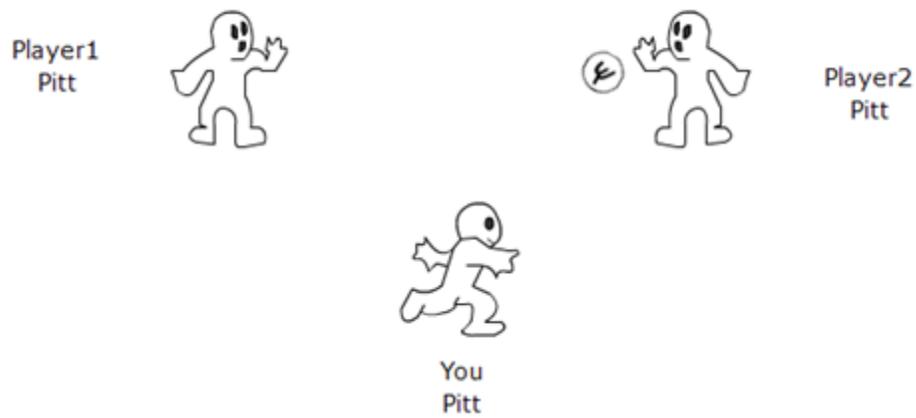


Figure 1. Depiction of the Cyberball game for the ingroup ostracism condition

You can throw the ball by clicking on the name or picture of another player

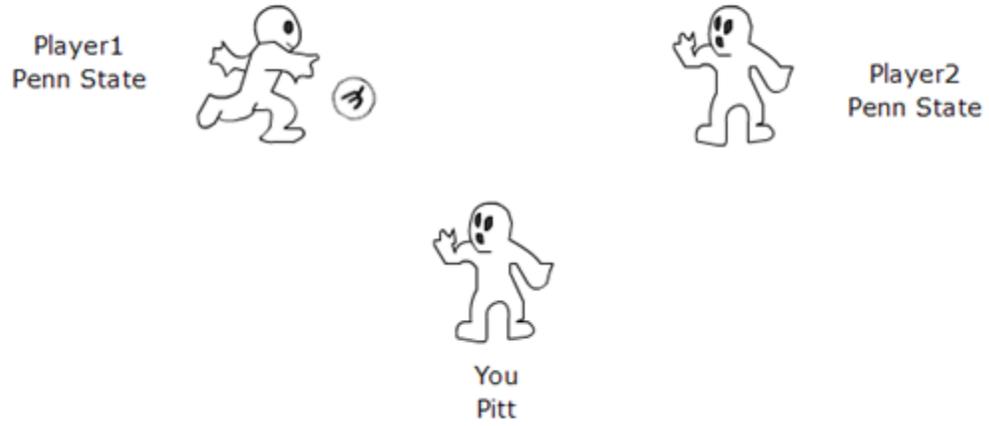


Figure 2. Depiction of the Cyberball game for the outgroup ostracism condition

BIBLIOGRAPHY

- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*(3), 497-529. doi:10.1037/0033-2909.117.3.497
- Bernstein, M. J., Sacco, D. F., Young, S. G., Hugenberg, K., & Cook, E. (2010). Being “In” with the in-crowd: The effects of social exclusion and inclusion are enhanced by the perceived essentialism of ingroups and outgroups. *Personality and Social Psychology Bulletin*, *36*(8), 999-1009. doi:10.1177/0146167210376059
- Blanton, H., Cooper, J., Skurnik, I., & Aronson, J. (1997). When bad things happen to good feedback: Exacerbating the need for self-justification with self-affirmations. *Personality and Social Psychology Bulletin*, *23*(7), 684-692.
- Branscombe, N. R., Ellemers, N., Spears, R., & Doosje, B. (1999). The context and content of social identity threat. In N. Ellemers, R. Spears, & B. Doosje (Eds.), *Social identity: Context, commitment, content* (pp. 35–58). Oxford: Basil Blackwell.
- Čehajić-Clancy, S., Effron, D. A., Halperin, E., Liberman, V., & Ross, L. D. (2011). Affirmation, acknowledgment of in-group responsibility, group-based guilt, and support for reparative measures. *Journal of Personality and Social Psychology*, *101*, 256 - 270.
- Cohen, S. (2004). Social relationships and health. *The American Psychologist*, *59*(8), 676-684. doi:10.1037/0003-066X.59.8.676
- Correll, J., Spencer, S. J., & Zanna, M. P. (2004). An affirmed self and an open mind: Self-affirmation and sensitivity to argument strength. *Journal of Experimental Social Psychology*, *40*(3), 350-356. doi:10.1016/j.jesp.2003.07.001
- Creswell, J. D., Welch, W. T., Taylor, S. E., Sherman, D. K., Gruenewald, T. L., & Mann, T. (2005). Affirmation of personal values buffers neuroendocrine and psychological stress responses. *Psychological Science*, *16*(11), 846-851. doi:10.1111/j.1467-9280.2005.01624.x
- Critcher, C. R., & Dunning, D. (2015). Self-affirmations provide a broader perspective on self-threat. *Personality and Social Psychology Bulletin*, *41*(1), 3-18. doi:10.1177/0146167214554956

- Derks, B., Van Laar, C., & Ellemers, N. (2009). Working for the self or working for the group: How self- versus group affirmation affects collective behavior in low-status groups. *Journal of Personality and Social Psychology, 96*(1), 183-202. doi:10.1037/a0013068
- Ehrlich, G. A., & Gramzow, R. H. (2015). The politics of affirmation theory: When group-affirmation leads to greater ingroup bias. *Personality & Social Psychology Bulletin, 41*(8), 1110-1122. doi:10.1177/0146167215590986
- Eisenberger, N. I., Lieberman, M. D., & Williams, K. D. (2003). Does rejection hurt? An fMRI study of social exclusion. *Science, 302*(5643), 290-292. doi:10.1126/science.1089134
- Epton, T., & Harris, P. R. (2008). Self-affirmation promotes health behavior change. *Health Psychology, 27*(6), 746-752. doi:10.1037/0278-6133.27.6.746
- Feeney, B. C., & Collins, N. L. (2014). A New Look at Social Support: A Theoretical Perspective on Thriving Through Relationships. *Personality and Social Psychology Review, 19*, 113-147. doi: 10.1177/1088868314544222
- Glasford, D. E., Dovidio, J. F., & Pratto, F. (2009). I continue to feel so good about us: In-group identification and the use of social identity enhancing strategies to reduce intragroup dissonance. *Personality and Social Psychology Bulletin, 35*(4), 415-427. doi:10.1177/0146167208329216
- Gonsalkorale, K., & Williams, K. D. (2007). The KKK won't let me play: Ostracism even by a despised outgroup hurts. *European Journal of Social Psychology, 37*(6), 1176-1186. doi:10.1002/ejsp.392
- Goodwin, S. A., Williams, K. D., & Carter-Sowell, A. R. (2010). The psychological sting of stigma: The costs of attributing ostracism to racism. *Journal of Experimental Social Psychology, 46*(4), 612-618. doi:10.1016/j.jesp.2010.02.002
- Gunn, G. R., & Wilson, A. E. (2011). Acknowledging the skeletons in our closet: The effect of group affirmation on collective guilt, collective shame, and reparatory attitudes. *Personality and Social Psychology Bulletin, 37*(11), 1474-1487.
- Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social relationships and mortality risk: a meta-analytic review. *PLoS Med, 7*(7), e1000316.
- Lakey, B., & Orehek, E. (2011). Relational regulation theory: A new approach to explain the link between perceived social support and mental health. *Psychological Review, 118*(3), 482-495. doi: 10.1037/a0023477
- Lalonde, R. N. (1992). The dynamics of group differentiation in the face of defeat. *Personality and Social Psychology Bulletin, 18*, 336-342.
- Leary, M. R., Haupt, A. L., Strausser, K. S., & Chokel, J. T. (1998). Calibrating the sociometer: The relationship between interpersonal appraisals and the state self-esteem. *Journal of Personality and Social Psychology, 74*(5), 1290-1299. doi:10.1037//0022-3514.74.5.1290

- Leary, M. R., Tambor, E. S., Terdal, S. K., & Downs, D. L. (1995). Self-esteem as an interpersonal monitor: The sociometer hypothesis. *Journal of Personality and Social Psychology*, 68(3), 518-530. doi:10.1037//0022-3514.68.3.518
- Luhtanen, R., & Crocker, J. (1992). A collective self-esteem scale: Self-evaluation of one's social identity. *Personality and Social Psychology Bulletin*, 18(3), 302-318. doi:10.1177/0146167292183006
- MacDonald, G., & Leary, M. R. (2005). Why does social exclusion hurt? The relationship between social and physical pain. *Psychological bulletin*, 131(2), 202 -223.
- McQueen, A., & Klein, W. M. P. (2006). Experimental manipulations of self-affirmation: A systematic review. *Self and Identity*, 5(4), 289-354. doi:10.1080/15298860600805325
- Miron, A. M., Branscombe, N. R., & Biernat, M. (2010). Motivated shifting of justice standards. *Personality and Social Psychology Bulletin*, 36(6), 768-779. doi:10.1177/0146167210370031
- Newsom, J. T., & Schulz, R. (1996). Social support as a mediator in the relation between functional status and quality of life in older adults. *Psychology and Aging*, 11(1), 34-44. doi:10.1037/0882-7974.11.1.34
- Pettit, N. C., & Lount, R. B. (2010). Looking down and ramping up: The impact of status differences on effort in intergroup contexts. *Journal of Experimental Social Psychology*, 46(1), 9-20. doi:10.1016/j.jesp.2009.08.008
- Sacco, D. F., Bernstein, M. J., Young, S. G., & Hugenberg, K. (2014). Reactions to social inclusion and ostracism as a function of perceived in-group similarity. *Group Dynamics: Theory, Research, and Practice*, 18(2), 129-137. doi:10.1037/gdn0000002
- Schaafsma, J., & Williams, K. D. (2012). Exclusion, intergroup hostility and religious fundamentalism. *Journal of Experimental Social Psychology*, 48(4), 829-837. doi:10.1016/j.jesp.2012.02.015
- Schmeichel, B. J., & Martens, A. (2005). Self-affirmation and mortality salience: Affirming values reduces worldview defense and death-thought accessibility. *Personality and Social Psychology Bulletin*, 31(5), 658-667. doi:10.1177/0146167204271567
- Shapiro, J. R., Williams, A. M., & Hambarchyan, M. (2013). Are all interventions created equal? A multi-threat approach to tailoring stereotype threat interventions. *Journal of Personality and Social Psychology*, 104(2), 277-288. doi:10.1037/a0030461
- Sherman, D. K., Bunyan, D. P., Creswell, J. D., & Jaremka, L. M. (2009). Psychological vulnerability and stress: The effects of self-affirmation on sympathetic nervous system responses to naturalistic stressors. *Health Psychology*, 28(5), 554-562. doi:10.1037/a0014663

- Sherman, D. K., & Cohen, G. L. (2002). Accepting threatening information: Self-affirmation and the reduction of defensive biases. *Current Directions in Psychological Science*, 11(4), 119-123. doi:10.1111/1467-8721.00182
- Sherman, D. K., & Cohen, G. L. (2006). The psychology of self-defense: Self-affirmation theory. In M. P. Zanna (Ed.) *Advances in experimental social psychology* (Vol. 38, pp. 183-242). San Diego, CA: Academic Press
- Sherman, D. K., Kinias, Z., Major, B., Kim, H. S., & Prenovost, M. (2007). The group as a resource: Reducing biased attributions for group success and failure via group affirmation. *Personality and Social Psychology Bulletin*, 33(8), 1100-1112. doi:10.1177/0146167207303027
- Smith, A., & Williams, K. D. (2004). R U there? Ostracism by cell phone text messages. *Group Dynamics: Theory, Research, and Practice*, 8(4), 291-301. doi:10.1037/1089-2699.8.4.291
- Spencer-Rodgers, J., Major, B., Forster, D. E., & Peng, K. (2016). The power of affirming group values: Group affirmation buffers the self-esteem of women exposed to blatant sexism. *Self and Identity*, 15(4), 413-431.
- Steele, C. M. (1988). The psychology of self-affirmation: Sustaining the integrity of the self. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 21, pp. 261-302). New York: Academic Press.
- Steele, C. M., & Liu, T. J. (1983). Dissonance processes as self-affirmation. *Journal of Personality and Social Psychology*, 45(1), 5-19. doi:10.1037/0022-3514.45.1.5
- Stroud, L. R., Tanofsky-Kraff, M., Wilfley, D. E., & Salovey, P. (2000). The Yale interpersonal stressor (YIPS): Affective, physiological, and behavioral responses to a novel interpersonal rejection paradigm. *Annals of Behavioral Medicine*, 22(3), 204-213. doi:10.1007/BF02895115
- Tajfel, H. & Turner, J.C. 1979. An integrative theory of intergroup conflict. In W.G. Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp: 33-47). Monterey, CA: Brooks-Cole.
- Teng, F., & Chen, Z. (2012). Does social support reduce distress caused by ostracism? it depends on the level of one's self-esteem. *Journal of Experimental Social Psychology*, 48(5), 1192.
- Uchino, B. N. (2004). *Social support and physical health: Understanding the health consequences of relationships*. New Haven, CT: Yale University Press.
- Van Beest, I., Carter-Sowell, A. R., Van Dijk, E., & Williams, K. D. (2012). Groups being ostracized by groups: Is the pain shared, is recovery quicker, and are groups more likely to be aggressive? *Group Dynamics: Theory, Research, and Practice*, 16(4), 241-254. doi:10.1037/a0030104

- Van Beest, I., & Williams, K. D. (2006). When inclusion costs and ostracism pays, ostracism still hurts. *Journal of Personality and Social Psychology*, *91*(5), 918-928. doi:10.1037/0022-3514.91.5.918
- Warburton, W. A., Williams, K. D., & Cairns, D. R. (2006). When ostracism leads to aggression: The moderating effects of control deprivation. *Journal of Experimental Social Psychology*, *42*(2), 213-220. doi:10.1016/j.jesp.2005.03.005
- Welker, K. M., Oberleitner, D. E., Cain, S., & Carré, J. M. (2013). Upright and left out: Posture moderates the effects of social exclusion on mood and threats to basic needs. *European Journal of Social Psychology*, *43*(5), 355-361. doi:10.1002/ejsp.1944
- Williams, K. D. (2009). Ostracism: A temporal need-threat model. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 41, pp. 275–314). San Diego, CA: Elsevier Academic Press
- Williams, K. D., Cheung, C. K. T., & Choi, W. (2000). Cyberostracism: Effects of being ignored over the internet. *Journal of Personality and Social Psychology*, *79*(5), 748-762. doi:10.1037/0022-3514.79.5.748
- Williams, K. D., Govan, C. L., Croker, V., Tynan, D., Cruickshank, M., Lam, A. (2002). Investigations into differences between social and cyberostracism. *Group Dynamics: Theory, Research, and Practice*, *6*, 65–77.
- Williams, K. D., & Jarvis, B. (2006). Cyberball: A program for use in research on interpersonal ostracism and acceptance. *Behavior Research Methods*, *38*(1), 174-180. doi:10.3758/BF03192765
- Williams, K. D., & Sommer, K. L. (1997). Social ostracism by coworkers: Does rejection lead to loafing or compensation? *Personality and Social Psychology Bulletin*, *23*(7), 693-706. doi:10.1177/0146167297237003
- Williams, K. D., Van Dijk, E., & Van Beest, I. (2011). Cyberbomb: Effects of being ostracized from a death game. *Group Processes & Intergroup Relations*, *14*(4), 581-596. doi:10.1177/1368430210389084
- Wirth, J. H., & Williams, K. D. (2009). They don't like our kind!: Consequences of being ostracized while possessing a group membership. *Group Processes & Intergroup Relations*, *12*(1), 111-127. doi:10.1177/1368430208098780
- Zadro, L., Boland, C., & Richardson, R. (2006). How long does it last? the persistence of the effects of ostracism in the socially anxious. *Journal of Experimental Social Psychology*, *42*(5), 692-697. doi:10.1016/j.jesp.2005.10.007
- Zadro, L., Williams, K. D., & Richardson, R. (2004). How low can you go? ostracism by a computer is sufficient to lower self-reported levels of belonging, control, self-esteem, and meaningful existence. *Journal of Experimental Social Psychology*, *40*(4), 560-567. doi:10.1016/j.jesp.2003.11.006

FOOTNOTES

¹ Analyses with and without excluded participants yielded the same pattern of findings.

² The four items assessing group identification were highly inter-correlated in both Study 1 (Cronbach's alpha = .86) and Study 2 (Cronbach's alpha = .88). Thus, in each study, an index score of group identification was computed by reverse-coding responses to appropriate items and then averaging responses across the four items. To examine whether group identification moderated the effect of group-affirmation, hierarchical regression analyses were conducted in both Study 1 and Study 2 predicting each of the dependent variables from type of affirmation (dummy-coded), source of ostracism (dummy-coded), group identification (centered), and all possible two-way and three-way interaction terms. Results showed that neither the main effect of group identification ($|\beta|s < .28, ps > .26$ for Study 1; $|\beta|s < .08, ps > .65$ for Study 2) nor any interaction term involving group identification ($(|\beta|s < .28, ps > .22$ in Study 1; $|\beta|s < .31, ps > .14$ in Study 2) attained statistical significance in predicting any of the dependent measures. The grand mean of group identification was 4.59 ($SD = 1.25$) in Study 1 and 4.39 ($SD = 1.37$) in Study 2. Therefore, in the present studies, group identification did not moderate the effect of group affirmation.

³ Analyses with and without excluded participants yielded the same pattern of findings.