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# When Does the Straw Break the Camel's Back?: Examination of the Exclusion-Elicited Anti-Social Behavior Model

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When Does the Straw Break the Camel's Back?:  
Examination of the Exclusion-Elicited Anti-Social Behavior Model

by

Douglas P. Cooper

A dissertation submitted in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy  
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College of Arts and Sciences  
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## **Dedication**

I dedicate this dissertation to my wife, Melissa, and my daughter, Hallie. Both of you gave up the comforts of home to spend the last five years waiting for me to realize my dreams, listening to my complaints, reminding me to take a break, and cheering me on when the finish line seemed so close. It is now your turn to chase your dreams and I hope I can do the same for the both of you.

I would like to thank my parents and family for their emotional and financial support through these years and teaching me the value of hard work and perseverance.

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## Table of Contents

List of Tables .....	iii
List of Figures .....	iv
Abstract .....	v
Introduction .....	1
Evolution and the Use and Detection of Ostracism .....	2
A Model and Temporal Process of Ostracism .....	4
Pro-Social Responses to Exclusion .....	5
Anti-Social Responses to Exclusion .....	7
Explanations for Anti-Social Responses .....	9
Exclusion-Elicited Model of Anti-Social Behavior .....	12
Components of the Model .....	13
Exclusion typicality .....	13
Self-esteem .....	14
Self-regulation .....	15
Anti-social behavior .....	15
Overview of the Present Studies .....	16
Hypotheses .....	16
Hypothesis 1 .....	16
Hypothesis 2 .....	17
Hypothesis 3 .....	17
Hypothesis 4 .....	18
Hypothesis 5 .....	18
Summary .....	19
Study 1 .....	22
Overview .....	22
Method .....	22
Design .....	22
Participants .....	23
Materials .....	23
Exclusion typicality .....	23
Trait self-esteem .....	24
Felt exclusion experiences .....	24
State self-esteem .....	24

Procedure .....	25
Data analytic strategy .....	25
Results .....	26
Univariate growth curves .....	26
Exclusion experiences .....	26
State self-esteem .....	27
Hypothesis 1 .....	27
Hypothesis 2 .....	30
Hypothesis 3 .....	31
Discussion .....	32
Study 2 .....	42
Overview .....	42
Method .....	42
Design .....	42
Participants .....	43
Materials and procedure .....	43
Pre-exclusion handgrip measure .....	44
Exclusion manipulation .....	44
State self-esteem .....	45
Mood .....	46
Post-exclusion handgrip measure .....	46
Aggression and pro or anti-social behavior opportunity .....	46
Results .....	47
Hypothesis 4 .....	47
Exclusion and mood .....	47
Exclusion typicality and state self-esteem .....	48
Exclusion typicality and self-regulation .....	48
Exclusion typicality, aggression, and anti-social outcomes .....	48
Hypothesis 5 .....	49
Self-esteem and state self-esteem .....	49
Self-esteem and self-regulation .....	50
Self-esteem, aggression, and anti-social outcomes .....	50
Discussion .....	51
General Discussion .....	61
Summary .....	61
Implications for the Model and Future Directions .....	63
Limitations .....	65
Conclusions .....	67
References .....	68
About the Author .....	End Page

### List of Tables

Table 1. Parameter Estimates for Exclusion Experiences Growth Curve .....	37
Table 2. Parameter Estimates for State Self-Esteem Growth Curve .....	38
Table 3. Summary of Hierarchical Regression Analysis for Effects of Exclusion Typicality and Exclusion Experiences on Self-Regulation .....	55
Table 4. Summary of Hierarchical Regression Analysis for Effects of Exclusion Typicality and Exclusion Experiences on Aggression .....	56

## List of Figures

Figure 1. Proposed Model of Exclusion-Elicited Anti-Social Behavior .....	21
Figure 2. Mediation Model of Exclusion Typicality at Time 1 and 2 and Felt Exclusion Experiences .....	39
Figure 3. Mediation Model of Exclusion Typicality, Self-Esteem, and Exclusion Experiences .....	40
Figure 4. Mediation Model of Exclusion Experiences, Trait Self-Esteem, and State Self-Esteem .....	41
Figure 5. State Self-Esteem as a Function of Exclusion Typicality (+/- 1 <i>SD</i> ) and Exclusion Experience .....	57
Figure 6. State Self-Esteem as a Function of Trait Self-Esteem (+/- 1 <i>SD</i> ) and Exclusion Experience .....	58
Figure 7. Self-Regulation as Function of Trait Self-Esteem (+/- 1 <i>SD</i> ) and Exclusion Experience .....	59
Figure 8. Appeal of Aggressive Behaviors as a Function of Self-Esteem (+/- 1 <i>SD</i> ) and Exclusion Experience .....	60

## **Abstract**

Being excluded should motivate pro-social behaviors. Yet, exclusion can incite aggressive and anti-social responses. Two studies were conducted to examine how frequent experiences of exclusion impact self-esteem, perceptions that exclusion is typical of social experiences, and anti-social behaviors. In Study 1, participants completed pre and post-measures of exclusion typicality and self-esteem and reported, over eight weeks, feelings of exclusion and state self-esteem. Results supported the hypotheses in that experiences feeling excluded have direct and indirect effects on state and trait self-esteem as well as on exclusion typicality. In Study 2, participants were exposed to an exclusion manipulation and subsequent aggressive and anti-social behaviors were assessed. Results were inconsistent with hypotheses that exclusion typicality and self-esteem would moderate responses to exclusion. Discussion focuses on the implications for a model of exclusion elicited anti-social behaviors.

## Introduction

Human beings are social creatures, craving the emotional and physical advantages conferred by belonging to a group (e.g., Buss, 1990; Baumeister & Leary, 1995). Thus, experiences of ostracism, in which one is excluded from social interactions (e.g., Williams, 1997/2001), should motivate behavior aimed at restoring affiliations. Indeed, experiences of exclusion have been shown to lead to increased cooperative behavior (Williams & Sommer, 1997), conformity (Williams, Cheng, & Choi, 2000), and non-conscious behavioral mimicry (Lakin, Chartrand, & Akin, 2008; see also Lakin & Chartrand, 2004). In startling contrast, research has also documented that exclusion can provoke hostility and aggression against not only the perpetrator of exclusion but also innocent bystanders (e.g., Twenge, Baumeister, Tice, & Stucke, 2001; see also Catanese & Tice, 2004). At its most extreme, Leary, Kowalski, Smith, and Phillips (2003) found that chronic experiences of exclusion and unrequited love were common factors in 13 of the 15 school shootings that occurred in the United States from 1995 to 2001. Such responses are clearly not likely to restore affiliations.

A couple of explanations have been proposed to explain the paradox of anti-social, and thus potentially self-defeating (in that such responses are likely to promote further exclusion), responses to exclusion. In particular, Warburton and Williams (2005) account for anti-social responses as a function of competing motivations to restore needs

for control and meaningful existence and Blackhart, Baumeister, and Twenge (2006) ascribe such responses to momentary deficits in the ability to self-regulate. Such accounts, however, fail to consider the interaction between prior experiences of exclusion and its impact on self-esteem and self-regulation. Recently, I have proposed a conceptual model of exclusion-elicited anti-social behavior to explain how frequent experiences of exclusion have lasting detriments to self-esteem and the ability to self-regulate behavior, ultimately decreasing the likelihood that individuals will respond to an experience of exclusion with a pro-social behavioral response (Cooper, 2009). The model was tested with two studies. In Study 1, college students were surveyed throughout the semester, reporting the extent to which they felt excluded each week over an eight week period and the extent to which those experiences impacted feelings of state self-esteem. In Study 2, college students experienced exclusion in a lab and subsequently were tested on their ability to self-regulate and reported their attraction to aggressive behaviors towards others. Participants were also given the opportunity to behave anti-socially.

### **Evolution and the Use and Detection of Ostracism<sup>1</sup>**

There is little doubt that human beings desire social affiliation (for a review, see Baumeister & Leary, 1995). Groups provide access to shared resources, potential mating opportunities, and “strength in numbers” when confronting danger (Buss, 1990). Groups also provide emotional support in times of need. Research has documented the importance of social support when dealing with stress (Thoits, 1995) and illness (Koopman, Hermanson, Diamond, Angell, & Spiegel, 1998) as well as its role in mitigating existential concerns (Florian, Mikulincer, & Hirschberger, 2002).

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<sup>1</sup> There are subtle but arguable conceptual differences in the definitions of ostracism and exclusion. Thus, I use the term identified by the researcher when reporting on previous literature but refer to my own research with the term exclusion, which more accurately reflects the event people experience.

Intuitively then, it should be no surprise that being excluded threatens human needs for social affiliation. If one is excluded, then the shared resources, mating opportunities, and protection provided by groups become the responsibility of the excluded, ultimately making survival and reproduction more difficult if not impossible. From an evolutionary perspective, the implication is that the threat of exclusion helps maintain group affiliation. Williams (1997), for example, pointed out that across time and cultures, exclusion has been used as punishment for religious and societal infractions (e.g., excommunication and jail), as a method of discipline for parents and schools (e.g., timeout), and is frequently a behavior used to convey frustration with a significant other (e.g., cold shoulder). Kurzban and Leary (2001) further suggest that exclusion evolved to maintain distance between stigmatized groups that posed a threat to the group.

Moreover, the implication is that humans evolved a system to detect and respond to exclusion (Spoor & Williams, 2006; Williams & Zadro, 2005). A quick detection would motivate psychological and behavioral reactions to alleviate real or perceived exclusion from groups. In fact, research suggests that the system devoted to the detection of physical pain may also be responsible for the experience of social pain (e.g., MacDonald & Leary, 2005). Eisenberger, Lieberman, and Williams (2003), for example, found that the anterior cingulate cortex (ACC), an area of the brain responsible for the detection of physical pain, was activated in participants excluded from a computer ball tossing game and the activation of the ACC was correlated to self-reported distress. In subsequent studies, Eisenberger, Jarcho, Lieberman, and Naliboff (2006) found that increased physical pain sensitivity predicted social pain sensitivity in response to exclusion and that exclusion heightens sensitivity to physical pain. The pain system is

designed to promote reflexive responses to the source of pain. Likewise, Williams (2007) argues that the initial response to exclusion is one of painful distress designed to quickly motivate attention to the source of exclusion. Thus, natural selection favored individuals who could quickly detect and correct for the experience of exclusion, resulting in a system designed to quickly detect and respond to exclusion.

### **A Model and Temporal Process of Ostracism**

Williams' (1997/2001) model of ostracism posits that initial reactions to exclusion consist of painful responses followed by a decrease in feelings of belonging, self-esteem, control, and meaningful existence. This reflexive stage is followed by a reflective stage in which cognitive appraisals of the situation and individual differences mitigate or aggravate the threat to psychological needs and behavior is motivated by attempts to restore the four lost needs. *Belonging* (Williams, 1997; see also Baumeister & Leary, 1995) encompasses the human need to belong to stable and beneficial groups, a need that when threatened increases anxiety, loneliness, jealousy, and decreases self-esteem (Baumeister & Tice, 1990; Leary, 1990; Cacioppo & Hawkley, 2005). Humans also have a need for *self-esteem*, or a sense of self-worth (Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004), that is intimately tied to the feeling that one is included (Leary, Tambor, Terdal, & Downs, 1995) and, consequently, is undermined by being excluded.

Humans have a need for *control* over their environment in general and social situations in particular. Exclusion denies the targets of exclusion with the ability to control the experience while, at the same time, provides an increase in control for the source (e.g., Williams, 2001; Zadro, Williams, & Richardson, 2005). Finally, Case and Williams (2004) elaborate on the need for *meaningful existence* in which one desires to

feel like a valuable, meaningful member of society (see also Greenberg, Solomon, & Pyszczynski, 1997). Clearly, exclusion makes one feel less valuable, invisible to others, and may even elicit cognitive comparisons to death.

Williams (2001) posits that there are short and long-term effects of exclusion on both psychological needs and behavior. While short-term behavior is aimed at restoring psychological needs and is moderated by cognitive appraisal and individual differences, long-term exposure to exclusion likely leads to learned helplessness as one encounters repeated threats and failure to restore psychological needs. Additionally, long-term exclusion can lead individuals to internalize the lost needs leading to chronically low levels of belonging, self-esteem, control, and meaningful existence (Williams, 2001), increases in feelings of social isolation and loneliness (Cacioppo & Hawley, 2005), and has been implicated as a factor in 13 school shootings from 1995 to 2001 (Leary et al., 2003).

### **Pro-Social Responses to Exclusion**

An evolved quest for affiliation, and a system designed for detection when that quest fails, predicts that exclusion should motivate pro-social behaviors. Indeed, from an evolutionary perspective, engaging in pro-social, affiliative behaviors increases the chances of regaining access to reproductive resources and protection from threats with either the group that excluded the individual or from a new group. According to Pickett and Gardner (2005), success at social interactions after exclusion depends on a social monitoring system that is attentive to social cues and information. Similarly, the analogy of the sociometer to a gas gauge predicts that exclusion should increase efforts to gain inclusion, refilling the empty self-esteem tank (Leary et al., 1995). Just as medicine is

most likely to reduce physical pain, social pain from exclusion is most easily remedied with affiliation that restores lost psychological needs.

Research has supported the assumption that exclusion motivates affiliative behaviors. Williams and Sommer (1997) randomly assigned participants to either play catch for five minutes with two other confederates or to only receive the ball for the first minute. Subsequently, participants generated lists of uses for objects that would either be combined with the rest of the group to determine total group output (e.g., collective group task) or would be compared to the other members of the group (e.g., coactive group task). They found that female participants who were excluded worked harder at the collective group task, generating a larger number of uses for the object than female participants who were included or worked at the coactive task, presumably in an effort to make themselves desirable to the group. Williams, Cheung, and Choi (2000) used a computer programmed game of catch (e.g., Cyberball, Williams & Jarvis, 2006) to either exclude or include individuals and then measured their conformity to unanimously incorrect decisions. Participants who were excluded conformed to the decision of the new group more often than participants who were included.

Additionally, people who have been excluded put themselves in position to be liked and included by others both consciously and unconsciously. Lakin et al. (2008; see also Lakin & Chartrand, 2005) excluded participants using Cyberball and then had them subsequently describe photographs to a new, female confederate posing as a participant. The confederate moved her foot throughout the interaction while a videotape recorded the foot behavior of the participant. They found that excluded participants engaged in more unconscious behavioral mimicry than included participants by tapping their own foot

along with the confederate (though no participant acknowledged tapping their foot), presumably in an effort to build rapport with the confederate, an important characteristic of affiliation with a new person. And Maner, DeWall, Baumeister, and Schaller (2007) found that excluded, but not included, participants were more willing to meet new people and work with a group than alone. Thus, it appears that people engage in both conscious and unconscious affiliative behaviors in an effort to increase the likelihood of being included by the group or gain inclusion into a new group.

### **Anti-Social Responses to Exclusion**

Despite support for the intuitive prediction that exclusion should motivate pro-social behavior, a number of studies have documented decreases in pro-social behavior. Twenge, Baumeister, DeWall, Ciarocco, and Bartels (2007), for example, told participants that they would end up alone in life, have positive relationships late in life, or would be accident prone and then measured how much money they gave to a student fund. Compared to included participants, excluded participants gave less money to the student fund. In a second study, participants were told that either nobody, or everybody, from a previous interaction wanted to work with them on a second task. Participants were then asked to volunteer for additional studies. Whereas almost all the included participants volunteered for at least one additional study, only a minority of excluded participants volunteered for at least one study. They also found that participants anticipating a life with few relationships (e.g., exclusion) were less cooperative in a prisoner's dilemma game in which cooperation produces benefits for both players but competition hurts both players. Importantly, the decision to be less cooperative after exclusion was not affected by mood.

Additionally, research indicates that people respond to exclusion by derogating those that excluded them. Bourgeois and Leary (2001) for example, told participants that two team captains for a group competition would ask questions and then choose team members. Participants were told that they were either picked last or first by the team captain and, subsequently, rated their team captain. Participants picked last rated the captain more unfavorably than participants picked first by their team captain. Twenge et al. (2001) told participants they would end up alone in life, they would have positive relationships, or would be in several accidents. Participants' views on a topic were then insulted by another participant, who ostensibly turned out to be a candidate for a research assistant position. Participants led to believe they would end up alone in life responded to the insult with a more negative evaluation of the potential research candidate. In another study, participants told no one wanted to work with them on an upcoming task responded to an insult from another person with more obnoxious noise blasts.

More alarming is that excluded individuals also aim their aggression at innocent bystanders. Twenge and colleagues (2001) told participants that either everyone or no one wanted to work with them. Participants were then given the opportunity to play a game in which the loser would receive a noise blast determined by the winner. Participants who were excluded responded with increased aggression towards a person who did not exclude or insult them. Thus, not only do people respond with aggression towards someone who insulted them after being excluded but even someone who is innocent is attacked by someone who is excluded.

All of these studies were conducted in a lab and so it could be argued that these findings may not extend to real life experiences of exclusion. However, this does not

appear to be the case as research has found a very strong link between exclusion and aggression in more ecological settings. Downey, Feldman, and Ayduk (2000) found that men high in rejection sensitivity (i.e., anxiously expect and perceive rejection in romantic and close relationships, Downey & Feldman, 1996) who were heavily invested in a relationship reported more dating violence than men who were not invested in the relationship. Equally alarming, Leary et al. (2003) analyzed 15 school shootings that took place between 1995 and 2001. They found that in all but two of the cases, the shooters had experienced chronic rejection by peers and romantic interests. In particular, Leary and colleagues noted that one week prior to the shootings at Columbine High School, Eric Harris had been rejected by the Marines and turned down by a girl had asked to go to prom. And Andy Williams had been “maliciously bullied by his schoolmates and desired to simply ‘fit in’” (p. 207), before killing two students and wounding 13 others in Santee, California. More recently, Seung-Hui Cho killed 32 students and faculty at Virginia Tech University with a final report detailing childhood experiences of exclusion, a lifetime of social isolation, and a dysfunctional belief that he was a savior for the rejected (Report of the Virginia Tech Review Panel, 2007). While clearly, exclusion was not the only factor associated with the violence of these cases, a common theme is the prevalence of a history of exclusion and rejection.

### **Explanations for Anti-Social Responses**

Two major explanations have been put forward to address why and when people respond to exclusion with anti-social reactions. According to Warburton and Williams (2005), anti-social, non-affiliative behavior results from efforts to restore lost psychological needs and, in particular, when motivations to restore lost needs conflict

with one another. Implicit motivations to increase control and meaningful existence by retaliating often conflict with explicit motivations to increase belonging and self-esteem through affiliation. Williams, Case, and Govan (2003), for example, found that participants who were excluded reported low levels of explicit prejudice against aboriginal people but higher levels of implicit prejudice than included participants. In a similar vein, Maner et al. (2007) found that excluded participants responded with increased rewards for a new partner whom they would later meet but less rewards if they were told they would not meet the partner. Thus, engaging in pro versus anti-social behaviors may very well depend on striking a balance between efforts to retaliate and get even or affiliate and be included.

Warburton and Williams (2005) suggest that this balance becomes uneven when there is no expectation of social evaluation. When one is not expecting to have any future interactions in which affiliation can occur, implicit motivations for retaliation and to restore control and meaningful existence may lead to anti-social responses. That is, without expectations for future interaction, one may lean towards retaliation rather than affiliation. For example, participants excluded in a ball tossing game and then allowed to control the onset of noise blasts allocated less hot sauce to a partner (who was notably averse to hot foods; Warburton, Williams, & Cairns, 2006). In a similar vein, Maner et al. (2007) found that excluded participants gave more money to a stranger when they were told that there would be a future interaction with the stranger. In contrast, Twenge and colleagues (2001) studies conclude after without mention of a future interaction. Thus, the participant does not have the option or worry of future affiliation, increasing the likelihood that the participant responds with aggression.

A second explanation for the link between exclusion and aggression has focused on self-regulation in response to exclusion. According to Baumeister and Vohs (2005; see also Baumeister & Vohs, 2007), self-regulation is the ability to deny immediate impulses for long-term benefits. At the societal level, it involves forgoing one's own desires for the benefit and betterment of society. Muraven, Tice, and Baumeister (1998) found that participants who were told to suppress or exaggerate their emotions to a distressing film clip subsequently performed worse on a hand-grip measurement, which depends less on strength and more on self-regulation to maintain the grip. A second study found that telling participants to suppress thoughts about a white bear decreased the amount of time they spent trying to solve unsolvable anagrams. Similarly, Baumeister, Bratslavsky, Muraven, and Tice (1998) found that participants told to eat radishes rather than chocolate chip cookies quit sooner on unsolvable puzzles and DeWall, Baumeister, Stillman, and Galliot (2007) found that participants instructed to break a habit reported less likelihood to help strangers by donating money. Thus, self-regulation is the ability to control one's behavior and having to control one's behavior in one situation decreases the ability to self-regulate in a subsequent situation.

Baumeister and Vohs (2007) argue that self-regulation is the backbone of success in society as we have developed an implicit social contract in which self-serving goals are secondary to goals that better serve society. In other words, proper functioning of society depends on the ability of its individuals to make sacrifices of their own wants. However, when a person is excluded, this social contract is undermined (Baumeister & DeWall, 2005; see also Blackhart et al., 2006). Thus, when one is excluded, the contract that required them to behave appropriately and to benefit society is no longer valid. In support

of this reasoning, Baumeister, DeWall, Ciarocco, and Twenge (2005) found that exclusion decreased the ability to engage in self-regulation. Participants told they would end up alone in life drank less of a healthy but bad tasting beverage and, in a second study, participants told no one else wanted to work with them ate more cookies. Additionally, DeWall et al. (2007) told participants after they started eating a donut that they were actually supposed to eat radishes and to avoid eating anymore of the donut. Participants then had an essay they had written insulted and were asked to allocate hot sauce to the person that insulted them. They found that participants who were forced to restrain further consumption of the donut allocated more hot sauce to the person that insulted them. Together these findings support the idea that exclusion decreases the ability to engage in appropriate, pro-social behaviors due to deficits in self-regulation.

### **Exclusion-Elicited Model of Anti-Social Behavior**

In an effort to explain the relationship between exclusion and anti-social behaviors, I have recently proposed a model of exclusion-elicited anti-social behavior (see Figure 1; Cooper, 2009). The model attempts to elucidate the influence that a history of feeling excluded has on the self and, in turn, the role of that self on behavior. Specifically, the model examines how more frequent experiences feeling excluded can lead to perceptions that exclusion is a typical result of social interactions. Moreover, the model posits that the state self-esteem mediates the relationship between these experiences and trait self-esteem and that the experiences feeling excluded mediate the relationship between exclusion typicality and trait self-esteem. I first describe the components of the model and support for those components followed by hypotheses derived from the model.

## Components of the Model

**Exclusion typicality.** Exclusion typicality is the perception that one has experienced exclusion frequently or typically throughout their life. Moreover, feeling as if one is consistently excluded in social situations may form the expectation that one will be excluded in future social situations. Thus, individual differences in exclusion typicality reflect how frequently one has been excluded in their lifetime of social experiences as well as the perception that one is likely to be excluded.

Importantly, exclusion typicality, though statistically related (i.e.,  $r = .33$  in pilot studies), makes several conceptual distinctions from rejection sensitivity, which is an assessment of one's anxious expectations, perceptions, and overreactions to rejection (Downey & Feldman, 1996). For one, rejection sensitivity is assessed by presenting individuals with scenarios in which one might be rejected and, subsequently, how would they feel in that situation. Moreover, these scenarios describe the potential for rejection in relationships with significant others (e.g., friends, loved ones). In contrast, exclusion typicality assesses a broader perception that exclusion is typical of life experiences rather than if they feel excluded in certain situations. Additionally, it assesses this typicality outside of existing relationships implying that exclusion typicality assesses the perception of exclusion in the desire to form relationships as well as the maintenance of those relationships. Finally, a history of rejection can lead to rejection sensitivity, exclusion typicality more explicitly assess whether a history of exclusion can lead to broader perceptions of exclusion as an expectation in social interactions.

**Self-esteem.** Self-esteem is one's perception of self-worth (Rosenberg, 1965; Pyszczynski et al., 2004). More specifically, Leary et al. (1995) view self-esteem as a monitoring system designed to detect the degree to which one is being included or excluded. State self-esteem, according to the sociometer theory, is the moment to moment fluctuations in one's perception of inclusion. Leary and colleagues liken the sociometer to a gas gauge and when the gauge gets low and one perceives that they are likely to be excluded, they engage in behaviors to restore or fill up, increasing self-esteem. Over the long-term, experiences of exclusion and inclusion determine trait self-esteem.

Similar to Williams (2001), self-esteem is a critical component of the model. Williams et al. (2000), for example, found that exclusion decreases self-reported feelings of self-esteem. Moreover, self-esteem has been identified as important moderator of exclusion. Nezlek, Kowalski, Leary, Blevins, and Holgate (1997) found that participants low in trait self-esteem responded to exclusion with decreased state self-esteem and decreased perceived social acceptance and Sommer and Baumeister (2002) found that participants low in self-esteem responded to exclusion primes with decreased endorsement of positive personal traits and increased endorsement of negative personal traits. Dandeneau and Baldwin (2004) additionally found that people with low self-esteem inhibit socially rejecting information to protect self-esteem. Using a modified Stoop task with rejection-related words, participants with low self-esteem experienced more interference with rejection-related words.

More ambiguous has been the association between self-esteem and anti-social behavior. While some researchers argue that anti-social behavior is associated with

threats to high self-esteem, others have argued anti-social behavior is associated with low self-esteem. Baumeister, Bushman, and Campbell (2000), for example, argue that an unstable, highly favorable view of the self is likely to lead to aggression when that view is threatened. Specifically, Bushman and Baumeister (1998) suggest that narcissism, more so than self-esteem is related to aggressive responses. In an analysis of self-esteem, Baumeister, Campbell, Krueger, and Vohs (2003) found that self-esteem is not a direct cause of violence. In contrast, Donnellan, Trzesniewski, Robins, Moffitt, and Caspi (2005) found that low self-esteem is related to higher levels of delinquency, externalizing problems, and aggression.

**Self-regulation.** As mentioned, self-regulation is likened to a muscle that controls the ability to forgo immediate impulses or delay short-term gratification for long-term benefits (Baumeister, Vohs, & Tice, 2007). Additionally, like a muscle, self-regulation can be increased by engaging in self-regulation. However, experiences of exclusion have been found to undermine the ability to self-regulate (Baumeister, Dewart, Ciarocco, & Twenge, 2005). Thus, repeated experiences of exclusion would seem to lead to a chronic inability to self-regulate.

**Anti-social behavior.** Williams (2007) suggests that exclusion elicits reflective, behavioral responses aimed at restoring lost psychological needs. Consistent with this reasoning, the final outcome of the model is engaging or one's willingness to engage in anti-social behavior. If one sees pro-social behavior as an effort to affiliate with others, increasing the likelihood of inclusion, then non-affiliative behavior can be viewed as anti-social, decreasing the likelihood of inclusion.

## **Overview of the Present Studies**

Building on the existing literature and the conceptual model of exclusion-elicited anti-social behavior, the present studies were designed to test the components and pathways of the model. Study 1 was a longitudinal study designed to test whether exclusion experiences can increase the perception that exclusion is typical of life experiences and decrease feelings of self-worth. Participants were provided with an initial survey that assessed exclusion typicality and trait self-esteem (Time 1), followed by eight weekly surveys that assessed how frequently they felt excluded and their feelings of self-worth over the last week (Time 2 – Time 9). Finally, participants completed a final survey consisting of a post-measure of exclusion typicality and trait self-esteem (Time 10).

Study 2 was an experimental study that assessed whether a laboratory experience of exclusion would interact with exclusion typicality and self-esteem to effect state self-esteem and self-regulatory abilities and whether, in turn, the effects on state self-esteem and self-regulatory abilities would affect the attraction to aggressive behaviors towards others and the opportunity to engage in an anti-social behavior.

## **Hypotheses**

**Hypothesis 1.** Study 1 tests the hypothesis that high levels of exclusion typicality at Time 1 will predict higher exclusion typicality at Time 10. Indeed, since exclusion typicality is a trait perception of exclusion across life's experiences, one would expect that increased perceptions that exclusion is typical of life experiences at the beginning would predict increased perceptions that exclusion is typical of life experiences at the end of the ten weeks. Importantly, however, the present theoretical model predicts that this

perception is created by feelings of exclusion. Thus, experiences of feeling excluded are expected to mediate the relationship between exclusion typicality at Time 1 and Time 10.

**Hypothesis 2.** Study 1 also tests the hypothesis that high levels of exclusion typicality at Time 1 will predict decreases in trait self-esteem at Time 10 while controlling for Time 1 trait self-esteem. Past research has suggested that long-term consequences of exclusion include chronically low levels of self-esteem (Williams, 2001; Leary et al., 1995). Likewise, the theoretical model posits that perceptions of exclusion typicality have a direct effect on feelings of self-worth. Thus, if one perceives exclusion to be a more frequent outcome of life experiences, then global self-esteem is expected to suffer. Moreover, since self-esteem is so intimately tied to exclusion, experiences feeling excluded are expected to mediate this relationship.

**Hypothesis 3.** Finally, Study 1 tests the hypothesis that higher levels of experiences feeling excluded will predict lower trait self-esteem at Time 10 even when controlling for Time 1 trait self-esteem. As already suggested, a global sense of self-worth is often a product of the extent to which one feels excluded by others. Thus, the model posits that experiences feeling excluded will be directly and negatively related to trait self-esteem. Moreover, the present theoretical model and past research (Leary et al., 1995) suggest that a single episode of exclusion will undermine moment to moment feelings of self-worth. Over time, repeated feelings of exclusion and accompanying decrease in state self-esteem will ultimately lead to the hypothesized deficits in global self-worth. Consequently, this association is likely to be mediated by state self-esteem.

**Hypothesis 4.** Study 2 tests the hypothesis that exclusion typicality will moderate the reaction to an experience of exclusion to affect state-self esteem, self-regulatory abilities, and anti-social behavioral outcomes. Past research has found that state self-esteem is affected by an exclusion experience among individuals high in exclusion typicality (Cooper, 2009). Likewise, to the extent that exclusion experiences deplete self-regulatory abilities, the frequent experiences of exclusion that characterizes individuals high in exclusion typicality should also lead to chronic inability to self-regulate, particularly when one has just experienced exclusion. Finally, considering that past research has found that exclusion increases anti-social and aggressive behavior (e.g., Twenge et al., 2001; Warburton et al., 2006; Leary et al., 2003), one would also expect that people who have experienced exclusion more frequently may be more likely to lash out in retaliation to exclusion. Exclusion typicality is expected to interact with an experience of exclusion to decrease state self-esteem and self-regulation and increase attraction to and engagement in aggressive and anti-social behaviors. However, the model also suggests that one potential mechanism by which a history as well as an experience of exclusion leads to anti-social behavior is the momentary deficits in state self-esteem and inability to control appropriate social behaviors. Thus, it is also hypothesized that state self-esteem and self-regulatory abilities will each mediate anti-social behavioral outcomes.

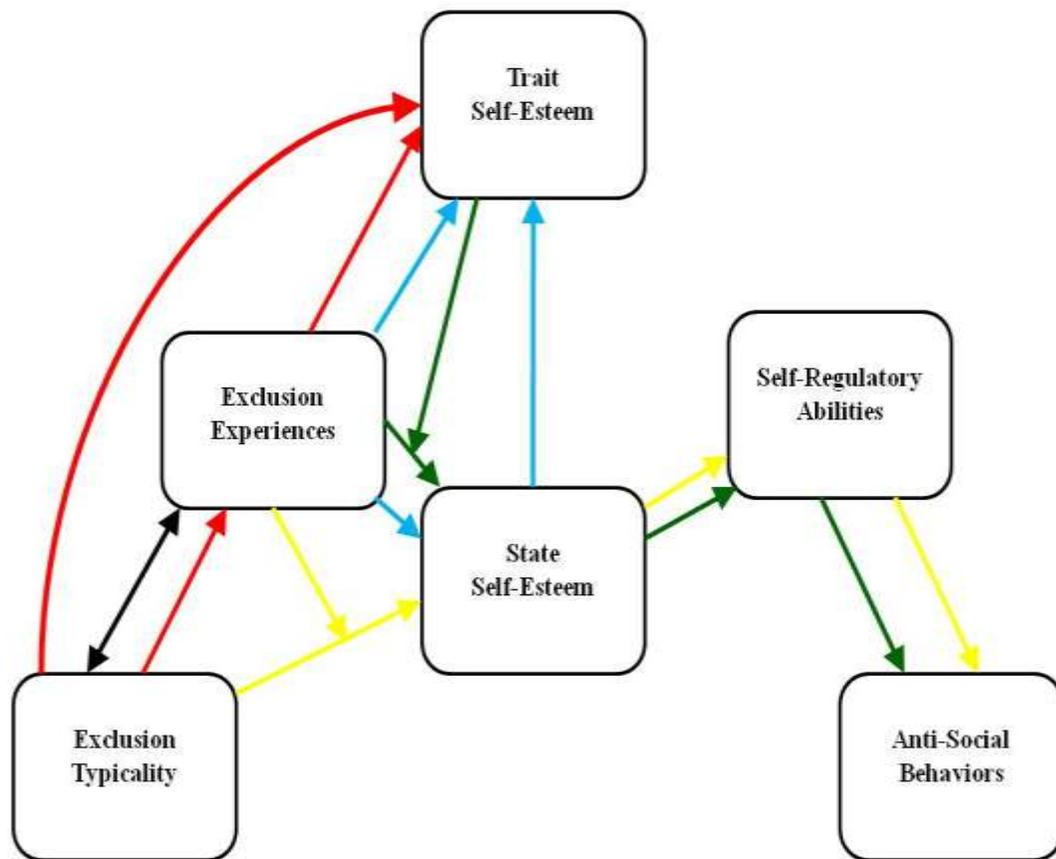
**Hypothesis 5.** In a similar vein, Study 2 tests the hypothesis that trait self-esteem will moderate the reaction to an experience of exclusion to affect state-self esteem, self-regulatory abilities, and anti-social behavioral outcomes. Considering that trait self-esteem is a product of the ups and downs of state self-esteem, one would expect that an

experience of exclusion would lead to lower state self-esteem among individuals who are already lower in trait self-esteem. Additionally, to the extent that self-regulation produces positive outcomes in self-worth, exclusion experiences should also undermine self-regulation among individuals who are low in self-esteem and, consequently, less able to control their behavior. Finally, past research has found that chronically low feelings of self-worth are related to anti-social behaviors (Donnellan et al., 2005). Thus, one would expect that for individuals low in self-esteem, exclusion would make aggression towards other more appealing and increase the tendency to engage in anti-social behavior. Finally, as in Hypothesis 4, decreases in state self-esteem and self-regulation are posited as mechanisms by which a history and experience of exclusion can lead to anti-social behaviors. Consequently, it is hypothesized that state self-esteem and self-regulatory abilities will each mediate anti-social behavioral outcomes.

### **Summary**

Exclusion is the process of individuals or groups excluding, and often ignoring, another group or individual (Williams, 2001; 2007) and threatens psychological needs for belonging, self-esteem, control, and meaningful existence. Behavioral responses to exclusion are, at times, pro-social, increasing cooperation, conformity, and non-conscious behavioral mimicry. Pro-social or affiliative behavior is an intuitive response to exclusion, increasing the probability of future inclusion. However, other research has documented a counterintuitive, and often tragic, trend with exclusion increasing hostility and aggression towards both someone who provides an insult as well as innocent bystanders. I have proposed a model of exclusion-elicited anti-social behavior to explain the pathway in which exclusion typicality and experiences of exclusion negatively affects

self-esteem and the ability to engage in self-regulation, culminating in non-affiliative, anti-social behavior.



*Figure 1.* Proposed Model of Exclusion-Elicited Anti-Social Behavior. Hypothesis 1 is depicted by the black arrow; Hypothesis two is depicted by red arrows; Hypothesis 3 is depicted by blue arrows; Hypothesis 4 is depicted by yellow arrows; Hypothesis 5 is depicted by green arrows. *Note.* This is not a structural equation model, but a conceptual model to guide the hypotheses.

## Study 1

### Overview

Study 1 tested the first three hypotheses in this project. *First*, exclusion typicality at Time 1 would be related to exclusion typicality at Time 10 and this relationship would be mediated by experiences feeling excluded. *Second*, there would be a relationship between exclusion typicality at Time 1 and trait self-esteem at Time 10, controlling for Time 1 trait self-esteem, which is expected to be mediated by experiences feeling excluded. *Third*, experiences feeling excluded would be related to trait self-esteem at Time 10, controlling Time 1 trait self-esteem. Additionally, state self-esteem is expected to mediate the relationship between exclusion experiences and lower trait self-esteem at Time 10. Undergraduate college students completed pre-study measures of exclusion typicality and trait self-esteem. Then, over the course of eight weeks, the participants reported the extent to which they felt excluded (exclusion experiences) as well as their feelings of self-worth (state self-esteem) over the past week. At the end of the eight weeks, participants completed post measures of exclusion typicality and trait self-esteem.

### Method

**Design.** Study 1 included a ten-week longitudinal design, consisting of trait- and state-measures. At week one and ten, participants reported information on the trait-measures (exclusion typicality and trait self-esteem). During weeks two through nine,

participants filled out a survey on exclusion experiences and state-self-esteem. This provided the possibility to assess the trait-like constructs across the ten-week time period (at T1 and T10), as well as to gain information on the participants' actual experiences feeling excluded and potentially changing state self-esteem across time (T2-T9).

**Participants.** Two-hundred thirty-nine undergraduate students (211 female) participated in the study to satisfy a course requirement. The average age of the participants was 20.34 ( $SD = 4.37$ ). Approximately 66% of the sample was Caucasian, 11% were Black, 6% were Asian, 2% Middle Eastern, and the remaining 15% reported that they were "other" or more than one race. Seventeen percent of participants reported a Hispanic/Latino ethnicity. Additionally, approximately 44% of the sample were Freshman and 13% were Sophomores, with the remaining 43% composed of Juniors and Seniors.

**Materials.**

**Exclusion typicality.** Included in the first and last survey were measures of exclusion typicality and self-esteem. Exclusion typicality is a four-item assessment of the extent to which one perceives exclusion is typical of their life experiences. Example items include "The experience of being excluded is highly typical of my life experiences," and "It is not normal for me to have an experience of being excluded." Items are rated on a scale from 1, *totally disagree*, to 7, *totally agree*, and a composite is formed with higher scores indicating greater exclusion typicality. The scale demonstrated adequate reliability at both time points ( $\alpha = .84$  and  $.69$ , respectively) and so a composite was formed with higher scores indicating greater perceptions of exclusion typicality.

**Trait self-esteem.** Trait self-esteem was assessed with the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965). The RSES is a 10-item Likert measure rated from 1, *strongly disagree*, to 4, *strongly agree*, with higher scores indicating greater self-esteem. The RSES demonstrated adequate reliability at both time points ( $\alpha = .91$  and  $.89$ , respectively) and so a composite was formed with higher scores indicating higher self-esteem.

**Felt exclusion experiences.** Retrospective reports of felt exclusion were assessed at the beginning of each week for eight consecutive weeks. Participants responded to the question, “Over the last week, how frequently have you felt that you have been excluded?” Additionally, participants rated how frequently they have felt excluded by another individual, group, and significant other. Each item was rated on a scale from 1, *not at all frequently*, to 10, *very frequently*. The items demonstrated adequate reliability ( $\alpha > .81$ ) with higher scores indicative of greater experiences of exclusion.

**State self-esteem.** As well as felt exclusion, participants were asked to indicate each week for eight weeks their feelings of self-worth over the last week. Participants completed a measure of state self-esteem adapted from Leary et al. (1995). Participants were told to indicate the extent to which 12 adjectives accurately described them over the last week. The adjectives included *pride*, *inadequate*, *competence*, *confident*, *smart*, *incompetent*, *worthless*, *resourceful*, *stupid*, *effective*, *shame*, and *efficient*. Each item was rated from 1, *not at all*, to 5, *extremely*. The scale demonstrated adequate reliability ( $\alpha > .87$ ) with higher scores indicating greater levels of state self-esteem.

**Procedure.** Participants who indicated an interest in participating were emailed instructions about the study and sent a link to an online informed consent and the initial survey consisting of exclusion typicality and self-esteem. Participants who agreed to participate were emailed a weekly survey on Monday and given 24 hours to complete the survey.

After eight weeks, participants completed a final survey consisting of post-study measures of exclusion typicality and trait self-esteem as well as demographic questionnaires.

**Data analytic strategy.** Latent growth modeling, LGM, was utilized to assess the level and change of exclusion experiences and state self-esteem across time (Mplus 5.0; Muthèn & Muthèn, 1998-2007). In this modeling framework, an initial Level (intercept) and a Change (slope) factor are estimated by utilizing repeated measurements across time as indicators for these two latent constructs. The Level factor represented the initial level of exclusion experiences, or state self-esteem, at T1 (= T2 in the whole project), whereas the Change factor represented a linear change over time (i.e., the time scores were set to load as 1 to the Level factor, and as 0, 1, 2, 3, 4, 5, 6, 7 on the Slope factor). The analyses were conducted with Full Information Maximum Likelihood, FIML, estimator, utilizing model based missing data estimation (see Muthèn & Muthèn, 1998-2007). This estimation method provides the possibility to utilize all available data in the analyses from all participants who have data at least from one time point in the project. From the original 239 participants at T1 in the project, 17 had no data on the remaining measurement occasions. Therefore, the analyses were conducted on the final sample of

222 participants, by utilizing all 10 measurement occasions (T1 and T10 for the trait measures, and T2-T9 for the growth trajectories).

Analyses were conducted at two phases. First, individual (univariate) growth curves were constructed for exclusion experiences and state self-esteem to evaluate model fit and the mean and variance components in the Level and Change factors. Model fit was evaluated with the Root-Mean-Square Error of Approximation (RMSEA) and the Comparative Fit Index (CFI). Second, the scores for the Level and Change factors were computed for each individual and converted from Mplus 5.0 to SPSS, which provided the possibility to utilize the Level and Change factors as manifest variables to conduct a series of regression analyses to test the mediation hypotheses (Baron & Kenny, 1986).

## **Results**

Study 1 was designed to test Hypothesis 1 that the relationship between exclusion typicality at Time 1 and Time 10 would be mediated by experiences of feeling excluded, Hypothesis 2 that the association between exclusion typicality at Time 1 and self-esteem at Time 10 is mediated by experiences of feeling excluded, and Hypothesis 3 that the association between feeling excluded and trait self-esteem at Time 10 is mediated by state self-esteem.

### **Univariate growth models.**

*Exclusion experiences.* A growth model was set to the data where scores for experiences of exclusion from week two through nine were loaded as 1 to the Level (intercept) factor and as 0, 1, 2, 3, 4, 5, 6, 7, on the Change (slope) factor. Thus, the Level factor indicated participants' initial experiences feeling excluded at week two, and the Change factor described linear change in experiences feeling excluded over time. The

model fit the data well,  $\chi^2_{(31, N=222)} = 34.55$ , CFI = .99, RMSEA = .02<sub>(.00|.06)</sub> and indicated significant individual variation in the Level,  $z = 3.99$ , and the Change,  $z = 2.04$ , factors. The mean of the Level factor was significant,  $b = 2.64$ ,  $z = 20.56$ , suggesting that there were significant individual differences in the initial level of experiences feeling excluded. Additionally, the mean of the Change factor was negative,  $b = -.07$ ,  $z = -2.71$ , suggesting that, on average, experiences of feeling excluded decreased over time. The correlation between the Level and Change factor was not significant.

*State self-esteem.* A second growth model was set to the data where scores for state self-esteem from week two through nine were loaded as 1 to the Level (intercept) factor and as 0, 1, 2, 3, 4, 5, 6, 7, on the Change (slope) factor. Thus, the Level factor indicated participants' initial feelings of self-worth at week two, and the Change factor described linear change in state self-esteem over time. The model had an acceptable fit to the data,  $\chi^2_{(31, N=222)} = 76.45$ , CFI = .93, RMSEA = .08<sub>(.05|.10)</sub> and indicated significant individual variation in the Level,  $z = 5.17$ , and the Change,  $z = 3.03$ , factors. The mean of the Level factor was significant,  $b = 3.84$ ,  $z = 79.88$ , suggesting that there were significant individual differences in initial level of state self-esteem. However, the mean of the Change factor was non-significant, as was the correlation between the level and Change factor. Thus, there is no average increase or decrease in state self-esteem over time and there also is no relationship between initial level of state self-esteem and change in state self-esteem over time.

**Hypothesis 1.** Having established the fit of the univariate growth curves for experiences of feeling excluded and state self-esteem, individual scores for the Level and Change factors were computed and read into a data file with Time 1 and Time 10

exclusion typicality and trait self-esteem. This provided the possibility to examine the initial level of exclusion experiences and state self-esteem on one hand, and the change in these variables on the other, as mediating variables in the associations between the T1 and T10 trait measures (i.e., separate analyses were conducted to evaluate mediation via the level and mediation via the change variables in each construct). Baron and Kenny (1986) suggested that mediation is determined by a) a significant relationship between the independent and dependent variable, b) a significant relationship between the independent variable and the mediator, and c) a significant relationship between the mediator and the dependent variable. If those conditions are satisfied, then mediation can be tested by controlling for the mediator to see if the relationship between the independent and dependent variable is reduced or is no longer significant. Additionally, they recommend using a Sobel test to determine if, indeed, the mediator is significant. The Sobel test provides a statistical assessment of the indirect effect of the independent variable on the dependent variable through the mediator.

Following this approach, exclusion typicality at Time 1 was regressed onto exclusion typicality at Time 10. As can be seen in Figure 2, results revealed a significant relationship between the pre and post-measures of exclusion typicality,  $\beta = .61$ ,  $SE = .05$ ,  $t = 10.84$ ,  $p < .001$ . As expected, higher levels of typicality at Time 1 predicted higher levels of exclusion typicality at Time 10. After establishing the significant relationship between the Time 1 and Time 10 measures of exclusion typicality, exclusion typicality at Time 1 was regressed onto the hypothesized mediator, the initial level of experiences feeling excluded. In line with the second condition of mediation, exclusion typicality significantly predicted initial level of experiences feeling excluded,  $\beta = .43$ ,  $SE = .05$ ,  $t =$

7.13,  $p < .001$ . High levels of exclusion typicality predicted a greater level of initial level of experiences feeling excluded. The initial level of experiences feeling excluded was then regressed onto exclusion typicality at Time 10. Results revealed that the initial level of experiences feeling excluded significantly predicted exclusion typicality at Time 10,  $\beta = .42$ ,  $SE = .08$ ,  $t = 6.44$ ,  $p < .001$ . Greater level of initial felt experiences of exclusion significantly predicted a greater perception that exclusion is typical of social experiences.

Having established the first three conditions for mediation, exclusion typicality was regressed onto exclusion typicality at Time 10, controlling for the initial level of experiences feeling excluded. Results revealed that the initial level of feeling excluded was a partial mediator of the relationship between exclusion typicality at Time 1 and Time 10,  $\beta = .21$ ,  $SE = .07$ ,  $t = 3.57$ ,  $p < .001$ . After controlling for initial levels of felt exclusion experiences, the association between typicality at Time 1 and Time 10 remained significant ( $p < .001$ ). Additionally, a Sobel test confirmed that initial level of experiences feeling excluded was a significant mediator of the relationship between exclusion typicality at Time 1 and Time 10, ( $z = 4.70$ ,  $p < .001$ ).

Additionally, change in experiences of feeling excluded over time was tested as a mediator of the relationship between exclusion typicality at Time 1 and Time 10. While exclusion typicality at Time 1 predicted exclusion typicality at Time 10, and increases experiences feeling excluded over time predicted increased exclusion typicality at Time 10,  $\beta = .15$ ,  $SE = .64$ ,  $t = 2.16$ ,  $p = .03$ , exclusion typicality at Time 1 did not predict changes in experiences feeling excluded over time. Thus, further tests of mediation were not conducted.

**Hypothesis 2.** Hypothesis 2 was tested by regressing exclusion typicality at Time 1 onto self-esteem at Time 10, while controlling for trait self-esteem at Time 1. As can be seen in Figure 3, results revealed a significant relationship between typicality at Time 1 and self-esteem at Time 10,  $\beta = -.37$ ,  $SE = .02$ ,  $t = -5.54$ ,  $p < .001$ , such that higher levels of typicality predicted lower levels of self-esteem. After establishing the significant relationship between exclusion typicality and self-esteem at Time 10, exclusion typicality at Time 1 was regressed onto the hypothesized mediator, initial level of experiences feeling excluded. In line with the second condition of mediation, exclusion typicality significantly predicted initial level of feeling excluded,  $\beta = .43$ ,  $SE = .05$ ,  $t = 7.13$ ,  $p < .001$ , such that higher levels of typicality predicted a greater level of initial experiences feeling excluded. Initial level of experiences feeling excluded was then regressed onto self-esteem. Results revealed that initial level of experiences feeling excluded significantly predicted self-esteem at Time 10,  $\beta = -.54$ ,  $SE = .03$ ,  $t = -8.94$ ,  $p < .001$ , such that higher levels of feeling excluded predicted lower levels of trait self-esteem at Time 10.

Having established the first three conditions for mediation, exclusion typicality at Time 1 was regressed onto self-esteem at Time 10, controlling for initial level of experiences feeling excluded. Results revealed that initial level of feeling excluded was a partial mediator of the association between exclusion typicality at Time 1 and trait self-esteem at Time 10,  $\beta = -.46$ ,  $SE = .03$ ,  $t = -7.24$ ,  $p < .001$ . After controlling for initial level of experiences feeling excluded, the association between typicality and self-esteem remained significant,  $p = .003$ . Additionally, a Sobel test confirmed that initial level of

exclusion experiences was a significant mediator of the relationship between exclusion typicality and self-esteem,  $z = -5.35, p < .001$ .

Changes in experiences feeling excluded over time was tested as a mediator of the relationship between exclusion typicality at Time 1 and trait self-esteem at Time 10. However, only the previous identified relationship between exclusion typicality at Time 1 and trait self-esteem at Time 10 satisfied the conditions of mediation. There was no relationship between exclusion typicality at Time 1 and changes in experiences feeling excluded or between changes in experiences feeling excluded and trait self-esteem at Time 10.

**Hypothesis 3.** To test whether the association between initial level of experiences feeling excluded and trait self-esteem at Time 10 was mediated by initial level of state self-esteem, experiences feeling excluded were regressed onto trait self-esteem. As indicated in Figure 4, experiences feeling excluded significantly predicted self-esteem at Time 10,  $\beta = -.54, SE = .03, t = -8.94, p < .001$ , such that higher level of exclusion experiences predicted lower trait self-esteem. Next, initial level of experiences feeling excluded was regressed onto the posited mediator, initial level of state self-esteem. The higher the initial level experiences feeling excluded, the lower the initial level of state self-esteem,  $\beta = -.83, SE = .02, t = -22.19, p < .001$ . To meet the third condition for mediation, initial level of state self-esteem were regressed onto trait self-esteem at Time 10. Results revealed that higher levels of state self-esteem predicted higher levels of trait self-esteem,  $\beta = .66, SE = .06, t = 12.42, p < .001$ .

Having satisfied the first three conditions for mediation, exclusion experiences were again regressed onto self-esteem but controlling for state self-esteem. Results

revealed that state self-esteem fully mediated the relationship between initial level of experiences feeling excluded and self-esteem at Time 10,  $\beta = .67$ ,  $SE = .11$ ,  $t = 7.26$ ,  $p < .001$ . In other words, controlling for state self-esteem eliminated the association between exclusion experiences and self-esteem,  $p = .89$ . A Sobel test confirmed that state self-esteem was a significant mediator of the association between exclusion experiences and trait self-esteem,  $z = -10.17$ ,  $p < .001$ .

Additionally, changes in state self-esteem, over time, was examined as a mediator of the relationship between initial experiences feeling excluded and trait self-esteem at Time 10. Results revealed an unpredicted relationship between initial levels of experiences feeling excluded and changes in state self-esteem,  $\beta = .27$ ,  $SE = .003$ ,  $t = 4.19$ ,  $p < .001$ , where higher initial level of experiences feeling excluded predicted increases in state self-esteem over time. Increases in state self-esteem also predicted higher levels of trait self-esteem at Time 10,  $\beta = .20$ ,  $SE = .60$ ,  $t = 2.87$ ,  $p = .01$ . Tests of mediation found that changes in state self-esteem was a partial mediator of the relationship between initial experiences feeling excluded and trait self-esteem at Time 10,  $\beta = .43$ ,  $SE = .48$ ,  $t = 7.59$ ,  $p < .001$ , such that after controlling for changes in state self-esteem over time, the relationship between initial experiences feeling excluded and trait self-esteem remained significant,  $p < .001$ . A Sobel test confirmed that changes in state self-esteem was a significant mediator of the relationship,  $z = 2.17$ ,  $p = .03$ .

## **Discussion**

Study 1 was designed to test whether frequent experiences feeling excluded would undermine important aspects of self and identity including trait and state self-esteem. Results supported the first hypothesis that the association between exclusion

typicality at Time 1 and Time 10 would be mediated by experiences feeling excluded. This hypothesis was tested following the recommendations of Baron and Kenny (1986). First, the relationship between exclusion typicality at Time 1 and 10 was tested. The results revealed a significant, but expected, relationship between exclusion typicality at Time 1 and 10, such that higher exclusion typicality predicted higher levels of exclusion typicality at Time 10. Next, the relationship between exclusion typicality and the proposed mediator, initial level of experiences feeling excluded, was tested. Higher levels of exclusion typicality predicted a higher level of initial experiences feeling excluded. People who expect to be excluded in their life experiences reported that they felt more frequently excluded. The relationship between initial level of experiences feeling excluded and exclusion typicality at Time 10 was also significant and suggested that the more frequently one feels that they have been excluded, the more they develop a perception that exclusion is typical of their social experiences. Controlling for initial level of experiences feeling excluded was found to be a significant, partial mediator of the relationship between exclusion typicality at Time 1 and Time 10. Thus, changes in exclusion typicality, as would be expected, are influenced by the degree to which one feels that they have been excluded.

Study 1 also supported Hypothesis 2 which stated that experiences feeling excluded would mediate the relationship between perceptions that exclusion is typical of social experiences and trait self-esteem. The relationship between exclusion typicality and self-esteem at Time 10 was first tested and revealed that higher levels of exclusion typicality predicted lower levels of trait self-esteem. The relationship between experiences feeling excluded and self-esteem at Time 10 was also tested and it was found

that a higher initial level of exclusion experiences significantly predicted lower levels of trait self-esteem. Consistent with Leary and colleagues (1995), experiences in which one does not feel included has a detrimental impact on trait self-esteem. Controlling for initial level of exclusion experiences, it was determined that the relationship between exclusion typicality and self-esteem could be partially explained by reported feelings of exclusion. This suggests that the relationship between expectations of exclusion and self-esteem can partially be accounted for by initial level of experiences of exclusion.

Study 1 also supported Hypothesis 3, which stated that the relationship between exclusion experiences and trait self-esteem could be explained by state self-esteem. To test the hypothesis, again mediation analysis was conducted following the recommendations of Baron and Kenny (1986). The relationship between initial level of experiences feeling excluded and self-esteem at Time 10 was tested and showed, consistent with Hypothesis 3, that a higher initial level of experiences feeling excluded predicted lower levels of trait self-esteem. Additionally, a higher level of initial experiences feeling excluded predicted lower levels of state self-esteem. Thus, momentary reflections of self-worth seem to be compromised by experiences of exclusion. Finally, the relationship between state and trait self-esteem was examined and it was found that higher levels of state self-esteem predicted higher levels of trait self-esteem. Consistent with the rationale of sociometer theory (Leary et al., 1995), moment to moment reflections of one's inclusionary status likely leads to one's global assessment of self-worth. Putting it together, the mediation model showed that state levels of self-esteem completely explained the relationship between initial level of exclusion experiences and trait self-esteem. As one might expect, global assessments of one's self-

worth are likely a composite of a lifetime of day to day feelings of worth. Moreover, it is these moment to moment reflections that explain how frequent experiences of exclusion can undermine one's self-esteem. Repeated exposure to experiences of exclusion undermines one's state self-esteem, ultimately leading to chronic deficits in self-worth.

It is important to note that while the analyses supported using the initial levels of exclusion experiences and state self-esteem, changes over time in experiences feeling excluded did not mediate Hypothesis 1 or 2 and while changes in state self-esteem did mediate the relationship between level of experiences feeling excluded and trait self-esteem, particular patterns within the regression analyses ran counter to predictions. This suggests that there may not have been enough variability in exclusion experiences and state self-esteem over the eight weeks to accurately gauge the extent to which these two variables varied across time as well as the extent to which they were influenced by exclusion typicality and self-esteem. The fact that exclusion typicality did not predict changes in felt exclusion experiences suggests that people high in exclusion typicality may end up avoiding situations that might lead to exclusion. Indeed, if one expects to be excluded in social interactions, then the best approach is to avoid those altogether, decreasing the possibility of being excluded, but also reducing the variability in felt exclusion experiences. More simply, it could suggest that college students themselves have fewer experiences with exclusion in college because they are able to control the situations they put themselves in to minimize the potential for exclusion. As to why high initial experiences feeling excluded predicted increases in state self-esteem over time is less clear but it does suggest that while state self-esteem may explain the relationship

between initial experiences feeling excluded and trait self-esteem, actual week to week changes in state self-esteem are influenced by more than perceptions of exclusion.

Table 1

*Parameter Estimates for Exclusion Experiences Growth Curve*

Parameter	<i>Est.</i>	<i>SE</i>	<i>p</i>
Fixed Effects			
Mean Level	2.64	.13	.000
Mean Change	-.07	.02	.01
Variance Components			
Level Variance	1.34	.34	.000
Change Variance	.03	.01	.04
Residual Variance			
T2@0	3.20	.93	.001
T3@1	1.79	.42	.000
T4@2	1.63	.24	.000
T5@3	1.60	.20	.000
T6@4	1.54	.18	.000
T7@5	1.38	.17	.000
T8@6	1.80	.22	.000
T9@7	1.84	.25	.000
Covariance			
Level with Change	-.06	.06	.25

*Note.* T2@0 – T9@7 represents linear change in exclusion experiences over time.

Table 2

*Parameter Estimates for State Self-Esteem Growth Curve*

Parameter	<i>Est.</i>	<i>SE</i>	<i>p</i>
Fixed Effects			
Mean Level	3.84	.05	.000
Mean Change	-.07	.02	.11
Variance Components			
Level Variance	.26	.05	.000
Change Variance	.01	.002	.002
Residual Variance			
T2@0	.13	.05	.01
T3@1	.28	.06	.000
T4@2	.17	.03	.000
T5@3	.23	.03	.000
T6@4	.19	.02	.000
T7@5	.21	.02	.000
T8@6	.19	.02	.000
T9@7	.11	.02	.000
Covariance			
Level with Change	-.01	.01	.24

*Note.* T2@0 – T9@7 represents linear change in state self-esteem over time.

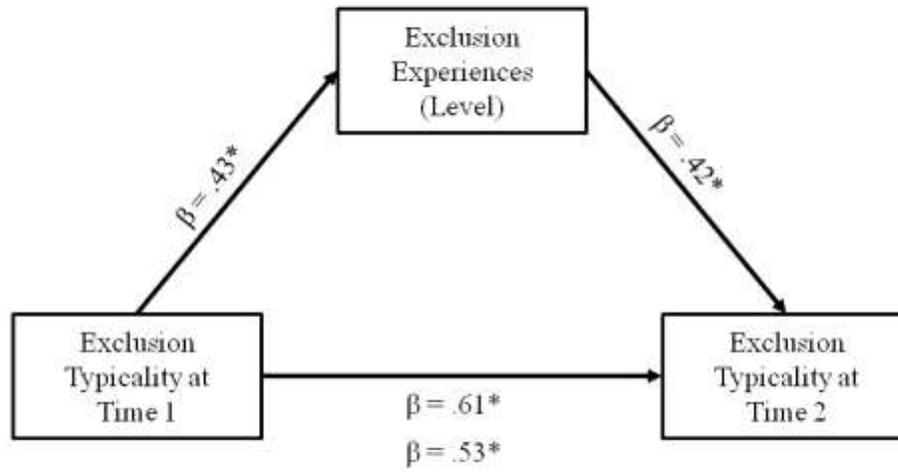


Figure 2. Mediation Model of Exclusion Typicality at Time 1 and 2 and Felt Exclusion Experiences. \* $p < .001$

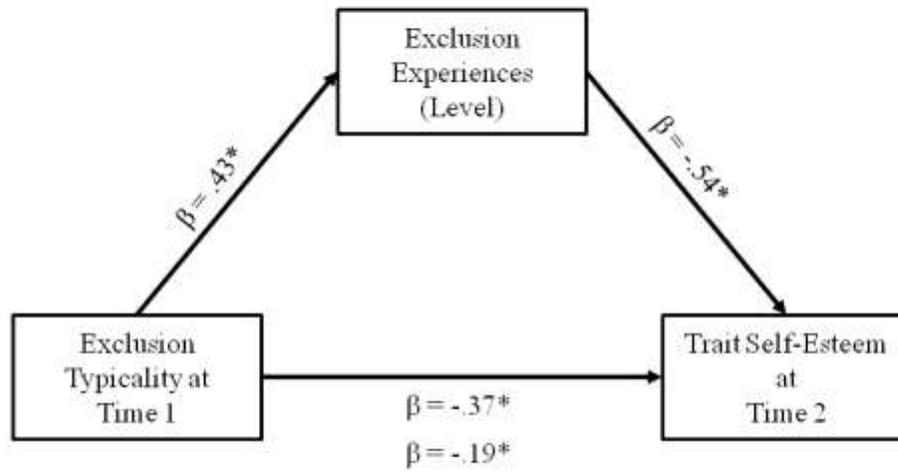


Figure 3. Mediation Model of Exclusion Typicality, Self-Esteem, and Exclusion Experiences.  $*p < .001$

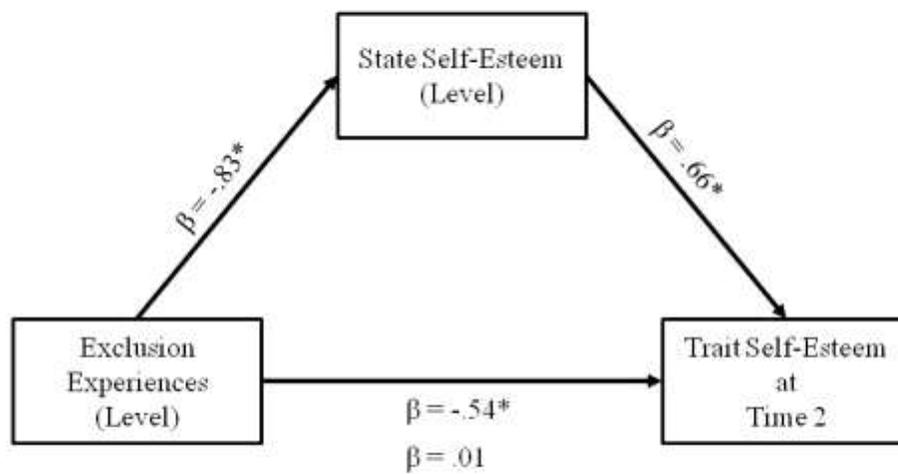


Figure 4. Mediation Model of Exclusion Experiences, Trait Self-Esteem, and State Self-Esteem. \*  $p < .001$

## Study 2

### Overview

Study 2 tested Hypotheses 4 and 5 that both exclusion typicality and trait self-esteem will moderate reactions to an experience of exclusion to affect state-self-esteem, self-regulatory abilities and anti-social behavioral outcomes. The model is conceptualized so that both state self-esteem and self-regulatory abilities are expected to mediate anti-social behavioral outcomes. Participants completed a self-regulation task and then were either excluded or not by a potential partner for a group task. Subsequently, participants completed a measure of state self-esteem and followed by a second self-regulation task. Finally, participants were given an opportunity to “steal” money presumably left in the cubicle by a previous participant. It was hypothesized that participants high in exclusion typicality and low in trait self-esteem would respond to exclusion with decreased state self-esteem, less self-regulation, and increased anti-social behaviors.

### Method

**Design.** Study 2 is a moderated mediation model in which self-regulation was predicted to mediate affiliative behavior as a function of differences in high and low exclusion typicality and self-esteem. Experienced exclusion is a between-subjects variable where half of the participants were excluded and the other half of the participants were not excluded.

**Participants.** One-hundred seventy-one (132 female) undergraduates participated in the study to satisfy a course requirement. The average age of the sample was 21.11 ( $SD = 4.30$ ). Approximately 56% of participants were Caucasian, 16% were Black, and the remaining 19% were Asian, Middle Eastern, more than one, and other. Seventeen people did report their race and 16% reported a Hispanic/Latino ethnicity. Within the exclusion condition there were 53 out of the 95 Caucasian participants, 11 out of the 27 Black participants, and 15 out of the 32 remaining participants who reported to be Asian, Middle Eastern, more than one, or other. The sample size was determined using a linear model, F-test regression power analysis (Faul et al., 2007). With a power of .80, effect size of .10, and 3 predictors (e.g., self-esteem, exclusion, exclusion typicality), the minimum sample size needed was 114, but additional participants were recruited to allow for tests of mediation.

**Materials and procedure.** As part of a mass questionnaire distributed at the beginning of the semester, participants completed measures of exclusion typicality and self-esteem. Both measures demonstrated adequate reliability ( $\alpha = .76$  and  $.89$ , respectively).

Participants were run individually and told they were participating in a study examining the effects of mood on dyads and individual physical performance. The experimenter explained that the study consisted of two parts. The first part of the study consisted of completing a measure individual endurance and interacting with a partner by exchanging taped information about each other. In the second part of the study, they would work with a partner for another task.

***Pre-exclusion handgrip measure.*** Following Muraven et al. (1998), participants squeezed a handgrip for as long as they could to assess initial self-regulatory abilities. The ability to maintain control over the hand grip has been used in past research as a measure of self-regulation. Hand grips are commercially available exercise products designed to increase hand grip strength. To insure an accurate measure, a small marble was inserted between the handles when the participant squeezed. After the marble was inserted and the participant squeezed, the experimenter started a stopwatch. The stopwatch was stopped with the marble fell out of the handgrip.

***Exclusion manipulation.*** After completing the pre-test measure of hand grip strength, participants were led into a cubicle and told that people perform better in a task with someone else when they know a little about that person but also that appearance can interfere with the that process. Thus, they would learn about this other person through recorded audio messages. The experimenter explained that the other person had arrived early and was down the hall making the first taped message with another experimenter. The experimenter left the room to ostensibly check on the other participant and returned after five minutes with a tape recorder. Adapted from DeWall et al. (2007), the recorded message was approximately three minutes in length and consisted of a same-sex confederate answering a series of questions about their positive and negative qualities as a person, positive and negative academic and social experiences, and things that are important to how they see themselves as a person. After the participant listened to the tape, the experimenter explained that he/she would now record a reply to give to their partner. The experimenter then recorded the participant answering the same questions as their partner and played back the first few seconds of the tape to provide evidence that the

answers were recorded. The experimenter explained that it would take a few minutes for their partner to listen to their tape and asked the participant to complete demographic questionnaires while waiting.

After five minutes, the experimenter abruptly returned and delivered one of two messages to the participant. In the exclusion condition, participants were told “I am not sure what happened, but your partner doesn’t want to work with you . . . Uh, I guess we won’t be doing the partner interaction task, because I can’t ask a participant to do something that s/he is not comfortable with. Um, okay, then I guess we are going to skip the next task, and keep going with the experiment. You’ll still receive full credit for participating.”

In the control condition, participants were told that “Your partner is not ready to work with you. . . . She/He is still completing some of the materials for the study and we need to keep going before the next participant arrives. . . . well, hmm, I guess we won’t be doing the partner interaction task. Um, okay, then I guess we will skip the next task, and keep going with the experiment. You’ll still receive credit for participating.”

***State self-esteem.*** As in Study 1, state self-esteem was assessed following research by Leary et al. (1995) by having participants rate 12 adjectives (e.g., pride, inadequate, competent) according to the extent that they felt they possessed each of those adjectives at the moment. The adjectives were rated from 1, *not at all*, to 5, *extremely* and scores were reverse scored when appropriate. The measure demonstrated adequate reliability ( $\alpha = .89$ ) and a composite was formed with higher scores indicating greater state self-esteem.

**Mood.** To substantiate the cover story about mood as well as to assess whether participants would feel any distress after exclusion, participants completed the PANAS (Positive and Negative Affect Schedule; Watson, Clark, & Tellegen, 1988). The PANAS is a 20-item assessment of positive and negative mood rated from 1, *very slightly or not at all*, to 5, *extremely*. Both the positive and negative subscale of the PANAS demonstrated adequate reliability ( $\alpha$ s = .88 and .87, respectively).

**Post-exclusion handgrip measure.** The experimenter explained that they still needed to do the handgrip task again. Again, the participant squeezed the handgrip with a marble in between and the experimenter started the stopwatch and stopped it when the marble fell out. According to Muraven et al. (1998), the difference between the post and pre-exclusion handgrip times represents the change in self-regulation.

**Aggression and pro or anti-social behavior opportunity.** To assess whether exclusion would elicit pro or anti-social behaviors, participants were led into another cubicle under the story that the experimenter needed to get ready for the next participant. Prior to the study beginning the experimenter placed a five dollar bill in a specified location on the floor so as to give the impression that someone had dropped money on the floor. The experimenter explained that they needed to take the recorder back to the other experimenter and so they would leave them there in the cubicle to complete the last questionnaires.

Participants completed an adapted version of the Revised Conflict Tactics Scale (Straus, Hamby, Boney-McCoy, and Sugarman, 1996; see also Gaertner & Iuzzini, 2004). Participants indicated the extent to which 13 aggressive behaviors against others, ranging from yelling at another person to shooting another person with a gun, appealed to

them at the moment on a scale from 0, *not at all appealing*, to 6, *very appealing*. The scale demonstrated adequate reliability ( $\alpha = .95$ ).

After returning, the experimenter noted whether they took the money, said something about the money being on the floor, or did nothing. Finally, participant reactions were assessed and they were thoroughly debriefed and probed for suspicion. Participants who did not say anything about the money were asked if they noticed it on the floor.

## **Results**

Study 2 tested Hypotheses 4 and 5 of the conceptual model that experiences of exclusion would interact with exclusion typicality and trait self-esteem, undermining self-regulatory abilities and, in turn, increase anti-social outcomes.

**Hypothesis 4.** To test the hypothesis that exclusion typicality would interact with an experience of exclusion to predict state self-esteem, self-regulation, and anti-social behavioral outcomes and that state self-esteem and self-regulation would mediate the effects on anti-social behavioral outcomes, multiple hierarchical regression analyses were conducted (Aiken & West, 1991), first entering the main effect (dummy coded) of exclusion and centered exclusion typicality ( $\pm 1 SD$ ), followed by the two-way interactions.

***Exclusion and mood.*** To determine if the exclusion manipulation produced significant changes in positive or negative mood, a one-way ANOVA was conducted on the positive and negative subscales of the PANAS. The effects of exclusion on positive mood approached significance,  $F(1, 171) = 3.11, p = .08$ , such that participants in the control condition reported more positive mood ( $M = 3.31, SD = .79$ ) than participants in

the exclusion condition ( $M = 3.10$ ,  $SD = .80$ ). Consistent with past research (Twenge et al., 2001; Twenge et al., 2007), there was no difference between the exclusion and control condition on negative mood,  $F(1, 171) = .68$ ,  $p = .41$ .

***Exclusion typicality and state self-esteem.*** Results of the regression analysis revealed a significant main effect of typicality,  $\beta = -.25$ ,  $SE = .04$ ,  $t = -3.32$ ,  $p = .001$ , such that higher exclusion typicality was associated with lower state self-esteem. This interaction was qualified by a significant two-way interaction between exclusion experiences and typicality,  $\beta = -.31$ ,  $SE = .07$ ,  $t = -2.27$ ,  $p = .03$  (Figure 5). Simple effects tests revealed a pattern inconsistent with expectations. Among participants low in exclusion typicality, exclusion lead to decreased state self-esteem compared to the control condition,  $\beta = .25$ ,  $SE = .13$ ,  $t = 2.31$ ,  $p = .02$ . This effect was not found among participants high in exclusion typicality ( $p = .54$ ).

***Exclusion typicality and self-regulation.*** Results did not support the hypothesis that self-regulation would be affected by the interaction between exclusion experiences and typicality. As can be seen in Table 3, the two-way interaction between exclusion and exclusion typicality on self-regulation was not significant,  $p = .99$ . Thus, it appears that self-regulation is not undermined by exclusion experiences among individuals high in exclusion typicality.

***Exclusion typicality, aggression, and anti-social outcomes.*** Results also did not support the hypothesis that exclusion typicality and experiences would interact to predict the appeal of aggressive and anti-social outcomes. The two-way interaction between exclusion experiences and typicality was not significant,  $p = .91$  (Table 4). It seems, then, that aggression is not increased when people who feel that exclusion is typical of their

life experiences are excluded. After removing participants who indicated they were suspicious of the money on the floor ( $n = 43$ ), the number of people who “stole” the money was examined. Results indicated that only 14 participants “stole” the money. Thus, an analysis of whether this was moderated by exclusion typicality and exclusion experiences was not conducted.

According to Baron and Kenny (1986) in order to test for mediation, the results must establish a) an effect between the independent and dependent variable, b) an effect between the independent and mediating variable, and c) an effect between the mediating and dependent variable. In the present study, the first requirement was not met so a test as to whether aggressive responses to exclusion are mediated by state self-esteem was not conducted. Additionally, the pattern of results suggests that only in the control condition was state self-esteem significantly predicted by exclusion typicality and experiences of exclusion.

**Hypothesis 5.** To test the hypothesis that self-esteem would interact with an experience of exclusion to predict state self-esteem, self-regulation, and anti-social behavioral outcomes and that state self-esteem and self-regulation would mediate the effects on anti-social behavioral outcomes, again multiple hierarchical regression analyses were conducted, first entering the main effect (dummy coded) of exclusion and mean centered self-esteem, followed by the two-way interactions.

*Self-esteem and state self-esteem.* Results of the regression analysis revealed a main effect of self-esteem,  $\beta = .34$ ,  $SE = .08$ ,  $t = 4.70$ ,  $p < .001$ , such that higher levels of self-esteem predicted higher levels of state self-esteem. However, there was not a significant interaction between self-esteem and exclusion experiences on state self-

esteem,  $p = .21$ . Though, the interaction is not significant, as can be seen in Figure 5, the pattern suggests that, consistent with the hypothesis, individuals low in self-esteem respond to exclusion with decreased state self-esteem,  $\beta = .25$ ,  $SE = .11$ ,  $t = 2.47$ ,  $p = .02$ , compared to individuals high in self-esteem.

***Self-esteem and self-regulation.*** Results of the regression analysis on self-regulation revealed a trend towards an interaction between an exclusion experience and self-esteem,  $\beta = -.23$ ,  $SE = 7.79$ ,  $t = -1.73$ ,  $p = .09$  (Figure 6). In contrast to the hypothesis that individuals low in self-esteem will respond with decreased self-regulation in response to exclusion, simple effects tests revealed that participants low in self-esteem responded to exclusion with increased self-regulation compared to participants in the control condition,  $\beta = -.22$ ,  $SE = 5.91$ ,  $t = -2.00$ ,  $p = .05$ . There was no effect among participants high in self-esteem ( $p = .64$ ).

***Self-esteem, aggression, and anti-social outcomes.*** Results of the regression analysis for aggressive and anti-social outcomes revealed a significant two-way interaction between self-esteem and the experience of exclusion,  $\beta = -.32$ ,  $SE = .21$ ,  $t = -2.42$ ,  $p = .02$  (Figure 7). Inconsistent with the hypothesis that self-esteem and exclusion should increase aggressive behaviors, follow up simple effects tests revealed that among participants low in self-esteem, exclusion decreased the appeal of aggressive behaviors towards others,  $\beta = .23$ ,  $SE = .16$ ,  $t = 2.16$ ,  $p = .03$ , compared to the control condition. This effect was not found among those high in self-esteem ( $p = .20$ ). Looked at alternatively, in the control, but not exclusion condition ( $p = .15$ ), individuals low in self-esteem found aggressive behaviors as more appealing than participants high in self-esteem,  $\beta = -.22$ ,  $SE = .15$ ,  $t = -1.97$ ,  $p = .05$ . Again, participants who were suspicious of

the money on the floor were removed and then the number of people who “stole” the money was examined. Only 14 participants “stole” the money so an analysis of whether this was moderated by self-esteem and exclusion experiences was not conducted.

Following Baron and Kenny’s (1986) recommendations for testing mediation, the present study satisfies the first requirement that there is an effect of the independent variable on the dependent variable. That is, there was a significant effect of the interaction of self-esteem and an exclusion experience on the reported appeal of aggressive behaviors. However, the effect of the interaction of self-esteem and an exclusion experience on self-regulation, the proposed mediator, is a trend at best, making it difficult to satisfy the requirement that the independent variable have an effect on the mediator. Additionally, the results of the regression analysis on aggressive responses revealed a pattern inconsistent with the hypothesis. In particular, individuals low in self-esteem found aggression against others to be more appealing in the control condition compared to the exclusion condition. Thus, mediational analyses were not conducted.

## **Discussion**

Study 2 was designed to experimentally manipulate an experience of exclusion and examine whether any resulting deficits to self-regulation and state self-esteem would explain differences in anti-social outcomes. Additionally, Study 2 posited that exclusion typicality and self-esteem, aspects of the self undermined by frequent, lifelong experiences of exclusion would moderate these effects.

Hypothesis 4 predicted that exclusion typicality and the experience of exclusion would interact and undermine self-regulation and state self-esteem which, in turn, would mediate anti-social outcomes. However, the results failed to support the hypothesis.

Although the analyses revealed a significant interaction between exclusion typicality and the experience of exclusion on state self-esteem, follow up simple effects within the control condition revealed a pattern opposite of what was expected. Compared to individuals high in exclusion typicality, individuals low in exclusion typicality reported higher levels of state self-esteem when they were told their partner was unable to work with them because of time constraints. One possible explanation for this finding is that individuals high in exclusion typicality may have interpreted the control condition as an experience of exclusion and, therefore, responded with less state self-esteem. It is not clear, however, why they would not have interpreted the exclusion manipulation as more exclusionary, and thus, this explanation is not entirely satisfactory.

The interaction of exclusion typicality and an experience of exclusion also had no effect on self-regulation or anti-social outcomes, suggesting that the interaction between high perceptions that exclusion is typical of social experiences and an experience of exclusion does not undermine self-regulatory abilities, make aggressive behaviors more appealing, or lead someone to “steal” money from the floor. Since the results failed to meet the recommendations of Baron and Kenny (1986), tests for mediation were not conducted.

Results also failed to support Hypothesis 5, which stated that trait self-esteem would interact with an experience of exclusion to undermine self-regulatory abilities and state self-esteem which, in turn, would mediate anti-social outcomes. State self-esteem appeared unaffected by the interaction of trait self-esteem and the exclusion manipulation, though an examination of the pattern of coefficients suggests that individuals low in self-esteem responded with decreased state self-esteem. The

interaction also revealed a slight trend on self-regulation. However, simple effects tests revealed a pattern opposite of what was expected. For participants low in self-esteem, self-regulation was better after exclusion than in the control condition.

Likewise, an examination of the interaction on the appeal of aggressive behaviors revealed that even though the interaction was significant, the pattern was the opposite of that which was expected. Individuals low in self-esteem responded to exclusion with decreased appeal of aggressive behaviors when they were excluded compared to the control condition. Although this finding was not hypothesized, it is at least partially consistent with Baumeister, Bushman, and Campbell (2000), who suggested that individuals high in self-esteem may respond to threats with aggression because they want to protect their self-esteem.

It is also important to note that the means for the aggression scales consistently were below one, suggesting that almost everyone in the sample reported that the aggressive behaviors towards others were not appealing. Given such low means, the current results should be interpreted with caution as they reflect only a small change in the appeal of aggressive behaviors.

It is unfortunate that the behavioral measure of “stealing” did not work as expected. It is possible that social norms may have prevented individuals from stealing the money despite ample opportunities and privacy when doing so. Indeed, whereas money outside may be interpreted as fair game, in the lab, social desirability and a perception that it may belong to a researcher or a returning participant may have limited participants’ willingness to take the money. However, in light of the failure to support the hypotheses on the measure of appeal of aggression, it is likely that even if the behavioral

measure had been more successfully engaged by participants, that it would not have supported the predictions.

Table 3

*Summary of Hierarchical Regression Analysis for Effects of Exclusion Typicality and Exclusion Experience on Self-Regulation*

Variable	<i>B</i>	<i>SE B</i>	$\beta$
Step 1			
Exclusion (dummy coded)	-4.71	4.21	-.09
Exclusion Typicality (centered)	-1.21	1.64	-.06
Step 2			
Typicality x Exclusion	-.04	3.31	-.002

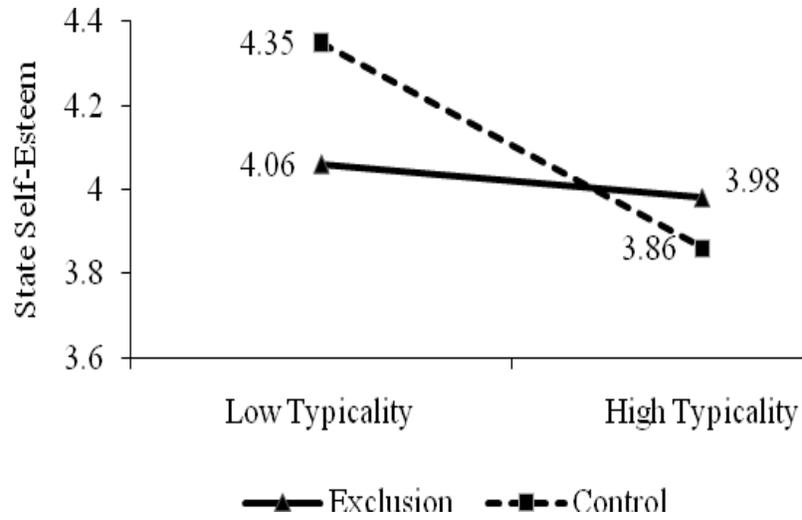
*Note.*  $R^2 = .01$  for Step 1;  $\Delta R^2 = .00$  for Step 2 ( $ps > .42$ ).

Table 4

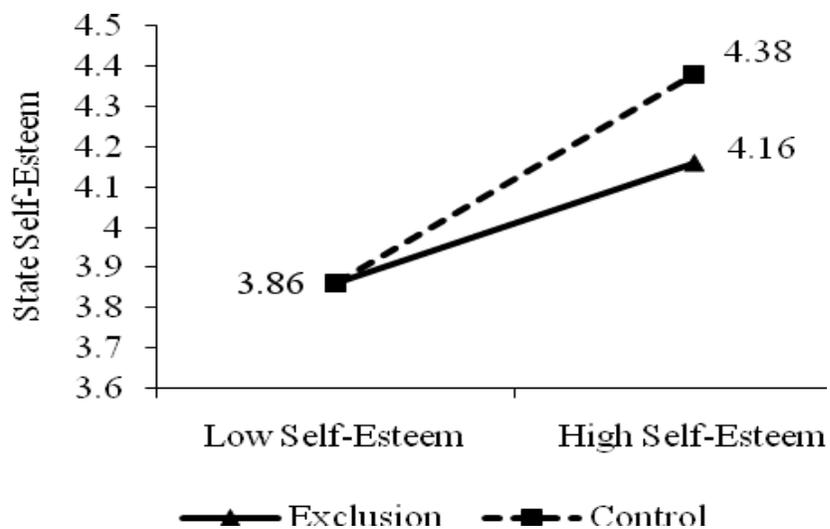
*Summary of Hierarchical Regression Analysis for Effects of Exclusion Typicality and Exclusion Experience on Aggression*

Variable	<i>B</i>	<i>SE B</i>	$\beta$
Step 1			
Exclusion (dummy coded)	.07	.11	.05
Exclusion Typicality (centered)	-.01	.04	-.02
Step 2			
Typicality x Exclusion	.01	.09	.03

*Note.*  $R^2 = .003$  for Step 1;  $\Delta R^2 = .00$  for Step 2 ( $ps > .80$ ).



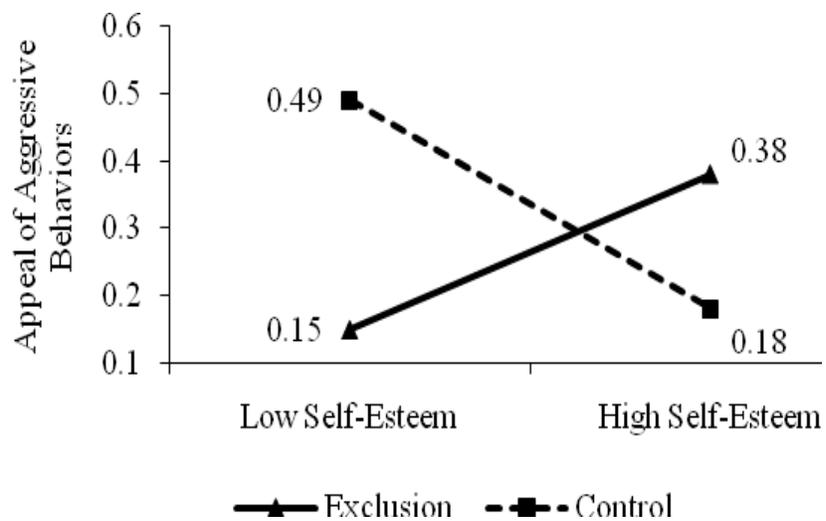
*Figure 5.* State Self-Esteem as a Function of Exclusion Typicality (+/- 1 *SD*) and Exclusion Experience. *Note.* Higher numbers indicate higher state self-esteem.



*Figure 6.* State Self-Esteem as a Function of Trait Self-Esteem ( $\pm 1 SD$ ) and Exclusion Experience. *Note.* Higher scores reflect higher state self-esteem.



*Figure 7.* Self-Regulation as a Function of Trait Self-Esteem ( $\pm 1 SD$ ) and Exclusion Experience. *Note.* Negative numbers indicate less self-regulation (i.e., gripped hand-grip for a decreased amount of time).



*Figure 8.* Appeal of Aggressive Behaviors as a Function of Self-esteem ( $\pm 1 SD$ ) and Exclusion Experience. *Note.* Higher numbers indicate greater appeal of aggressive behaviors.

## **General Discussion**

### **Summary**

Explanations for why individuals sometimes respond to exclusion with unintuitive, anti-social behaviors have largely neglected the extent to which lifelong exposure to exclusion undermines important aspects of the self and may make one more vulnerable to an aggressive response. In response to this limitation, a conceptual model of exclusion-elicited anti-social behavior was developed to elucidate the relationships between important aspects of the self and anti-social responses to exclusion. Two studies tested the validity of this model.

In Study 1, participants completed pre and post measures of exclusion typicality and self-esteem and reported the extent to which they were excluded over the past week for eight weeks. It was hypothesized that the association between exclusion typicality at Time 1 and Time 10 would be mediated by experiences of feeling excluded. Consistent with this hypothesis, experiences feeling excluded partially mediated the association between Time 1 and Time 10 exclusion typicality. That is, the relationship between exclusion typicality at Time 1 and Time 10 was partially explained by greater levels of feeling excluded. These results confirm an important assumption that the perception that exclusion is typical of social experiences results from the frequency of experiences in which one feels that they have been excluded.

It was also hypothesized that the association between exclusion typicality at Time 1 and trait self-esteem at Time 10 would be mediated by experiences of feeling excluded. In support of the hypothesis, feeling as if one had more experiences of exclusion was a significant, partial mediator of the relationship between exclusion typicality and trait self-esteem. Specifically, high levels of exclusion typicality at Time 1 predicted lower levels of self-esteem at Time 10 but this relationship was also partially explained by the amount that one felt excluded. Thus, perceptions that exclusion is typical and representative of one's social experiences makes one more vulnerable to experiences of feeling excluded which, in turn, undermine one's sense of self-worth. Moreover, feeling like exclusion is typical of life experiences may make one more sensitive to exclusion in their daily social interactions.

Finally, it was hypothesized that the relationship between initial levels of feeling excluded and self-esteem at Time 10 would be mediated by deficits in state self-esteem. Consistent with this hypothesis, levels of state self-esteem was a significant and complete mediator of the relationship between experiences of experiences feeling excluded and trait self-esteem at Time 10. That is, feeling as if one is more excluded undermines momentary levels of self-esteem, which, over time, can undermine global perceptions of self-worth. The results suggest that chronic deficits in global self-worth are a product of repeated deficits in state self-esteem brought on by feelings of exclusion.

Study 2 was an experimental study in which pre-existing measures of exclusion typicality and self-esteem were hypothesized to interact with an experience of exclusion to predict deficits in self-regulation and state self-esteem which, in turn, would mediate anti-social responses to exclusion. However, results were inconsistent with these

hypotheses. Exclusion typicality and the exclusion manipulation only interacted to affect state self-esteem, revealing a pattern in which individuals low in exclusion typicality responded to exclusion with less state self-esteem compared to individuals in the control condition. Additionally, there were no interactive effects on anti-social outcomes including the appeal of aggressive behaviors or on the opportunity to act anti-socially.

The interaction of self-esteem and an experience of exclusion on state self-esteem, self-regulation, and anti-social outcomes also revealed mixed results. There was no effect on state self-esteem and only a trend towards self-regulation in which individuals low in self-esteem responded to exclusion, compared to the control condition, with better self-regulatory abilities. There was also an interactive effect on the appeal of aggressive behavior towards others. Again, contrary to expectations, individuals low in self-esteem responded to exclusion, compared to the control condition, with less appeal towards engaging in aggressive behaviors. There were also no interactive effects on the opportunity to act anti-socially.

### **Implications for the Model and Future Directions**

Although results for the two studies produced mixed results, there are several implications of the findings for the model. The first concerns the relationship between exclusion typicality and exclusion experiences. Clearly, people who have been excluded more frequently will develop a perception that exclusion is typical of their social experiences. Yet the fact that exclusion typicality at Time 1 was related to initial levels of exclusion experiences but not changes in exclusion experiences suggests that exclusion may have an important influence on the way that people approach and react to social interactions. Future research should consider the specific effect that exclusion typicality

has on how one interacts and behaves in social settings where there is the potential to be included or excluded.

Likewise, the fact that initial levels of felt exclusion experiences and state self-esteem mediated the hypothesized relationship between exclusion typicality and trait self-esteem but change over time in felt exclusion experiences and state self-esteem did not raises the question as to whether important aspects of the self and identity such as exclusion typicality and self-esteem are already formed prior to college. Indeed, college is not the only environment in which one is confronted with experiences of inclusion and exclusion. Moreover, identity development begins and has likely been formed prior to adulthood. It is possible that these other environments as well as age play a pivotal role in the development of self-worth and expectations in social experiences. Future research should examine aspects of the conceptual model among younger populations when self-esteem and exclusion typicality are more malleable and, thus, more likely to be affected by social experiences of exclusion.

It is also important to consider the implications of the relationship between state and trait self-esteem. Study 1 found that state self-esteem completely accounted for the relationship between exclusion experiences and trait self-esteem. Leary and colleagues (1995) as well as Williams (2001) argue that chronic deficits in self-esteem can be traced to long-term experiences of exclusion. The present study provides direct evidence for this relationship. Exclusion experiences significantly predicted both state and trait self-esteem but state self-esteem accounted for the relationship between exclusion experiences and trait self-esteem. Thus, frequent exposure to exclusion, and its accompanying deficits to state self-esteem have long-term implications for feelings of self-worth. Future research

should more clearly examine how state effects of exclusion translate to long-term consequences.

In Study 2, self-esteem and an exclusion experience interacted to affect the appeal aggressive behaviors towards others. Specifically, among participants low in self-esteem, exclusion decreased this appeal compared to the control condition. The idea that individuals low in self-esteem are less likely to respond aggressively to exclusion is not new. Baumeister et al. (2000) have suggested that individuals high in self-esteem, in an effort to maintain their positive self views, are more likely to lash out aggressively in response to ego-threats including exclusion. Thus, the role of self-esteem in understanding aggressive and anti-social responses to exclusion requires further research, particularly in conjunction with perceptions of exclusion typicality.

### **Limitations**

It is important to note several limitations of the present research. First, the fact that the results of Study 2 often revealed patterns inconsistent with expectations raises questions as to the nature of the manipulation. While certainly being told that someone does not want to work with you is indicative of exclusion, being told that your partner is not finished with the materials and that the study must continue because of time constraints may also be perceived as exclusion. Future research should examine more distinct manipulations of exclusion versus inclusion to better ascertain the behavioral responses to exclusion. More generally, future research should also examine the role of exclusion typicality in making attributions for social interactions. Perhaps individuals high in exclusion typicality not only avoid experiences that may confirm their expectation

of exclusion but perceive the confirmation of exclusion in innocuous and ambiguous situations.

It is also evident that despite the novelty of providing participants with an opportunity to “steal” money from the laboratory floor, participants were unwilling to take the money. It is possible that suspicions as well as social norms governing when one can and cannot pick up money contributed to such a low number of participants who took the money. Yet, this type of anti-social outcome presents participants with an opportunity to either engage in pro-social behaviors (e.g., tell the researcher that there is money) or anti-social behaviors (e.g., steal the money). Moreover, this outcome begins to address criticisms that anti-social responses to exclusion increased because participants have no other response to engage in (Warburton & Williams, 2005). Future research may benefit by using behaviors that provide these same opportunities but without the norms that may also be influencing social behavior.

Likewise, despite effects on the aggression measures in Study 2, the means indicated that people only minimally found the aggressive behaviors appealing. These behaviors varied in aggression from yelling to using a gun against another person. It is likely that social desirability as well as the increasingly abnormality of the behaviors contributed to such low means for the scale. Future research should examine behaviors that vary in their degree to which they are anti-social as well as behaviors that are decidedly more pro-social.

It is also important to note that, as with other longitudinal studies, missing data raises questions about the sample. While the FIML procedure allows one to use all of the available data to estimate missing time points, there are still concerns that need to be

addressed with longitudinal data collection. The inability to find the necessary variability in changes in exclusion experiences and state self-esteem over time may reflect the loss of participants who did not complete all of the weekly surveys. Additionally, the effort required to complete all of the surveys may reflect the motivation and personality that also makes one less vulnerable to exclusion. Future research should design longitudinal studies that control for this possibility.

In a similar vein, future research can address missing data and variability concerns by increasing the number of time points or intervals between data collection. For example, assessing feelings of exclusion over a longer time period not only provides more data that can be utilized by the FMLI approach to missing data but may also find more robust changes in exclusion experiences over time. Likewise, increasing the intervals for data collection may make participation easier but also allow for individuals to have more experiences that may make them feel excluded.

## **Conclusion**

Despite a desire for affiliation with others, it is clear that sometimes exclusion can lead to anti-social behaviors and other times lead to pro-social behaviors. It is also clear from the tragic cases of Columbine and Virginia Tech, that long-term exclusion can play a significant role in whether someone who has been excluded finally decides to react violently. The present studies examined the role that a history of exclusion and its effects on the self can have, in an effort to determine when, in fact, the straw breaks the camel's back.

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