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# Self-Compassion Versus Self-Esteem for an Experience of Ostracism

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## Abstract

Self-compassion refers to an adaptive way of responding to the self when in distress and consists of three main components: mindfulness, common humanity, and self-kindness. Self-compassion offers a promising alternative to the construct of self-esteem for predicting and influencing responses to ostracism, a specific type of social exclusion in which an individual is ignored for unknown reasons. The present study examined the differential associations of trait self-compassion and trait self-esteem with attribution, emotion regulation, shame, and prosocial responses following an experience of ostracism using the Cyberball ostracism paradigm. Undergraduate participants ($n$ = 219) completed trait self-esteem and trait self-compassion measures, experienced an online ostracism simulation using Cyberball, and then completed a measure of attribution for the ostracism experience, a measure of state emotion regulation strategies, and a measure of state shame. Subsequently, participants engaged in an inclusion trial of Cyberball to measure prosocial behavior. Multiple linear regression analyses revealed that self-esteem and self-compassion positively predicted emotion reappraisal, but self-compassion did not significantly predict emotion acceptance. Neither self-compassion nor self-esteem predicted external attribution of the ostracism event, but both self-compassion and self-esteem positively predicted internal attribution of the ostracism. Furthermore, both self-compassion and self-esteem negatively predicted a shame response to ostracism, with self-compassion showing stronger negative predictive power of shame. Finally, neither self-compassion nor self-esteem significantly influenced participants' prosocial response to ostracism. Results, limitations, and implications for clinical practice and research are discussed.



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# Self-Compassion versus Self-Esteem for an Experience of Ostracism

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# Chapter I

## Introduction

Social exclusion is conceptualized as being left out of a social relationship for explicit reasons (i.e., rejection) or being ignored by an individual or group for unknown reasons (i.e., ostracism) (Blackhart et al., 2009; Williams et al., 2005). Social exclusion manifests in daily life in a variety of forms, including minority discrimination, bullying, and thwarted e-based communication via text-messaging, email, and social media (Smart Richman et al., 2016; Smith & Williams, 2003; Knowles et al., 2015). Social exclusion is linked to a wide array of negative psychological processes such as rumination, inhibited emotion regulation, decreased life meaning and self-esteem, and aggression, to name a few (Wesselmann et al., 2010**;** Baumeister et al., 2005; Stillman et al., 2009; Bernstein et al., 2013). Furthermore, long-term or chronic exclusion results in poor mental health outcomes, such as anxiety, depression and suicidality, as well as negative physical health outcomes, including higher mortality rates (Krishnan, 2015; Howell et al., 2017; Lebret et al., 2006; Frasure-Smith et al., 2000**)**. Given the widespread prevalence of social exclusion, effective interventions in reducing its impact are needed.

Research pertaining to the effects of social exclusion on mood has produced equivocal results. Some studies suggest that exclusion results in decreased positive mood and increased negative mood (e.g., Gerber & Wheeler, 2009), while other studies show that exclusion results in emotional numbing (e.g., Blackhart et al., 2009). The mixed

findings regarding emotional valence in response to social exclusion directs this current research to the relationship between emotion regulation and social exclusion. Social exclusion also yields emotions related to shame (Leary & Baumeister, 2000). Shame-related emotions and cognitions are pertinent to social exclusion due to their role in the activation of maladaptive responses, such as rumination and aggression. Numerous studies have supported the notion that shame is a significant risk factor for onset and maintenance of mental health issues, and therefore, more research is needed to identify methods of intervening to decrease the detrimental effects of shame (Dyer et al., 2017; Leskela et al., 2002; Robinaugh & McNally, 2010).

Among the many personal characteristics that buffer against the negative effects of social exclusion, self-esteem has found an abundance of support in attenuating maladaptive responses. However, processes that bolster self-esteem often fail to function as adaptive interventions for experiences of exclusion and shame (Crocker & Park, 2004). Self-compassion, a construct related to self-esteem, offers a promising alternative to self-esteem as an interventional buffer against dysfunctional responses to exclusion without the adverse secondary effects of self-esteem interventions, and warrants further exploration. This project investigated the differential roles that self-compassion and self-esteem played in an experience of ostracism through responses of shame, attributional processes, emotion regulation, and prosocial behavior. Below is a review of relevant literature, followed by methods of the investigation, results of the study, and a discussion of clinical and research implications of the results.

## Social Exclusion

In the social exclusion literature, little progress has been made in empirically determining social exclusion, ostracism, and rejection as either distinct or interchangeable constructs (Williams, 2007). These three terms are often used interchangeably and inconsistently in the literature, and studies have failed to find consistent differentiable consequences for the three types of experiences (Williams et al., 2005). Social exclusion is broadly defined as being excluded, alone, or isolated, sometimes with explicit declarations, but other times not (Baumeister et al., 1995). Ostracism is typically defined as being ignored or excluded without much explanation or apparent evaluation (e.g., Williams, 2009; Zadro et al., 2004). Rejection is typically distinguished by an overt declaration from an individual or group that they do not want to interact with the individual (e.g., Stillman & Baumeister, 2013). Because of the inconsistency in the literature, the three respective terms will be used according to the terms used by authors in the particular study of reference.

Social exclusion is a ubiquitous experience that can occur on a daily basis. While social exclusion is a phenomenon relevant to every developmental stage of life, social exclusion is particularly prevalent and impactful in young adulthood, especially in the undergraduate context. The college years are ripe with opportunities for social exclusion, given the social demand for forming new peer groups and romantic relationships, and the potential for lacking a global sense of school belongingness (Sollitto et al., 2013; Stuber et al., 2011; Kennedy & Tuckman, 2013). Indeed, procrastination, academic and social values, academic motivation and achievement, and subjective well-being have all been linked to perceived school belongingness (Kennedy & Tuckman, 2013). Social exclusion

has also been linked to depression and antisocial behavior in first-year college students (Sargent et al., 2016). Furthermore, quality of peer relationships is also negatively related to alcohol use among college students (Borsari et al., 2006). Thus, it may be especially critical to understand how undergraduate college students manage experiences of social exclusion given its potentially negative impact on their mental and academic well-being.

**Social Exclusion and Attribution**

Social exclusion occurs for a variety of reasons, some of which are explicit and clear, and some of which are implicit and vague. Because many forms of exclusion are obscure, victims of exclusion are often left to their own devices to decipher the meaning and reason for being excluded. Experiences and forms of social exclusion are immensely varied, and victims can interpret these experiences in almost infinite ways; however, these interpretations are largely divided into two broad constructs: internal attribution and external attribution. Internal attribution refers to the response of blaming the self for exclusion, whereas external attribution refers to blaming others or the context in which the exclusion occurred (Kernis, 1984). The way in which one attributes the exclusion experience to the self or others has important implications for the function of the exclusion experience.

Vanhalst et al. (2015) conducted a longitudinal examination of loneliness in late adolescent individuals over a span of four years with the primary aim of identifying discriminant loneliness-reduction dynamics and loneliness-perpetuation dynamics. Of the five loneliness trajectories identified, the two contrasting trajectories of stably low loneliness and chronically high loneliness showed disparate attributional styles to social exclusion and inclusion. Individuals with stably low loneliness showed a strong proclivity

for attributing inclusion to personal characteristics (i.e., desirability) and exclusion to coincidence. Individuals with chronically high loneliness lacked this self-serving bias, however, and showed a tendency to blame themselves when they were excluded and failed to take credit for inclusion. This finding is consistent with prior research that indicates that deficits in this self-serving attributional style is related to internalizing problems commonly associated with anxiety and depression, and a proclivity for this attribution style is related to well-being (Mezulis et al., 2004; Taylor & Brown, 1994).

Schoch et al. (2015) found that social approach and avoidance motives influence an individual's attributions on dimensions of internality and generality. Specifically, participants with social avoidance motives attributed social exclusion with high internality and generality, and participants with social approach motives attributed exclusion to external and specific reasons. Research has also shown that one's attribution of a specific ostracism event can result in longer recovery times after the ostracism event (Goodwin et al., 2010). Specifically, Goodwin et al. (2010) found that when individuals attributed ostracism to racism in a game of Cyberball, they showed a significant longer recovery time, compared to those who did not attribute the ostracism to racism, for the following thwarted needs: belongingness, self-esteem, control, and meaningful existence. This effect was observed in both Black and White participants.

**Social Exclusion and Emotion Regulation**

While the advances of social exclusion research are extensive, researchers have failed to reach a consensus regarding the effect of social exclusion on mood. For instance, results of one meta-analysis showed support for the notion that social exclusion results in greater negative mood and decreased positive mood (Gerber & Wheeler, 2009). Another

meta-analysis showed support for an overall response of neutral affect in rejected individuals (Blackhart et al., 2009). While the socially rejected in the analyzed studies felt *worse* than included individuals, they did not report feeling *bad,* lending support to the notion that exclusion inhibits emotional response, or the "numbing hypothesis" of social exclusion (Blackhart et al., 2009). The construct of emotion regulation may show more practical utility than emotional valence within the context of responses to social exclusion. While the construct of emotion regulation has been defined in a variety of ways, at a basic level, the construct refers to one's attempt, whether conscious or unconscious, to influence one's own emotional experience (Naragon-Gainey et al., 2017). Other researchers have defined emotion regulation as the ability to identify, understand, accept, and manage emotions (Gratz & Roemer, 2004). Indeed, researchers have shown that a person's ability to recognize their emotional shifts is negatively related to distress following ostracism (Pollatos et al., 2015).

Bauriedl-Schmidt et al. (2017) examined the effects of ostracism on participants with depression. The investigators manipulated the ostracism state via Cyberball, an ostracism manipulation in which participants are excluded from an online ball-tossing game. Bauriedl-Schmidt et al. (2017) found that, compared to healthy controls, the participants with depression displayed more negative mood and more passive responses, such as inclinations to smoke a cigarette or sleep, following the experience of ostracism. These results indicate that mood disorders may be typified by distinctive and maladaptive emotional regulation following experiences of ostracism.

Conversely, DeWall et al. (2011) found that individuals with positive mental health showed unconscious positive affect following social exclusion, demonstrating a

discrepant process of emotion regulation from the participants with depression in Bauriedl-Schmidt's (2017) study. Through nine studies, DeWall et al. (2011) used several manipulations to influence acute exclusion, including rejection by confederates and the Future Alone Paradigm. The investigators also used different measures of unconscious affect, including recall of childhood memories, a lexical similarity task, and a word-stem task. All nine studies revealed that individuals who experienced rejection showed unconscious positive affect (i.e., automatic emotional processing characterized by attunement to positive information) whereas those who did not experience rejection did not. Two of the studies in this investigation showed that this positive attunement is limited to individuals with relatively good mental health (i.e., low depressive symptoms, high self-esteem). This positive attunement was not observed in participants high in depression or low in self-esteem. Evidently, emotion regulation following social exclusion is an important facet of mental well-being.

Emotion regulation following an ostracism experience has also been examined experimentally. Wesselmann et al. (2013) split participants into two groups following ostracism via Cyberball. One group was prevented from ruminating by engaging in a mentally challenging task, and another group was not given a mental task and were thus allowed to ruminate without distraction. Individuals who were allowed to ruminate reported more distress than their counterparts who were distracted following ostracism. This result suggests that rumination is a particularly maladaptive way of regulating emotion following an experience of ostracism and that distraction is a more effective means of regulating emotion than rumination in this context.

Given that social exclusion is a ubiquitous experience, and rumination appears to be the default method of regulating the emotional response to exclusion, adaptive emotion regulation strategies are needed to replace rumination in victims of exclusion.

**Social Exclusion and Shame**

Shame is a self-conscious emotion that pertains to global and negative evaluations of the self (Gruenewald et al., 2007). In individualistic cultural contexts, shame differs from guilt, which is a negative self-conscious emotion that is directed toward a specific behavior as opposed to a global self-perception (Wong & Tsai, 2007). Gilbert (2000) distinguishes between external and internal shame. External shame relates to shame-proneness and refers to the perception that another individual or group is evaluating the self as inferior or defective (Balsamo et al., 2015). Internal shame refers to negative self-evaluations and self-judgments that focus on one's limitations and imperfections (Del Rosario & White, 2006). From an evolutionary perspective, the shame response to social devaluation developed as an adaptive way to regain social approval, evoking behaviors such as withdrawal, acceptance of subordination, appeasement, and sometimes aggression (Keltner, 1995; Keltner & Young, 1997).

While some cultures differ in the valence applied to the shame experience, shame responses to social devaluation are not typically adaptive for the modern human being. This response can be especially maladaptive considering the broad range of social feedback received on a continuous basis in modern society and evidence for shame's link to depression, anxiety, suicidal ideation, and physical ailments (Tangney et al., 1992; Mokros, 1995; Dickerson et al., 2004). Indeed, Kim et al. (2011) found that shame is reliably associated with mental health issues such as depression. Furthermore, shame is

different from guilt in that shame is generally regarded a maladaptive experience comprised of negative evaluations of the global self, while guilt is an adaptive experience comprised of negative evaluations of one's specific behaviors that may motivate one to repair relationships or to adhere to social mores (Orth et al., 2006).

Several studies support the notion that social devaluation results in shame responses, and some authors assert that individuals are at risk for the experience of shame in every social interaction (Leary & Baumeister, 2000; Scheff, 2014). Sznycer et al. (2016) found support for an evolutionary link between social devaluation and shame in a cross-cultural study with participants from the United States, India, and Israel. In this study, robust correlations were found between hypothetical instances of social devaluation and anticipated levels of shame with participants from three countries (United States, $r = .69$; India, $r = .79$; and Israel, $r = .67$). While shame ratings were correlated with anxiety and sadness ratings, social devaluation predicted shame responses when controlling for these emotions.

Given the social and evaluative context of college, shame is a common experience for college students, who report shame experiences in several domains, including academics, personal relationships, body image, as well as teacher and supervisor evaluations (Wang et al., 2009). Furthermore, with increased use of social network services, college students are vulnerable to constant social comparisons via internet, which have been shown to lead to experiences of shame and a resultant feeling of hopelessness in college students (Lim & Yang, 2015). College students also experience shame in response to negative drinking experiences; and while guilt is linked to readiness for change in drinking behavior, shame is linked to risky and impulsive behavior and not

readiness for change (Rodriguez et al., 2015). Shame has also been linked to low perceived social support and increased suicidal ideation in college students (Feng et al., 2016).

Twenge et al. (2003) examined shame through the social rejection paradigm known as the Life Alone paradigm, in which participants are falsely informed that their personality test results reveal that they will live a life void of close and fulfilling relationships. These authors found that, compared to participants in control condition and life-of-misfortune condition, participants informed of a future alone were more likely to take a seat in front of a blank wall as opposed to a seat in front of a mirror, indicating a shame response. Furthermore, self-esteem did not mediate the relationship between social rejection and shame. However, when controlling for social exclusion, self-esteem showed a main effect with self-awareness avoidance, revealing an independent relationship with this avoidance for both exclusion and self-esteem. This finding indicates that rejection results in decreased desire for self-awareness and increase in shame, and self-esteem inversely predicts this outcome.

Although Blackhart et al. (2009) and Dewall and Baumeister (2006) found support for the numbing hypothesis of social exclusion, they failed to include shame and related constructs as specific dependent variables. Shame-related cognitions and emotions (SRCEs) have been shown to mediate the effect of social evaluation on rumination, while general emotion, like fear, anger, and sadness do not (Zoccola et al., 2012). Zoccola and colleagues (2012) found that participants who delivered a difficult speech for an audience showed more rumination than participants who performed the speech alone, and these stressor-related rumination differences persisted for a period of 5 days. The relationship

between the socially-evaluative stressor and rumination was mediated by shame emotions and cognitions; whereas general emotions did not. This link between shame and rumination has been replicated in a study of individuals with relationship difficulties, which found that shame fully mediated the relationship between rumination and depression (Rice & Fallon, 2011). Similarly, Cheung et al. (2004) found that both social rank and shame are strongly related to rumination and that rumination partially mediated the relationship between shame and depression.

Shame also correlates with depression and social anxiety (Gilbert, 2000). While the correlation between shame and depression disappears when controlling for social anxiety, the relationship between shame and social anxiety remains when controlling for depression, suggesting a unique relationship between shame and social experience. Related to shame is the construct of blame attribution, such that shame is related to self-blame, and Gilbert (2000) found that self-blame, but not other-blame, was associated with social anxiety, depression, and shame. Blaming self was also associated with increased anger proneness and hostile attitudes. This study also found that those who see themselves as socially low-ranked tend to blame themselves for criticism and endorse more shame, and those who feel relatively superior, tend to blame others. This differential attribution is supported in the self-esteem literature as well (vanDellen et al., 2011).

Shame has also shown a strong relationship with physiological stress in the context of a social stressor. Gruenewald et al. (2004) induced social threat in participants by having them perform stressful activities (i.e., speech and math tasks) in the presence of an unfriendly, evaluative audience or in isolation. In this study, the evaluative

condition was manipulated by having participants perform the math or speech in front of two similarly aged confederates who remained stoic while writing notes on a clipboard. Following social devaluation, shame-related emotions showed significant increase when controlling for other emotions, and state self-esteem showed significant decrease in these participants. This relationship was not seen in the stressful performance, non-evaluative condition; furthermore, cortisol level increased significantly in the social evaluative condition but not in the isolation condition, suggesting that social evaluation and shame responses are distinct responses from other forms of stress.

**Social Exclusion and Prosocial Response**

Social psychology research has produced ample evidence supporting the notion that social exclusion results in aggressive behavior in the excluded (see Leary, Twenge, & Quinlivan, 2006 for a review). This link has been shown in studies in which socially excluded individuals have opted to force others who dislike spicy food to ingest hot sauce (DeWall et al., 2010; Kirkpatrick et al., 2002; Warburton et al., 2006). The social exclusion-aggression link has been further shown in studies in which excluded participants blasted participants with loud, prolonged blasts of noise significantly more than included individuals (DeWall et al., 2009; DeWall et al., 2010; Gaertner et al., 2008; Twenge et al., 2001). A meta-analysis on social exclusion studies also supported this relationship between social exclusion and aggression (Gerber & Wheeler, 2009).

In addition to increases in aggressive behavior, social exclusion has also been shown to reduce likelihood of prosocial behavior (Twenge et al., 2007). Prosocial behavior refers to a voluntary act done with the specific intention of helping another and can vary in form from helping a friend with homework to donating money to a charity

fund (Eisenberg et al., 2015). Across seven different experiments, Twenge et al. (2007) found that participants falsely informed of a future life alone were less charitable, less cooperative, less likely to help, and less likely to volunteer. This finding was mediated only by empathy but not by other factors, including self-awareness, state self-esteem, belongingness, trust, or control.

Similarly, Leiro and Zwolinski (2014) found that all thwarted needs following exclusion are related to decreased prosocial responses. In this study, first year college students who were excluded during Cyberball, tossed the ball to their excluders in a second Cyberball trial significantly less than their included counterparts tossed the ball to repeat players in the second trial. This attenuated prosocial response was seen regardless of the prosociality of the excluder in the second trial. In other words, even if the excluder from the first trial passed the ball to the previously excluded participant, the excluded individual tossed the ball away from the first trial excluder. Furthermore, all measured needs threats (i.e., self-esteem, belonging, meaningful existence, and control) correlated strongly and negatively with prosocial responses.

The nature of the negative relationship between ostracism and prosocial behavior has also been differentiated among chronically rejected and stably accepted individuals. In a study comparing chronically rejected adolescents to stably accepted adolescents, Will et al. (2016) found that the adolescents in their sample punished excluders in a Cyberball trial by throwing them less tosses than neutral players. Compared to accepted adolescents, chronically rejected adolescents showed significantly more neural activity in brain areas associated with revenge behavior when engaging in prosocial behavior (tossing ball) to excluders following Cyberball. These results suggest that chronically

rejected individuals expend significant cognitive energy on inhibiting retaliation against excluders, which sheds light on the behavioral regulation difficulties experienced by excluded individuals. These results also suggest that regulation and prosocial behavior are closely related.

Maner et al. (2007) manipulated social exclusion through a variety of ways in six experiments, including the Future Life Alone paradigm, overt rejection from a confederate, and writing about a previous experience of exclusion. Maner et al. (2007) found that individuals showed more interest in making new social connections following social exclusion, but they showed less interest in engaging with the individual who excluded them. This relationship between exclusion and heightened social reconnection with novel others was moderated by fear of evaluation, such that excluded individuals who reported fear of negative evaluation were less likely to affiliate with novel others, but excluded individuals low in fear of evaluation showed a strong affiliation for others. This strong affiliation for others was limited to others with whom participants had a realistic opportunity to form a connection. If the excluded participant did not anticipate ever coming into contact with this person, then they did not display affiliative, prosocial behaviors.

Other studies have shown support for increased social affiliative responses to social exclusion that are neither prosocial or healthy in nature, including willingness to: try an illegal drug if it increases chance of approval, sample an unappealing food favored by a peer, buy a product symbolic of group membership that has no practical utility, as well as increased unconscious mimicry of the excluding individual (Lakin et al., 2008;

Mead et al., 2011). Evidently, affiliative responses following social exclusion are not always exclusively prosocial or adaptive for the individual.

## Social Exclusion and Self-Esteem

Although some traditional views of self-esteem conceptualize self-esteem as a cause of behavior, sociometer theory suggests that social exclusion or acceptance statuses are the causes of both behavior and self-esteem (Leary et al., 1995). Leary et al. (1998) proposed that instead of self-esteem serving as an inoculator against the effects of social exclusion, self-esteem serves as a gauge or a "sociometer" for inclusionary versus exclusionary statuses in interpersonal situations. Using Leary's (1998) metaphor, self-esteem is no more a cause of behavior than a car's fuel gauge is a cause of the vehicle's functioning. Self-esteem simply serves as a gauge of social acceptance. Extending Leary's metaphor of the fuel gauge, the aim of increasing one's self-esteem is akin to tampering with the fuel gauge to make it read *full* without actually adding gasoline to the tank.

However, in a meta-analysis of 192 studies of social exclusion, Blackhart et al. (2009) found that self-esteem was not significantly reduced by exclusion, although self-esteem was significantly enhanced by inclusion, showing partial support for Leary's sociometer theory. Blackhart et al. (2009) hypothesize that an individual's defensive self-regulation strategy prevents dips in self-esteem following acute exclusion in laboratory studies. The sociometer model is more supported in the large effect sizes seen in changes in self-esteem followed by relived rejection experiences as the social exclusion manipulation ($r = 0.73$) (Blackhart et al., 2009).

Individuals with high self-esteem evaluate themselves positively, and Hulme et al. (2012) has found empirical support for this perception as a buffer against the negative effects of social exclusion. Hulme et al. (2012) found that individuals who deliberately hold a positive self-image in mind report higher self-esteem following social exclusion via Cyberball compared to individuals who deliberately held a negative self-image in mind during the exclusion experience. Therefore, the processes involved in maintaining self-esteem seem to retain effectiveness during acute social exclusion. However, these manipulations of positive and negative self-images used by Hulme et al. (2012) may not reflect the natural processes occurring in naturalistic experiences of exclusion. For instance, Baumeister et al. (2002) found that after a social rejection manipulation, participants' reduction in cognitive ability was especially robust on tasks that involved recalling events from memory, which alludes to the difficulty of recalling positive traits of the self and/or positive social connections, especially in low self-esteem individuals.

**Self-Esteem and Attribution**

Self-esteem has also demonstrated consistent associations with internal and external attribution of social exclusion. In a study using online dating as a rejection paradigm, low self-esteem individuals reported significant declines in social self-evaluations and were more likely to blame themselves for rejection and appraise themselves more negatively compared to high self-esteem individuals (Ford & Collins, 2010). Ford and Collins (2010) suggest that individuals with low self-esteem experienced significant increases in HPA reactivity in large part because they blamed the rejection on something negative or unworthy about the self. Furthermore, reports of self-blame, compared to negative self-evaluations, served as a more powerful mediator of

relationship between rejection and partner derogation as well as low self-esteem and physiological stress response.

Libby et al. (2011) found that, compared to individuals with high self-esteem, individuals with low self-esteem were more prone to overgeneralize their negative experience when prompted to recall a past failure. Individuals with high self-esteem, on the other hand were able to recall negative life experiences with a balanced perspective, such that this recollection did not produce a global negative perception of the self. This finding offers further support for self-esteem as a buffer against social exclusion through the mechanism of adaptive attribution.

Following self-threats, individuals with high self-esteem tend to blame others, which serves to protect the individual's self-esteem but can also inhibit growth and learning (Heatherton & Vohs, 2000). Furthermore, this form of attribution can show a lack of humility and even resemble antagonism, reducing chances of inclusion in the future (Heatherton & Vohs, 2000). Because the individual with high self-esteem is less likely to blame the self for shortcomings, they project blame onto outside targets. While this external attribution may facilitate emotion regulation and protect the individual from ego threat, this reaction may lead to diminished prosocial behavior as well.

**Self-Esteem and Emotion Regulation**

Individuals with high self-esteem report more accurate perceptions of reality, greater experiences of self-actualization, and better mental health compared to those with low self-esteem; and this relation may be due in part to enhanced emotion regulation (Anto & Jayan, 2016). Libby et al. (2011) asked participants to recall a past failure, and individuals with low self-esteem listed more negative evaluations of themselves and less

positive evaluations of themselves than individuals with high self-esteem. However, this relationship between self-esteem and emotion may be dependent on self-esteem contingencies (i.e., life domains to which the individual ascribes self-worth). For instance, Crocker (2002) found that individuals who base their self-esteem in the domain of academics show strong increases in positive emotions following successes in this domain. However, the inverse relationship was also found. Individuals whose self-esteem is highly contingent on a particular domain showed significant increases in negative emotions and decreases in positive emotion after an experience of failure in the respective domain (Crocker, 2002). This finding was replicated in a social domain when individuals whose self-esteem depended on social worth showed lower positive affect and greater negative affect after social devaluation (Crocker, 2002). These findings suggest that self-esteem is positively related to emotions and that this relationship may depend on self-esteem contingency.

Brown (2010) found that individuals with high self-esteem were less distressed following negative interpersonal feedback in a social domain and negative performance feedback in an achievement domain. Furthermore, past research shows that a high self-esteem individual responds to ego threat by directly enhancing their self-esteem via strategies such as calling to mind their strengths instead of their weaknesses, whereas individuals with low self-esteem typically generalize the experience by recalling their weaknesses (Dodgson et al., 1998). However, following an ego threat, individuals with fragile high self-esteem have been shown to engage in thought suppression, self-punishment, and belittling of the ego threat (Borton et al., 2012).

## Self-Esteem and Shame

Given that self-esteem and shame are both largely comprised by global evaluations of the self, these two psychological constructs are closely and inversely related. Brown and Marshall (2001) found that self-esteem is strongly related to self-relevant and evaluative emotions, such as shame, but not related to emotions less contingent on self- or other-evaluation, such as sadness or anger. This distinction was especially salient in the context of failure, a form of ego-threat (Brown & Marshall, 2001). Furthermore, self-esteem was not an independent predictor of guilt, which supports the notion that shame pertains to a global evaluation of the self, while guilt pertains to a specific evaluation of a particular behavior (Tangney et al., 1992). The findings of Brown and Marshall (2001) were supported by Brown (2010) who found that self-esteem positively predicted feelings of self-worth, but not overall emotions, following negative social outcomes in naturalistic settings.

The inverse relationship between self-esteem and shame appears to be accentuated in social contexts. Libby et al. (2011) examined the relationship between self-esteem and reactions to a recalled failure. Compared to high self-esteem individuals, low self-esteem individuals in this study experienced greater shame following this recall but only if they imagined the failure from a third-person perspective. This finding signifies that low self-esteem is related to shame responses, especially when the perspective of another is made salient.

The relationship between self-esteem and shame has also been demonstrated longitudinally. Gruenewald et al. (2004) found evidence that self-esteem and shame are closely related and can fluctuate in tandem. In this study, participants were subjected to

social evaluation during a difficult math task, and as shame increased over time with these participants, reported self-esteem decreased. Other researchers have found support that changes in self-esteem are closely related to experiences of shame and that chronic experiences of shame can lead to lower levels of self-esteem (Elison et al., 2014). Additionally, low self-esteem may increase one's vulnerability to the experience of shame, and the directionality of this relationship is unclear (Marshall et al., 2009).

Shim et al. (2013) found evidence for the protective quality of self-esteem, showing that self-esteem negatively predicted shame in a sample of university students, which is supported by previous research showing that low self-esteem individuals are prone to experiencing shame (Brown & Marshall, 2001). Likewise, Velotti et al. (2017) collected self-report information from a large community sample, regarding shame and self-esteem, and found that individuals with low self-esteem reported higher levels of shame. Results of these studies indicate that feelings of shame are especially relevant for individuals with low self-esteem. Given that victims of social exclusion are subject to low self-esteem, protective factors for shame in socially excluded individuals merit further empirical investigation.

**Self-Esteem and Prosocial Behavior**

Self-esteem's relationship with post-ostracism prosocial behavior may be contingent on the predicted quality of the social contact. In one study, high self-esteem individuals who were rejected reported a desire to connect with close others but not with others in general, suggesting that high self-esteem individuals predict that contact with close others will result in social support and therefore a compensatory boost to feelings of connection and self-esteem (Park & Maner, 2009). On the other hand, these high self-

esteem individuals avoid contact with general others following rejection, as strangers present further opportunity for rejection. Although the authors did not allude to shame to explain this finding, the desire to withdraw or avoid others due to fear of evaluation is a facet of shame behavior (Roos et al., 2014). This finding was replicated in research that showed that high self-esteem individuals become more independently focused as opposed to interpersonally focused following threat to competence (Park & Crocker, 2005; Vohs & Heatherton, 2001). However, in a study using online dating as a rejection paradigm, low self-esteem individuals reported significant declines in social self-evaluations and were more likely to derogate interaction partner's interpersonal and personal traits compared to high self-esteem individuals (Ford & Collins, 2010). This contrary finding may be explained by self-esteem contingencies.

Individuals with low self-esteem, whose self-esteem is contingent on social approval, tend to desire to appear more physically attractive following negative interpersonal feedback; however, high self-esteem individuals with the same esteem contingency show a desire to be perceived as kind and caring (Park & Crocker, 2008). The response from low self-esteem individuals may be interpreted as an attempt to regain approval from others, while the high self-esteem response may be interpreted as an attempt to reaffirm and validate their own view of themselves (Park & Crocker, 2008). Another method of reaffirming and validating one's self-evaluation is to diminish the evaluation of others through degradation and aggression, reducing opportunities for prosocial responses. Lo et al. (2014) found support for this aggressive response in a particular type of high self-esteem. These authors differentiate between secure self-esteem (high explicit self-esteem and high implicit self-esteem) and defensive self-esteem

(high explicit self-esteem and low implicit self-esteem). Lo et al. (2014) found that individuals with defensive high self-esteem were more likely to respond to negative feedback with negative evaluations of the providers of feedback and were more likely to respond with belittling behavior to these individuals.

Interestingly, following negative feedback in a domain contingent on an individual's self-esteem, the high self-esteem individual is perceived as less supportive and less likeable compared to a high self-esteem individual who did not receive negative feedback or whose self-esteem was not contingent on the domain in which negative feedback was given (Park & Crocker, 2005). Overall, individuals with low self-esteem were rated as more supportive and likeable than their high self-esteem counterparts, but this distinction was not found in individuals whose self-esteem was not contingent on the domain of negative feedback or in individuals who received no negative feedback at all (Park & Crocker, 2005).

Conversely, self-esteem has shown also shown a positive relationship with aggressive behavior. Thomaes et al. (2008) induced shame in participants by having them lose to an opponent in a competitive game and then falsely informing the participant that their opponent was a bad player. Self-esteem predicted aggression in these participants, such that high self-esteem individuals delivered were likely to deliver loud blasts of noise to their opponents while low self-esteem individuals showed no proclivity toward this aggressive response to shame. Thomaes et al. (2008) suggest that this aggressive response seen in shamed individuals with high self-esteem serves an ego-protective function, which may seem effective in the short term, but over time, this response increases vulnerability to exclusion victimization while hurting others as well.

## Social Exclusion and Self-Compassion

Self-compassion is different from self-esteem, and this distinction has been empirically validated (Leary et al., 2007; Neff & Vonk, 2009). Whereas self-esteem refers to an evaluation of oneself (i.e., a global appraisal of one's own competency and self-worth), self-compassion refers to a way of responding to the self when in distress (Neff, 2003). Neff (2003) outlines three facets of self-compassion: mindfulness, common humanity, and self-kindness. Mindfulness involves nonjudgmental and balanced awareness of the present moment instead of overidentification with evaluations of the self. Common humanity refers to recognition that pain is a part of life and that all humans are imperfect, thus connecting the individual self to the rest of humankind in times of pain. Self-kindness refers to the tendency to be understanding and caring toward the self in times of pain as opposed to self-critical. An inverse relationship between self-compassion and psychopathology has consistently been found (Barnard & Curry, 2012; MacBeth & Gumley, 2012).

From a multidisciplinary perspective based in attachment theory, evolutionary psychology, and neurobiology, Gilbert (2005) suggests that the experience of self-compassion activates the same neurophysiological mechanisms that are activated when the individual receives compassion from others. Gilbert (2010) suggests that compassion for the self originates from an evolved mammalian physiological system (related to secure attachment and the oxytocin system) that, when activated via external signals or internal signals (self-directed emotions and thoughts) of belongingness and kindness, contributes to feelings of contentment, connectedness, and soothing, which are all feelings thwarted by an experience of social exclusion. Based on this line of thought, self-

compassion's relationship with psychosocial processes offers a unique and powerful intervention mechanism following experiences of social exclusion.

After experiencing social exclusion, acknowledging the existence of oneself can often be aversive. In effect, a socially excluded individual is likely to respond to an exclusion experience by ignoring the self, a common shame response (Twenge et al., 2003). This rejection of the self can further hinder one's ability to self-regulate. Baumeister et al. (2005) revealed that socially rejected individuals' ability to self-regulate increases when their self-awareness is increased. In this particular study, participants' reduction in self-regulation following exclusion was eliminated by a simple self-awareness manipulation of viewing oneself in the mirror. A self-referent intervention, such as self-compassion, therefore has potential as a self-regulation strategy in the socially excluded. Proven coping mechanisms, such as distraction, lack this therapeutic element of self-awareness (Naragon-Gainey et al., 2017).

In another longitudinal study, Gunnell et al. (2017) tracked changes in self-compassion and changes in psychological need satisfaction (PNS) and psychological well-being (self-reported emotions and life vitality) in first-year university students. Increases in self-compassion were associated with increases in PNS and decreases in negative affect. Furthermore, increases in self-compassion were associated with increases in vitality and positive affect through increases in PNS, specifically competence, autonomy, and relatedness.

Neff and Vonk (2009) found that self-compassion predicted more stable feelings of self-worth than self-esteem, and self-compassion was also less contingent on particular outcomes, compared to self-esteem. While self-compassion and self-esteem were equally

predictive of happiness, optimism, and positive affect, self-compassion revealed a stronger negative association with social comparison, public self-consciousness, self-rumination, anger, and need for cognitive closure. These latter findings are particularly relevant to social exclusion, due to the potential for this experience to result in social comparison, rumination, anger, and confusion (Williams, 2007).

When individuals are prompted to consider their greatest weaknesses, trait self-compassion reduces subsequent anxiety (Neff et al., 2007). Self-esteem, however, provides no such buffer against the effects of this negative self-evaluation. This finding alludes to the self-regulatory potential of self-compassion. Indeed, Gilbert (2005) proposes that self-compassion deactivates the threat system and activates a self-soothing system, whereas individuals adjust self-esteem by actively comparing the self to others, usually derogating these others to reinforce their own social rank. As suggested by Leary's sociometer theory, self-esteem serves as a monitor or gauge to guide social behavior, whereas self-compassion offers a way of soothing oneself in a time of distress (Leary, 1995).

Self-compassion has shown promising relationships with self-esteem and varying measures of mental health. In a one-year longitudinal study of ninth grade adolescents, Marshall et al. (2015) found that both self-compassion and of self-esteem held an independent relationship with mental health as measured by the General Health Questionnaire. While participants low in self-compassion and participants high in self-compassion both benefitted equally from high self-esteem, the longitudinal effect of self-esteem depended on self-compassion. Low self-esteem failed to predict decreases in mental health among participants high in self-compassion, but low self-esteem predicted

significant declines in mental health among participants low in self-compassion. These results offer clear support for the protective quality of self-compassion especially in situations when self-esteem is lowered, such as experiences of social exclusion.

**Self-Compassion and Attribution**

Given that self-compassionate individuals treat themselves with kindness in response to a stressor, it is expected that self-compassion is negatively related to self-blame following social exclusion. Leary et al. (2007) prompted participants to conjure a negative event they had experienced, and individuals high in self-compassion were less likely to attribute the negative experience to themselves (i.e., "I'm such a loser."). In a laboratory experiment, Leary et al. (2007) induced self-compassion in participants after thinking about a negative event, and compared to control group, individuals who experienced the self-compassion induction were more likely to take responsibility for the negative life event but less likely to experience negative affect.

Prior research has also shown this inverse relationship between self-compassion and self-blame among a population that has limited control of their ails. In a sample of individuals with chronic illness, Sirois et al. (2015) found a negative correlation between self-compassion and self-blame coping. Like chronic illnesses, experiences of social exclusion are often out of the control of the individual, and thus victims of social exclusion are at risk for attributing this uncontrollable experience to their own behavior in attempt to regain control. Just as self-compassion negatively predicts self-blame in participants with chronic illnesses, ostracized individuals, who also experience pain outside of their control, are expected to place less blame on themselves for the ostracism experience if they are self-compassionate individuals. Therefore, self-compassion may

provide an adaptive mechanism for reducing self-blame following experiences of social exclusion.

Self-compassion offers a promising avenue for altering one's attribution of social exclusion, especially considering the components of mindfulness and self-kindness. Considering the mindfulness component, the self-compassionate individual is likely to take a balanced, nonjudgmental view of the exclusion event instead of automatically attributing the exclusion to the self or to the other. Considering the self-kindness component, the self-compassionate individual is less likely to blame the self, following exclusion, a time that is prone to evoke this internal attribution. While this link between self-compassion and attribution makes sense conceptually, more empirical research is needed in this area.

**Self-Compassion and Emotion Regulation**

The practice of self-compassion can serve as a form of emotion regulation by enhancing the individual's ability to recognize and accept emotions, reduce emotional numbing, and limit hyperarousal (Ogden et al., 2006). Cross-sectional research has shown that self-compassion is associated with more positive emotions, less negative emotions, and less depression severity in both healthy and clinical samples (Hofmann et al., 2011**;** MacBeth and Gumley, 2012; Neff & McGehee, 2010; Neff et al., 2007). Furthermore, correlational studies have shown significant associations between self-compassion and adaptive emotional processing and emotional intelligence (Heffernan et al., 2010; Neff, 2003; Neff et al., 2005).

Research has revealed differential emotion regulation strategies based on an individual's level of self-compassion. Specifically, after receiving a negative midterm

grade, individuals high in self-compassion typically relied more on positive cognitive restructuring and acceptance and less on avoidance, escape, and perseverating negative emotion (Neff et al., 2005). However, highly self-compassionate individuals do not differ significantly from individuals low in self-compassion, regarding use of problem solving and distraction. More research is needed to clearly distinguish emotion regulation strategies based on level of self-compassion.

Emotion regulation has also been shown to mediate the beneficial effects of self-compassion for specific mental health disorders. In a sample of young adult substance users, self-compassion was negatively related to emotion dysregulation over and above variables, such as childhood maltreatment, psychological symptom severity, and addiction severity (Vettese et al., (2011). Scoglio et al. (2015) found that among female victims of interpersonal trauma, self-compassion was negatively related to emotion dysregulation after accounting for PTSD symptom severity and demographic variables. These authors also found that emotion dysregulation mediated the relationship between self-compassion and PTSD symptom severity. Among individuals diagnosed with major depressive disorder, Diedrich et al. (2014) found that a self-compassion induction intervention resulted in more positive mood and less negative mood compared to control condition. Furthermore, research has shown that self-compassion is a significant predictor of stress symptoms after controlling for age and neuroticism, and emotion regulation mediates this relationship (Finlay-Jones et al., 2016). Also, emotion tolerance has been shown to mediate the relationship between self-compassion and disordered eating (Webb & Forman, 2013).

Experimental studies that compare self-compassion inductions to control groups have also shown promising results for the utility of self-compassion in enhancing emotion regulation. For instance, Leary et al. (2007) showed that individuals who engaged in a self-compassion writing exercise following recall of a negative experience were less likely to experience negative affect compared to individuals in the control writing group. In a study by Adams and Leary (2007), women high in eating guilt who participated in a self-compassion induction task reported less distress when instructed to eat a doughnut and ate less in a follow-up test compared to restrictive eaters who did not participate in the self-compassion induction task. Neff et al. (2007) examined the effectiveness of a Gestalt two-chair self-compassion technique in which participants alternated between responding to the self with a self-critical voice and a self-compassionate voice. Over a month-long period, as level of self-compassion increased in the participants, they reported decreased rumination, thought suppression, depression, and anxiety.

In an examination of individuals with depression, Diedrich et al. (2016) found that out of eight emotion regulation facets, only the emotion regulation ability of emotion tolerance explained the negative relationship between self-compassion and depressive symptoms. This finding suggests that fostering self-compassion may benefit depressed individuals by enhancing their ability to tolerate difficult emotions. Increasing the experimental robustness of this finding in a separate study, Diedrich et al. (2016) induced depressed mood in participants diagnosed with major depressive disorder at four time points. Prior to each time point, the researchers randomly assigned the participants to a wait-control, self-compassion, or acceptance preparatory condition. Following the

experimental condition and the depressed mood induction, the participants were asked to reappraise their depressed mood. These researchers found that only the self-compassion preparatory condition enhanced participants' effectiveness in reappraising the induction of depressed mood, supporting the notion that self-compassion facilitates one's regulation of depressive symptoms.

Self-compassion also relates to specific adaptive emotion regulation strategies. In an examination of self-compassion and coping, Allen and Leary (2010) found that individuals high in self-compassion tend to rely on cognitive restructuring as opposed to avoidance and escape when compared to individuals low in self-compassion. Interestingly, high and low self-compassionate individuals did not show significant differences in the degree in which they cope through distraction or problem-solving.

**Self-Compassion and Shame**

Due to the self-conscious nature of shame and the self-relevant processes of self-compassion, self-compassion offers a unique and opportune vantage for impacting experiences of shame. Neff (2003) revealed that trait self-compassion predicts depression and anxiety even when controlling for global self-esteem. Shame is highly correlated with anxiety and depression, which may explain the difference between self-compassion and self-esteem in their respective relationships with mental health (Woods & Proeve, 2014). Indeed, self-compassion is negatively associated with shame and positively associated with guilt, an adaptive response compared to shame (Woods & Proeve, 2014). Shame is associated with blaming the self with misdeeds reflecting one's character, and guilt is related to blaming one's behavior and associated with seeking correction and positive change.

Shame also mediates the association between self-compassion and mental health. Johnson and O'Brien (2013) found a strong negative association between self-compassion and depressive symptoms in undergraduate students (*d*=.49), and shame mediated this relationship. The mediating role of shame was independent of self-esteem, rumination, and guilt. Participants in this study were instructed to recall a shame-inducing experience and to: write about it self-compassionately, express their feelings in writing, or neither three times in a week. At two-week follow-up, only participants in the self-compassion condition showed reduction in shame-proneness (*d*=.53). Additionally, Gilbert and Procter (2006) conducted a clinical trial involving twelve 2-hour sessions of Compassionate Mind Training group therapy and found that participants who participated in CMT showed a significant reduction in shame at two-month follow-up. The results of these studies suggest that shame explains one potential mechanism for the beneficial effects of self-compassion and that changes in self-compassion are positively related to changes in shame.

Leary et al. (2007) showed that self-compassion, but not self-esteem, was related to lower negative affect and more favorable ratings of other people following negative self-relevant feedback. Furthermore, results of this study showed that high self-esteem individuals attributed blame externally and low self-esteem individuals attributed blame internally. Self-compassion showed the inverse trend, such that individuals high in self-compassion took responsibility for misdeeds whereas low self-compassionate individuals showed defensiveness similar to individuals high in self-esteem. While low self-esteem individuals take responsibility for misdeeds, they are likely to do so with self-criticism,

whereas self-compassionate individuals are more inclined to acknowledge responsibility with self-kindness.

**Self-Compassion and Prosocial Behavior**

Self-compassion is associated with positive social functioning and compassion toward others (see Dzwonkowska et al., 2015 for a review). Neff and Pommier (2013) found that self-compassion was significantly and positively associated with perspective-taking and forgiveness. Men and women in this sample showed correlations between self-compassion and forgiveness of .42 and .43 respectively. Interestingly, compassion, empathy, and altruism were significantly and positively associated with self-compassion in older adults but not college-aged participants in this study. This finding may be a result of less compassionate individuals behaving more kindly to others than themselves, a finding revealed in a previous study with an undergraduate sample (Neff, 2003). Further understanding is needed in the association between self-compassion and prosocial behavior in undergraduates.

Self-compassion has also been shown to mediate the relationship between self-affirmation and prosocial behavior (Lindsay & Creswell, 2014). Lindsay and Creswell (2014) measured prosocial behavior in this study via self-report of desired charitable spending and through the observable behavior of assisting with a collapsed book shelf, manipulated by the experimenter. This evidence suggests that self-affirmation increases self-resources (i.e., self-compassion) which in turn increases a self-transcendence (i.e., empathy, prosocial focus), highlighting an important link between self-compassion and prosocial behavior. Furthermore, following negative feedback, self-compassion predicts favorable ratings of others, while self-esteem does not (Leary et al., 2007).

Allen et al. (2015) found that individuals low in self-compassion have specific tendencies for whom they forgive, whereas individuals high in self-compassion display more flexibility in their interpersonal forgiveness. Specifically, less self-compassionate people showed a preference for self-critical people and were more likely to forgive individuals who made self-critical statements as opposed to self-compassionate statements. Individuals high in self-compassion, however, were equally likely to forgive self-critical individuals and self-compassionate individuals. Thus, individuals high in self-compassion are more likely to forgive a transgressor regardless of the subsequent behavior of the transgressor, while a less self-compassionate individual's forgiveness is more contingent on the transgressor's behavior following the transgression.

In summary, the construct of self-compassion appears to offer an adaptive alternative to self-esteem for experiences of social exclusion. While self-esteem has been lauded for its functional relationships with attribution, emotion regulation, shame, and prosocial behavior, these relationships can be disrupted by different facets of self-esteem such as domain contingencies and defensiveness (Park & Crocker, 2005). Self-compassion, however, appears to have a more direct relationship to attribution, emotion regulation, shame, and prosocial behavior without the potential dangers of high self-esteem, such as derogation of others, aggression, and other narcissistic characteristics (Thomaes et al., 2008). Furthermore, self-compassion is applicable to all individuals, especially individuals with low self-esteem, and experience of ostracism in that self-compassion provides a distinctive context for acknowledging pain through mindfulness, connecting with others through common humanity, and alleviating that pain through self-kindness (Neff, 2003). Indeed, self-compassion refers to a specific set of self-directed

affiliative behaviors aimed at acknowledging and reducing suffering following painful experience, which have demonstrated utility for experiences of social exclusion (Leary et al., 2007). The present study will compare the acute protective benefits of self-esteem and self-compassion for individuals who experience a computer-based ostracism event. The results of this investigation will provide a nuanced understanding of the benefits and shortcomings of self-compassion and self-esteem for experiences of ostracism, regarding the relationship between these two constructs and attribution, emotion regulation, shame, and prosocial behavior. Hypotheses and research questions for this study are detailed below.

## Research Questions and Hypotheses

### Emotion Regulation

**Research question 1: How will self-compassion impact emotion regulation strategy?**

***H1: Trait self-compassion will positively impact use of acceptance emotion regulation strategies.*** This hypothesis draws from the mindfulness component of self-compassion, such that the construct of mindfulness incorporates acceptance of internal experience. Empirical research also suggests that individuals high in self-compassion rely on acceptance strategies after receiving negative feedback (Neff et al., 2005). Furthermore, emotional tolerance, which is closely related to acceptance, has been shown to mediate the relationship between self-compassion and psychopathology (Diedrich et al., 2016; Webb & Forman, 2012).

**Research question 2: How will self-esteem impact emotion regulation strategy?**

***H2: Trait self-esteem will positively impact use of reappraisal emotion regulation strategies.*** This hypothesis is suggested by research finding that individuals with high self-esteem cope with ego threats by directly enhancing their self-esteem through thinking about positive traits (Dogson & Wood, 1998).

**Shame**

**Research question 3: How will self-compassion impact shame response following exclusion manipulation?**

***H3: Trait self-compassion will negatively impact shame following exclusion manipulation***. This hypothesis is based on research that highlights the mediating role of shame in the positive relationship between self-compassion and mental health (Johnson & O'Brien, 2013) and Leary et al.'s (2007) finding of the inverse relationship between self-compassion and negative affect.

**Research question 4: How will self-esteem impact shame response following exclusion manipulation?**

***H4: Trait self-esteem will negatively impact shame following exclusion manipulation.*** This hypothesis builds on prior research that shows self-esteem is negatively related to shame following recall of past failures (Libby et al., 2011). Furthermore, research has shown that self-esteem negatively predicts shame in university students (Shim et al., 2013).

**Research question 5: How will self-compassion and self-esteem differ in their impact shame response following exclusion manipulation?**

***H5: Compared to self-esteem, self-compassion will explain more variance in shame following exclusion manipulation*.** This hypothesis is based on research by Leary

et al. (2007), who found that self-compassion, not self-esteem, predicts the response of taking responsibility for actions without self-criticism and without defensiveness.

**Prosocial Behavior**

**Research question 6: How will self-compassion impact prosocial behavior following ostracism?**

***H6: Self-compassion will positively impact prosocial behavior following ostracism*.** This hypothesis stems from research that shows, following negative feedback, one's level of self-compassion predicts favorable ratings of others (Leary et al., 2007). Furthermore, self-compassion is positively associated with perspective-taking and forgiveness (Neff & Pommier, 2013).

**Research question 7: How will self-esteem impact prosocial behavior following ostracism?**

***H7: Self-esteem will negatively impact prosocial behavior following ostracism*.** While self-compassion predicted favorable ratings of other following negative feedback, self-esteem did not (Leary et al., 2007). Furthermore, research suggests that following a rejection experience, individuals with high self-esteem avoid contact with strangers (Park & Maner, 2009). Also, individuals with high self-esteem became more independently focused as opposed to interpersonally focused following a competence threat (Park & Crocker, 2005; Vohs & Heatherton, 2001). Finally, compared to low self-esteem individuals, high self-esteem individuals punish opponents more harshly following a shame-inducing experience (Thomaes et al., 2008).

**Attribution**

**Research question 8: How will self-compassion impact attribution of the ostracism event?**

***H8a: Self-compassion will have a significant positive impact on external attribution of the ostracism event.***

***H8b: Self-compassion will have a significant negative impact on internal attribution of the ostracism event.*** Sirois et al. (2015) and Leary et al. (2007) found negative correlations between self-compassion and self-blame. Furthermore, given that the construct of self-compassion consists of mindfulness, the self-compassionate individual is likely to take a balanced and nonjudgmental view of an ostracism event.

**Research question 9: How will self-esteem impact attribution of the ostracism event?**

***H9a: Self-esteem will have a significant positive impact on external attribution of the ostracism event.***

***H9b: Self-esteem will have a significant negative impact on internal attribution of the ostracism event.*** Results from Ford and Collins (2010) suggest that, compared to individuals with high self-esteem, individuals with low self-esteem blame themselves for experiences of rejection, which supports the notion of self-esteem positively predicting external attribution and negatively predicting internal attribution for rejection.

**Research question 10: Will relation based self-esteem contingency mediate the relationship between self-esteem and prosocial behavior?**

***H10: Rejection-based self-esteem contingency will mediate the relationship between self-esteem and prosocial behavior.*** Results from Park and Crocker (2005)

suggest that an individual whose ego is threatened within a self-esteem contingent domain, the individual is perceived as less likeable by others. Results from Parker and Crocker (2008) conversely revealed that rejected individuals whose self-esteem is contingent on social approval responded in ways that enhance their displays of care.

# Chapter II

# Methods

## Participants

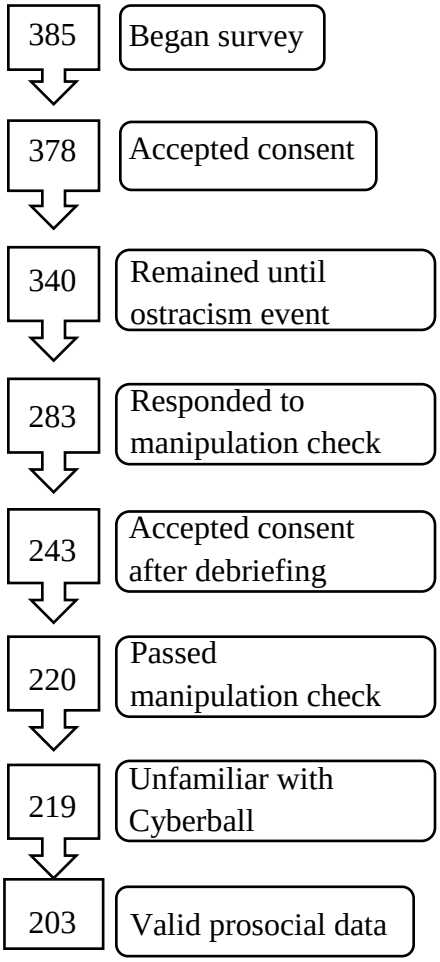
A power analysis was completed using G*Power software (Faul, Erdfelder, Lang, and Buchner, 2007). Although a meta-analysis of 120 Cyberball studies revealed a medium effect, a small effect size was used in the power analysis due to the inclusion of four outcome variables. Using a small effect size (i.e., 0.1), conservative alpha level of .01, power of 0.80, and 5 predictor variables, the necessary sample size was calculated as 161 participants. Therefore, this investigator aimed to pool 165 participants. Data was collected over a span of two months, and 385 participants responded to the survey during this period. Participant attrition occurred in several phases. Of the 385 participants, 378 participants (98.2%) accepted consent. Of these 378 participants, 38 dropped out prior to exposure to the Cyberball ostracism, leaving 340 participants (89.9%). A total of 57 participants did not respond to the ostracism manipulation check, indicating that 283 (83%) of the remaining participants completed the Cyberball ostracism trial. Four more participants left the study prior to reading the debriefing form, and thirty-six participants either failed to respond to the consent question or refused to have their responses used as data. Therefore, a total of 243 participants (87.1%) accepted consent and agreed to have their responses used as research data following debriefing. Furthermore, of these 243 participants, 23 participants responded to and failed the ostracism manipulation check by

inaccurately indicating they received more than two tosses. The manipulation check resulted in a remaining 220 participants (90.5%) who reported that they received two tosses or less during the Cyberball ostracism trial. Finally, responses to an open-ended question about participants' thoughts about the purposes of the study were screened for familiarity with Cyberball. One participant reported that she had never participated in a Cyberball trial before, although she reported that she had been informed of the paradigm's experimental usage in an undergraduate course. Therefore, this participant's responses were omitted from analysis, resulting in a final sample of 219 participants (58% of the total 378 who accepted consent).

This 58% of remaining participants is comparable to previous online Cyberball studies of this scale. For example, in Williams et al. (2000), of the 501 participants who initially accepted consent, 231 (46.1%) completed the study. These authors attributed the large participant drop-off to the ease of abandoning a study in online formats as well as the potential compatibility issues of various internet browsers. In the current study, to determine if the remaining sample was measurably different from the total 378 participants, mean levels of self-esteem and self-compassion were compared between the final sample ($n$ = 219) and before exclusion criteria were applied ($n$ = 378). These independent variables were chosen for comparison because they are the main variables of interest, and the self-compassion and self-esteem measures were toward the beginning of the study. Therefore, the majority of participants completed the self-esteem (346 participants) and self-compassion (334 participants) measures. In the 378-participant sample, the self-esteem mean was 2.13 (SD = .57) and the self-compassion mean was 3.02 (SD = .67). For the 219-participant sample used for analysis in this study, the self-

esteem mean was 2.88 (SD = .55), and the self-compassion mean was 3.03 (SD = .69), indicating similar characteristics between the final sample and the original sample of participants who accepted consent. Furthermore, the self-esteem mean of 2.88 in the final sample is comparable to the self-esteem mean of 2.59 recently found in 12,000 young adults (Helwig & Ruprecht, 2017). Below is a flow chart depicting the decrease in sample size based on study requirements. The numbers inside the arrows on the left of the chart indicate the number of participants remaining in the sample after meeting the respective qualifications beside the bullet point on the right of the chart.

Figure 1*: Flow Chart of Participant Attrition*



Undergraduate participants were recruited from three universities in the Southeastern United States (204 participants) and one university in Western United States (15 participants). The average age of participants was 20.5 years, with a range of ages between 18 and 43 and a standard deviation 3.91 years. The majority of participants identified as White (67.1%) and women (79.0%). Due to the importance of meaningful relationships in young adulthood and the extensive social contingencies of the undergraduate context, a college population serves as a meaningful target for finding an effect and for generalizing implications to relevant individuals who are vulnerable to ostracism. The demographic characteristics of the participants are detailed in *Table 1* below.

| **Table 1. Demographic Characteristics of Participants** | | |
|---|---|---|
| ***Race/Ethnicity*** | ***N*** | ***Percentage*** |
| White | 147 | 67.1 |
| Black/African American | 47 | 21.5 |
| Asian | 6 | 2.7 |
| Hispanic | 7 | 3.2 |
| Multiracial | 2 | 0.9 |
| Other | 10 | 4.6 |
| | | |
| ***Age*** | ***N*** | ***Percentage*** |
| 18-19 | 107 | 48.9 |
| 20-24 | 97 | 44.3 |
| 25-29 | 4 | 1.8 |
| 30-35 | 4 | 1.8 |
| 36-43 | 5 | 2.3 |
| | | |
| ***Gender Identity*** | ***N*** | ***Percentage*** |
| Women | 173 | 79.0 |
| Men | 45 | 20.5 |
| Gender Fluid | 1 | 0.5 |

## Procedure

Undergraduate students in introductory psychology courses were informed of the study by their instructors. Upon expressing interest in participating, the student received a secure link for participating in the study from their instructors. The link directed the participant to a recruitment letter that listed the name and role of the principal investigator, eligibility requirements, and a statement that clarified the voluntary nature of participation in the study. The secure link then directed the potential participant to an informed consent form with access to participate in the study online. All participants were required to be at least 18 years old and English-speaking.

When first arriving at the Qualtrics website for the study, participants viewed the informed consent page explaining the purpose of the study, procedures of the study, potential risks and discomforts of participating, benefits to participants and scientific community, incentives to participate (i.e., extra credit when approved by the respective university), the confidential nature of the data, contact information for the principal investigator, and the voluntary nature of participation in the study, including clear permission to terminate from the study at any time without penalty. Prior to exposure to the ostracism manipulation, participants submitted demographic information (i.e., race/ethnicity, gender, and age) and completed the Self-Compassion Scale-Short Form (SCS-SF), the Rosenberg's Self-Esteem Scale (RSES), as well as two self-esteem contingency items from the Rejection subscale of the Relation-Based Self-Esteem Scale. To reduce the impact of SCS-SF responses on RSES responses, participants completed the demographic questionnaire in between the SCS-SF and the RSES, creating a brief delay between administrations of the two measures. They then participated in a trial of

Cyberball to induce ostracism (detailed below). Following the experience of ostracism, the participants completed a manipulation check, a brief measure of attribution, the State Emotion Regulation Inventory, and the Internalized Shame Scale. Finally, the participants participated in an inclusion variant of Cyberball to measure prosocial behavior (i.e., percentage of passes to excluder from previous game).

Participants were debriefed about the purposes of the study, and were prompted to choose whether or not they consented to allow their data to be used in the current research. Participants were de-identified via the data collection software, Qualtrics. All participants who completed the study were offered course credit by their instructors. Each of the measures used in the study will now be presented in the order in which participants completed them after first describing the Cyperball program and the ostracism manipulation check.

**Ostracism manipulation.** The Cyberball program (Williams et al., 2000) was used to induce the experience of ostracism in participants. Over 240 studies have been published using the Cyberball paradigm, which has shown strong validity and reliability as an analogue to ostracism (Hartgerink et al., 2015). Once participants were logged into Cyberball, they viewed a welcome page that informed them that they were going to play an online visualization game during which it was important to visualize the interaction between themselves and the other participants. Participants were instructed that when they received the ball from one of the other two characters from their own university, they can click on the figure representing the character to whom they want to throw. The two characters appeared as animated black-and-white figures, numbered “1” and “2,”that only move when throwing the ball. The prompt was as follows: “You are going to

participate in a game in which you toss a ball to two other players from your university. This is a visualization task. It's important that you visualize the other players at their computers tossing the ball to you. Imagine what they look like and where they are. You will perform a set of cognitive tasks after participating in the game." Once the game began, participants received two throws in the beginning but did not receive any throws for the remaining 28 throws of the manipulation. This procedure lasted about 5 minutes. All participants received this ostracism manipulation and completed a manipulation check to confirm their experience of ostracism.

**Manipulation check.** The manipulation check consisted of participants responding to the following prompt: "How many throws did you receive?" Participants who falsely selected a number of tosses greater than two were excluded from analysis. Participants who selected that they received two tosses or less were included in the sample, as this response indicated an awareness of ostracism. Twenty-three participants falsely reported receiving more than two tosses in the ostracism trial, and these participants were removed from the sample. Participants also responded to the open-ended prompt: "Please provide your thoughts about the purposes of this study and any other reactions you would like to share with the researchers." Participant responses were screened, and participants who revealed familiarity or previous experience with Cyberball were eliminated from data analysis. Only one participant indicated familiarity with the Cyberball paradigm, and this participant was removed from the sample, resulting in a final sample of 219 participants.

## Measures

**Demographics.** A demographic questionnaire was developed for this study, which prompted participants to provide information about their gender identity, race, ethnicity, and age. Participants' responses to the gender prompt were dummy coded into the two categories, "Woman" and "Not Woman" in order to increase the likelihood in finding an effect of gender if a true effect existed within the sample. The majority of the sample identified as either man or woman, and one participant identified as gender fluid. Because the sample was more representative of women, a selection of "Woman" was coded as 1, and selection of "Man" and "Gender Fluid" were coded as 0, indicating that the participant did not identify as a woman. Participants' responses to the race and ethnicity prompt were also dummy coded into the two categories "White" and "Racial/Ethnic Minority (REM)" to reduce Type II error. Because the sample was more representative of White participants than REM participants, a selection of "White" was coded as 1, and all other responses were coded as 0, indicating REM identity status.

**Trait self-esteem.** Trait self-esteem was measured using the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965). This scale is the most widely used scale for trait self-esteem (Sinclair et al., 2010). A study of the RSES across 53 countries (Schmitt & Allik, 2005) demonstrated that the scale's items demonstrated good internal consistency (Cronbach's alpha = 0.81) and convergent and discriminant validity when correlated with the various factors of the Big Five Personality Inventory (McCrae, 2002). Schmitt and Allik (2005) pooled their international sample from mainly college and university settings (95%), indicating that the RSES items are reliable with college-aged individuals. The RSES items also show clinical validity in that scores on this measure are negatively

associated with depression, anxiety, and stress, and positively associated with mental and physical health (Sinclair et al., 2010). The RSES consists of 10 statements to which participants respond on a 4-point Likert Scale, from 1 = disagree strongly to 6 = agree strongly, and takes about 1-2 minutes to complete (Rosenberg, 1965). The RSES has been divided equally to measure two facets of self-esteem, self-liking (e.g., "On the whole, I am satisfied with myself.") and self-competence (e.g., "I am able to do things as well as most other people.") (Tafarodi & Milne, 2002). In the current sample, participants' responses to the RSES items showed a reliability estimate of $\alpha = 0.90$.

**Self-esteem contingency.** Self-esteem contingency was measured via two items from the Relation-based Self-Esteem Scale (RSES), constructed by Johnson and Blom (2007). The original scale consists of 14 items from three dimensions, and two items from the rejection dimension were used for the current study due to their relevance to the ostracism paradigm used (Johnson & Blom, 2007). The two items are as follows: "My self-esteem fluctuates easily with signs of acceptance and rejection from others" and "I am sensitive to signs of dislike and rejection from others." Convergent validity of relation based self-esteem items was tested by the depressive attitudes subscale for dependency of DEQ; (Blatt et al., 1979) with alpha of 0.70 and by the affiliation need measure IOS (Hill, 1987) with alpha of 0.75. The internal consistency values of items within the Relation-based SE scale ($\alpha = 0.88$) was high (Johnson & Blom, 2007). The temporal stability of the items were high after five weeks with a test-retest correlation of $r = 0.80$, suggesting high reliability. Analyses by Johnson and Blom (2007) showed a -.38 partial correlation between relation-based self-esteem scale and Rosenberg's self-esteem, .19 partial correlation between relation-based self-esteem and socially-based perfectionism (MPS),

.40 partial correlation between relation-based self-esteem and dependency (DEQ), and .36 partial correlation between relation-based self-esteem and affiliation need (IOS). These partial correlations were calculated in a sample of 215 undergraduate students, indicating that this scale is appropriate for use with a college population. In the current sample, participants' responses to the two Rejection-Based Self-Esteem Scale items showed a reliability estimate of $\alpha = 0.84$.

**Trait self-compassion.** Trait self-compassion was measured using the Self-Compassion Scale - Short Form (SCS-SF; Raes et al., 2011). This scale consists of 12 statements to which participants respond on a five point scale from 1 = almost never to 5 = almost always. The measure consists of six subscales comprised of two items each that represents the three components of the construct of self-compassion as well as a corresponding reverse scored subscale. The subscales are self-kindness, self-judgment (reverse-scored), common humanity, isolation (reverse-scored), mindfulness, and over-identification (reverse-scored). Examples of statements include: "I try to see my failings as a part of the human condition" (common humanity) and, "I try to be understanding and patient towards those aspects of my personality I don't like" (self-kindness). Scores on the measure show good internal consistency in clinical and nonclinical populations ($\alpha = 0.86$ and $\alpha = 0.89$, respectively) (Castilho et al., 2015). The SCS-SF items also showed adequate internal consistency at the subscale level: Self-Kindness ($\alpha = 0.55$), Self-Judgment ($\alpha = 0.81$), Common Humanity ($\alpha = 0.60$), Isolation ($\alpha = 0.77$), Mindfulness ($\alpha = 0.64$), and Over-Identification ($\alpha = 0.75$). The SCS-SF items showed strong predictive validity in that scores on this measure have predicted changes in depressive symptoms over a 5-month period (Raes, 2011). Strong construct validity was found for the SCS-SF

items in a sample of a college counseling center clients with negative correlations at $p <$ .001 for depression ($r$ = -.67), social anxiety ($r$ = -.57), generalized anxiety ($r$ = -.51), hostility ($r$ = -.45), academic distress ($r$ = -.41), eating concerns ($r$ = -.33), family concerns ($r$ = -.27), and substance use ($r$ = -.08) (Hayes et al., 2016). The SCS-SF has been validated with a college student sample, indicating appropriate use for the current study (Raes et al., 2011). In the current sample, participants' responses to the SCS-SF items showed a reliability estimate of $\alpha = 0.87$.

**Attribution.** Internal and external attribution were measured with 4 items adapted and reworded from a previous study of social exclusion (Schmitt & Branscombe, 2002). Schmitt and Branscombe (2002) found that the internal and external attributions items showed high internal reliability ($\alpha = .93$; $\alpha = .75$, respectively). Participants responded to all items using a 1 (strongly disagree) to 7 (strongly agree) Likert-type response scale. These items have been validated with a college student sample (Schmitt and Branscombe, 2002). In the current study, the two internal attribution items are as follows, "The players left me out because of something about me" and "The players left me out because of who I am." The two external attribution items are as follows, "The players left me out because of something about them" and "The players' decisions were due to their attitudes or personality." In the current sample, participants' responses to the internal attribution items showed a reliability estimate of $\alpha = 0.85$, while the external attribution items showed a reliability estimate of $\alpha = 0.72$.

**State emotion regulation.** State emotion regulation was measured with the State Emotion Regulation Inventory (SERI) (Katz et al., 2017). The structure of the SERI was normed in an exploratory analysis of 188 undergraduate students and a subsequent

confirmatory analysis of 157 undergraduate students (Katz et al., 2017). The SERI consists of 16 items and 4 subscales (4 items per subscale) of Distraction, Reappraisal, Brooding, and Acceptance. The items in the four subscales show good internal consistency (Distraction, $a$ = .82; Reappraisal, $a$ = .78; Brooding, $a$=.73; Acceptance, $a$ = .70). The subscale items also show strong concurrent validity. For instance, the Reappraisal subscale items of the SERI correlated with the Reappraisal subscale items of the TCQ, $r$ = .36, $p$ < .001. The items of the Distraction subscale of the SERI correlated with the Distraction subscale items of the Thought Control Questionnaire (TCQ), $r$ = .26, $p$ < .001. The Brooding subscale items of the SERI correlated with the Brooding subscale items of the Ruminative Response Scale, $r$ = .26, $p$<.001. The Acceptance subscale items of the SERI correlated negatively with the Worry subscale items of the TCQ, $r$=-.27, $p$<.001. The SERI items also showed strong incremental utility such that SERI scores predicted recent mood change above and beyond items in trait measures (Katz et al., 2017). Examples of items are: "I tried to think about other things" (Distraction) and "I allowed the thought to come up without delving into it or avoiding it" (Acceptance). Given that the SERI was normed on undergraduate students, the scale was deemed appropriate for the current study. In the current sample, participants' responses to the SERI items showed a reliability estimate of $\alpha = 0.77$ for the Distraction subscale items, $\alpha = 0.85$ for the Reappraisal subscale items, $\alpha = 0.72$ for the Brooding subscale items, and $\alpha = 0.72$ for the Acceptance subscale items.

**State shame.** The Internalized Shame Scale was designed to assess a respondent's intense, self-directed, negative affect (Cook, 1987). The ISS is a 30-item self-report scale with 24 items measuring shame and 6 items measuring self-esteem. High total scores

indicate that an individual is experiencing frequent levels of painful negative affect focused on the self. Low scores indicate less frequent experiences of negative affect (Cook, 1987). Example items of the shame subscale are: "I think that people look down on me" and "I feel empty and unfulfilled." Example items of the self-esteem subscale include "When I compare myself to others, I am not as important" and "I feel I have a number of good qualities."

The ISS items show high internal consistency with reported reliability coefficients of .97 for the shame subscale and .90 for the self-esteem subscale (del Rosario & White, 2006). The ISS items also shows strong convergent validity with positive correlations between ISS items and items in scales measuring self-esteem, psychopathology, depression, suicide, anxiety, and anger. The ISS items measure shame with a high degree of consistency in nonclinical groups, yielding reliability coefficients up to .95 on shame items and a test-retest coefficient after seven weeks of .84 (Cook, 2001). The ISS items also distinguish well between shame and situational guilt (Luoma et al., 2017). The underlying factor structure, temporal stability, internal consistency, and convergent validity of the ISS items were examined in 184 college students, making this scale appropriate for use in the current study (del Rosario & White, 2006). In the current sample, participants' responses to the ISS items showed a reliability estimate of $\alpha = 0.96$.

**Prosocial response.** After completing the three dependent variable measures, participants then participated in a subsequent Cyberball procedure. However, in this Cyberball procedure, participants were included in the game equally with other two "players." In other words, they were passed the ball for 10 or 11 out of 30 or 31 passes. The number of tosses fluctuated slightly due to variability in the participants' toss

selection. In this Cyberball game, the participants were ostensibly grouped with a previous excluder (i.e., Player 1) and a new player (Player 3). Previous studies (e.g., Dorn et al., 2014; Leiro et al., 2014) have measured prosocial behavior by the number of tosses made by the participant to the excluder. In the current study, however, prosocial behavior was measured by the percentage of tosses the participant made to the excluder, marking a slight departure from measurement methods in previous studies. This adjustment was made to account for the differences in the number of tosses afforded to participants. For example, depending on the participant's order of selected tosses, the participant may have been afforded 11 ball tosses as opposed to 10, artificially inflating their potential "prosocial" throws. Using the percentage of prosocial throws was a necessary adjustment to account for this measurement error.

Dorn et al. (2014) found that initial toss to a previous excluder showed a significant correlation with responses to Decisional Forgiveness Scale DFS ($r$ = 0.32) and Emotional Forgiveness Scale EFS ($r$ = 0.31), and number of tosses to a previous excluder showed strong correlation with responses to the EFS ($r$ = 0.43). These correlations were found in an undergraduate students from a large urban university. In a sample of first-year undergraduate students, Leiro et al. (2014) found small effect sizes for the frequency of tosses passed to the repeat player in the second trial of Cyberball. Number of tosses to the previous excluder negatively correlated with Trial 2 levels of belonging ($r$=-.16), self-esteem ($r$=-.15), control ($r$=-.21), and meaningful existence ($r$=-.19). Compared to other scales used in the current study, prosocial behavior in Cyberball is measured as one figure (i.e., percentage of tosses made to excluder), as opposed to a mean of individual item scores. Therefore, participants' toss selection in the prosocial

Cyberball trial were note assessed for internal consistency in the current study, which is consistent with previous studies. *Table 2* details the range of scores, scoring method, mean, SD, and internal consistency of the above measures, according to the participants' responses in this study.

Table 2: Means, Standard Deviations, and Internal Consistencies for Measures

| *Measure* | *Possible Range* | *Sample Range* | *Scoring* | *M* | *SD* | *α* |
|---|---|---|---|---|---|---|
| Self-Compassion Scale (SCS | 1.00-5.00 | 1.33-4.92 | 1-5 (higher = higher self-compassion) | 3.03 | .69 | 0.87 |
| Self-Esteem Scale (SES) | 1.00-4.00 | 1.00-4.00 | 1-4 (higher = higher self-esteem) | 2.88 | .55 | 0.90 |
| Rejection-Based Self-Esteem Scale items | 1.00-5.00 | 1.00-4.00 | 1-5 (higher = greater effect of rejection on self-esteem) | 2.22 | .82 | 0.84 |
| Internal Attribution items | 1.00-5.00 | 1.00-4.00 | 1-5 (higher = higher internal attribution) | 1.32 | .61 | 0.85 |
| External Attribution items | 1.00-5.00 | 1.00-4.00 | 1-5 (higher = higher external attribution) | 2.00 | .86 | 0.72 |
| State Emotion Regulation Inventory (SERI) | | | 1-7 (higher = greater use of emotion regulation strategy) | | | |
| - Distraction | 1.00-7.00 | 1.00-7.00 | | 4.04 | 1.26 | 0.77 |
| - Reappraisal | 1.00-7.00 | 1.00-7.00 | | 4.28 | 1.34 | 0.85 |
| - Brooding | 1.00-7.00 | 1.00-7.00 | | 4.02 | 1.15 | 0.72 |
| - Acceptance | 1.00-7.00 | 1.00-7.00 | | 4.47 | 1.18 | 0.72 |
| Internalized Shame Scale (ISS) | 1.00-5.00 | 1.00-5.00 | 1-5 (higher = more shame) | 2.63 | .85 | 0.96 |
| Cyberball-Based Prosocial Behavior | 0.00-100.00 | 0.00-100.00 | Percentage of tosses to excluder | 54.63 | 15.09 | n/a |

**Cyberball familiarity.** After the prosocial measure, participants were asked to provide their perception of the purposes of the current study. Responses were qualitatively analyzed and coded for degree of familiarity with Cyberball. These open-ended responses were grouped into four categories. The category "Prior knowledge of Cyberball" consisted of responses that clearly indicated experience with Cyberball or existing knowledge of the purposes of this paradigm. Only one participant's response fit this category (i.e., "I had not personally played the ball-tossing game, but I had learned about the strategy in studies. The ball-tossing game is supposed to make you feel left out and then included to study how you feel after being 'rejected' by others."). This participant's data were excluded from subsequent data analysis. The second category "Reported awareness of deception" included responses that indicated alleged awareness that the other Cyberball "players" were in fact computer-programmed confederates (e.g., "It was obvious that I was playing against a computer."). Three responses fit this category, and these participants' data were included in subsequent analyses so as not to exclude participants based on their apparent insightfulness or skepticism. Furthermore, prior research suggests that the ill effects of ostracism via Cyberball persist even if the participants are deliberately informed prior to their participation that the other "players" are computer-programmed (Zadro & Richardson, 2004). The third category, "Reported experience with related ostracism," included a response that indicated prior ostracism experience similar to Cyberball ostracism (i.e., "In real life, I've been in a ball-tossing situation, but not a simulated one like this one. I believe this has to do with how we perceive ourselves in comparison with others? I really liked this study and would love to see results."). This participant's data were included in the sample. The final category "No

mention of familiarity," included responses that indicated no familiarity with Cyberball, no knowledge of deception, and no prior related ostracism experience (e.g., "I did not like the first game because I rarely got the ball, but I liked the second one because I got it a lot."). These participants' data were included in further analyses.

**Debriefing.** At the conclusion of participants' involvement in the study, participants were debriefed about the purposes of the study, the nature and rationale for deception, and means of accessing counseling services in the case that participants are distressed by involvement in the study. The participants were given the following prompt at the conclusion of the participation: "Ostracism, the experience of being left out and ignored, is a common human experience that produces a vast array of reactions. The study in which you participated investigated how self-esteem and self-compassion relate to different responses to an experience of ostracism. The ball-tossing game in which you participated was used as a format for inducing feelings of being left out or ostracized. The game was, in fact, computer-programmed prior to your participation, and the players in the game were not actual people; rather, the players were computer-programmed avatars whose ball-tosses were predetermined by the investigator of this study. Every participant in this study received two tosses out of 30 total tosses in the first trial and 10 tosses out of 30 total tosses in the second trial. If you have experienced a significant level of distress from participation in this study, please contact your university counseling center to schedule a counseling session via the following contact phone number: -_____. You may also find a therapist near you at the following link: http://locator.apa.org/. Regarding any concerns you may have about your participation in

this study, please contact the principal investigator of this study at the following contact number: _____.”

## Chapter III: Results

### Preliminary Analysis

Several preliminary analyses were conducted prior to hypothesis testing. Below is an explanation of missing data analysis, handling of outliers, and multiple regression assumptions testing. These analyses are presented in the order listed above.

**Missing data analysis.** It was noted that 24 participants failed to provide their participant ID within the Cyberball portal at the conclusion of the study. In order to connect these participants' Cyberball data to the rest of their responses, participants' study completion date and time were matched to the completion date and time logged in the Cyberball data. Using this procedure, Cyberball data was recovered for 8 of these 24 participants. Therefore, for sixteen participants, responses for the second trial of Cyberball (i.e., prosocial response) were unable to be retrieved or analyzed. Of the total sample of 219 participants, fourteen participants (6.4%) failed to respond to at least one item in the survey. Little's Missing Completely At Random (MCAR) test was conducted to determine if data was missing in a completely random fashion. Results of this analysis indicated that data was not missing completely at random. Therefore, each case that contained missing data was inspected for conspicuous patterns of missing data (See *Table 3* below for missing data details). It was expected that participants would skip more items on the emotion regulation measure (i.e., SERI) and the shame measure (i.e., ISS) due to the greater number of items in each measure. Of the fourteen cases that included missing

data, no notable patterns were identified; and therefore, the data were deemed to be missing at random (MAR), which cannot be statistically tested (Enders, 2010). Furthermore, linear regression has been deemed robust to non-random missing data (Enders, 2010). An expectation maximization analysis was conducted in SPSS Version 25 in these fourteen cases to impute missing data for four variables: self-esteem (1 missing), self-compassion (1 missing), emotion regulation (7 missing), and shame (11 missing).

Table 3: Missing Data by Participant

| Participant | # of Missing Items by Scale | | | |
|---|---|---|---|---|
| | ISS | SERI | SCS | SES |
| 1 | 2 | 1 | | |
| 2 | 2 | | | |
| 3 | 1 | 1 | | |
| 4 | 1 | 1 | | |
| 5 | 1 | 1 | | |
| 6 | 1 | | | |
| 7 | 1 | | | |
| 8 | 1 | | | |
| 9 | 1 | | | |
| 10 | | 1 | | |
| 11 | | 1 | | |
| 12 | | 1 | | |
| 13 | | | 1 | |
| 14 | | | | 1 |

**Outliers.** The data was assessed for multivariate outliers, using the Mahalanobis Distance test, which calculates the probability that a case contains values outside of the Chi-square distribution of participant responses. Using a comparison probability of $p < .001$, no cases were identified to contain significantly outlying data. The case with the lowest multivariate outlier probability yielded a probability of $p = .002$. Using a more

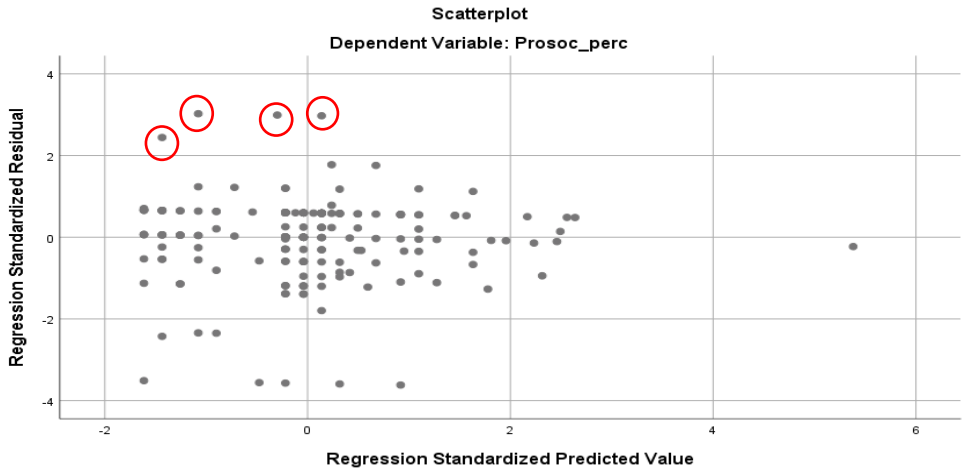
conservative approach, a box-plot was graphed using an interquartile range multiplier of 3, revealing 8 cases with univariate outliers outside of this range. The 8 cases consisted of 2 variables with outlying values, including 4 cases with prosocial behavior as an outlier and 4 cases with internal attribution as an outlier. The 8 cases were removed, and the remaining 211 cases were used in separate data analyses. To provide a comprehensive analysis of the data, results of these analyses were compared to results from the entire imputed dataset. Results from both the full dataset and the reduced dataset (with 8 outliers removed) are reported in tables. Regarding correlation and regression results for both datasets, changes in significance from the complete dataset to the reduced dataset are detailed in writing. Allison et al. (1993) listed four different ways of dealing with outliers and suggest that this method of handling outliers is the most thorough and therefore most preferred way of managing them. The discussion section includes research and clinical implications of results from the complete dataset.

**Assumptions testing.** The dataset was assessed for violations of the three major statistical assumptions of multiple linear regression: normality, homoscedasticity, and noncollinearity. Normality was tested in several phases. First, normality was assessed using a normality probability (P-P) Plot of standardized residual terms for each dependent variable. The plot indicated that the observed standardized residuals were normally distributed for all outcome variables except prosocial responses, which revealed a diagonal S-shaped line. Normality of dependent variables were further assessed using the Shapiro-Wilk test, which indicated that each dependent variable (i.e., internal and external attribution, emotion regulation strategy, shame, prosocial response) violated the normality assumption. Because of the significant Shapiro-Wilk test, the dependent

variables were assessed for skewness. All dependent variables held skewness values with an absolute value less than one besides the outcome, internal attribution, which showed a positive skewness value of 2.05. In the reduced dataset, this value decreased to 1.89. With samples including more than 200 cases, such as the current sample, regression is robust for violations of the normality assumption, and therefore, data transformation of non-normally distributed variables was deemed unnecessary (Allison, 1999).

Homoscedasticity was tested by plotting the standardized residual term for each dependent variable against the standardized predicted term for the respective dependent variable. An equal distribution and a horizontal best-fit line was observed for each outcome variable except prosocial behavior, indicating a potential relationship between the predicted value and the error term for prosocial behavior. Below is the output for the prosocial behavior standardized predicted value and the prosocial behavior residual. Data was not transformed for this variable because the homoscedasticity assumption was only violated by four potential outliers, which were observed above 2 on the y-axis in the plot below.

Figure 2: *Heteroscedastic Scatterplot of Standardized Residual for Prosocial Behavior*



To test for violation of collinearity, the bivariate association of the predictor variables, self-esteem and self-compassion, were assessed. Because these two independent variables correlated at $r = .69$, $p < .01$, the multicollinearity diagnostic test, Variance Inflation Factor (VIF), was calculated, revealing a VIF of 1.93. Given the standard VIF cut-off values of 3 and 10 (Thompson, 2017), multicollinearity was not an issue for self-esteem and self-compassion in this sample.

**Statistical Procedure**

This section outlines the statistical procedures that followed the preliminary data analyses. These procedures include variable modeling, bivariate associations, hypothesis tests, and post-hoc analyses. These procedures are presented in the order listed above.

**Variable modeling.** The main independent variables of interest in this study were self-esteem and self-compassion. Both independent variables were modeled as continuous variables. Demographic variables of race/ethnicity, gender, and age were also included as independent variables. Race/ethnicity was recoded into two groups, "White" and "Non-White" and modeled as a categorical variable. White identity was dummy-coded as "1," and Non-White identity was modeled as "0." The study sample was comprised of three gender identities, gender fluid, women, and men, which were recoded into a dichotomous categorical variable, indicated by "Woman" and "Not Woman." Woman gender identity was dummy-coded as "1," and other gender identities were dummy-coded as "0." Attribution (external and internal), emotion regulation, shame, and prosocial behavior were the four dependent variables of interest. Each dependent variable was modeled as a continuous variable. Multiple regression was the statistical analysis of choice for testing all ten hypotheses in this study. Below is a bivariate correlation matrix

of all pertinent variables, a description of statistical procedures used to test each hypothesis, and results of each regression analysis.

**Bivariate associations.** In the first stage of data analysis, bivariate associations between measured variables were assessed. Pearson's r was used as the correlation coefficient for all continuous variables, and effect size interpretations are based on conventions proposed by Cohen (1988). Correlations involving the demographic variables of gender and racial/ethnic minority status were measured using the Pearson's point biserial correlation coefficient. Of interest, self-compassion correlated significantly and showed a small effect size with internal attribution, $r = -.29$, $p < .01$ and reappraisal, $r = .29$, $p < .01$. Self-compassion correlated significantly with shame, showing a large effect size, $r = -.79$, $p < .01$. Self-compassion also correlated significantly with all demographic variables, showing a small effect size for each, Race/Ethnicity, $r = -.15$, $p < .05$, Gender, $r = -.17$, $p < .05$, and Age, $r = .19$, $p < .01$. The negative correlation between race/ethnicity and self-compassion indicates that participants identifying as racial/ethnic minorities reported higher levels of self-compassion than their White counterparts. The negative association between gender and self-compassion indicates that participants not identifying as women reported higher levels of self-compassion than their women counterparts.

Self-esteem correlated significantly and showed a small effect size with internal attribution, $r = -.21$, $p < .01$ ($r = -.12$, $p > .05$ in reduced dataset) and reappraisal, $r = .26$, $p < .01$. Self-esteem correlated significantly with shame and showed a large effect size, $r = -.78$, $p < .01$. Self-esteem also correlated significantly with the three demographic variables, showing a small effect size for each, Race/Ethnicity, $r = -.18$, $p < .01$, Gender,

$r$ = -.15, $p$ < .05, and Age, $r$ = .22, $p$ < .01. The negative correlation between race/ethnicity and self-esteem can be interpreted such that participants identifying as racial/ethnic minority reported higher levels of self-esteem than their White counterparts. The negative relationship between gender and self-esteem revealed that participants not identifying as women reported higher levels self-esteem than their women counterparts. The complete list of bivariate associations for the entire dataset is reported in *Table 4a* below, and the complete list of bivariate associations for the reduced dataset is reported in *Table 4b* below. Changes in significance level from complete dataset to reduced dataset are indicated by red font in *Table 4b.*

Table 4a: Bivariate Associations

| Measured variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. S-C | | | | | | | | | | | | | |
| 2. S-E | .69** | | | | | | | | | | | | |
| 3. RBSE | .63** | .56** | | | | | | | | | | | |
| 4. IA | -.29** | -.21** | -.24** | | | | | | | | | | |
| 5. EA | -.13 | -.09 | -.16* | .39** | | | | | | | | | |
| 6. Distract. | -.04 | .12 | -.04 | .05 | .12 | | | | | | | | |
| 7. Reappr. | .29** | .26** | .27** | -.19** | -.04 | .42** | | | | | | | |
| 8. Brood. | .06 | .09 | .07 | .02 | .02 | .53** | .61** | | | | | | |
| 9. Accept. | .01 | .05 | .01 | .03 | .11 | .16* | .25** | .21** | | | | | |
| 10. Shame | -.79** | -.78** | -.58** | .29** | .17* | <.01 | -.26** | >-.01 | -.03 | | | | |
| 11. Prosoc. Response | -.01 | -.02 | -.02 | .06 | .15* | -.02 | -.02 | >-.01 | <.01 | .03 | | | |
| 12. White | -.15* | -.18** | -.24** | -.02 | .07 | -.01 | -.09 | -.02 | .04 | .17* | .02 | | |
| 13. Women | -.18** | -.17* | -.17* | -.04 | .03 | -.04 | -.05 | -.07 | .03 | .14* | -.02 | -.03 | |
| 14. Age | .19** | .22** | .22** | -.11 | -.08 | .06 | .17* | .03 | .03 | -.24** | .03 | .21** | .11 |

*. Correlation is significant at the .05 level.
**. Correlation is significant at the .01 level.

(The above variables are represented by the following measures: Self-Esteem – Rosenberg Self-Esteem Scale; Self-Compassion – Self-Compassion Scale-Short Form; Rejection-based Self-Esteem – Rejection domain of Relationship-Based Self-Esteem Scale; Internal Attribution – from Schmitt & Branscombe, 2002; External Attribution – from Schmitt & Branscombe, 2002; Distraction, Reappraisal, Brooding, Acceptance – State Emotion Regulation Inventory; Shame – Internalized Shame Scale; Prosocial Response – percentage of tosses to excluder.)

Table 4b: Bivariate Associations for Reduced Dataset

| Measured variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. S-C | | | | | | | | | | | | | |
| 2. S-E | .68** | | | | | | | | | | | | |
| 3. RBSE | .63** | .55** | | | | | | | | | | | |
| 4. IA | -.25** | **-.12** | -.19** | | | | | | | | | | |
| 5. EA | -.13 | -.07 | -.15* | .37** | | | | | | | | | |
| 6. Distract | -.07 | .07 | -.06 | .10 | **.15*** | | | | | | | | |
| 7. Reappr. | .28** | .22** | .26** | **-.16*** | -.04 | .39** | | | | | | | |
| 8. Brood. | .06 | .07 | .08 | .02 | .02 | .52** | .61** | | | | | | |
| 9. Accept. | <.01 | .04 | <.01 | .04 | .13 | .15* | .26** | .20** | | | | | |
| 10. Shame | -.78** | -.77** | -.56** | .23** | .16* | .05 | -.24** | <.01 | -.02 | | | | |
| 11.Prosoc. Response | -.07 | -.05 | <.01 | .01 | **.08** | -.02 | -.05 | -.02 | .02 | .05 | | | |
| 12. White | -.16* | -.19** | -.26** | .02 | .09 | -.02 | -.10 | -.03 | .03 | .17* | .04 | | |
| 13. Women | -.18** | -.17* | -.16* | -.05 | .05 | -.05 | -.05 | -.08 | .01 | **.13** | -.02 | -.03 | |
| 14. Age | .18** | .22** | .23** | -.12 | -.09 | .06 | .17* | .03 | .03 | -.24** | -.02 | .22** | -.12 |

*. Correlation is significant at the .05 level.
**. Correlation is significant at the .01 level.
(Red font indicates changes in significance level.)

(The above variables are represented by the following measures: Self-Esteem – Rosenberg Self-Esteem Scale; Self-Compassion – Self-Compassion Scale-Short Form; Rejection-based Self-Esteem – Rejection domain of Relationship-Based Self-Esteem Scale; Internal Attribution – from Schmitt & Branscombe (2002); External Attribution – from Schmitt & Branscombe (2002); Distraction, Reappraisal, Brooding, Acceptance – State Emotion Regulation Inventory; Shame – Internalized Shame Scale; Prosocial Response – percentage of tosses to excluder.)

**Hypothesis Tests.** Below is an explanation of the method and results of the 12 hypotheses tests and 4 post-hoc analyses. A multiple regression framework was used to test all hypotheses, including hypotheses involving mediation. All hypothesized and post-hoc mediation models were tested using PROCESS macro for SPSS (Hayes, 2013). This method of mediation analysis utilizes bootstrapping, which is an advancement from other forms of mediation tests (e.g., Baron & Kenny, 1986) that depend on causal regression steps and have limited power compared to Hayes' bootstrapping method (Fritz & MacKinnon, 2007; Hayes & Scharkow, 2013). Use of bootstrapping allows for detection of mediating indirect effects even if a main effect between independent variable and dependent variable is not present. This method is particularly useful in cases of inconsistent mediation wherein the indirect effect is opposite in sign to the direct effect, and the mediating variable suppresses the direct effect (MacKinnon et al., 2007). To decrease the likelihood of false positive results, a Bonferroni Type I error correction was applied to the significance test in each analysis. Given that ten hypothesis tests were conducted, the alpha level $\alpha = .05$ was divided by 10, yielding a more conservative alpha level of $\alpha = .005$. A table accompanies the description of each hypothesis test and post-hoc-analysis. Furthermore, *Table 18* provides a simplified display, listing the result of each hypothesis test and post-hoc analysis.

***Hypothesis 1: Trait self-compassion will positively impact use of acceptance emotion regulation strategies.*** A multiple linear regression was calculated to predict participant's use of an acceptance emotion regulation strategy based on self-compassion.

A hierarchical (i.e., sequential) framework was used to predict the amount of variance in acceptance accounted for by self-compassion while controlling for demographic variables. Demographic variables, including racial/ethnic minority status, gender, and age, were entered into the first step of analysis. Self-compassion was entered in the second step. Regarding the control variables of REM, Gender, and Age, the model fit did not reach significance, $F$ (3, 213) = .28, $p$ = .84. Regarding the main independent variable of interest, self-compassion, this model fit was also insignificant, $F$ (4, 212) = .21, $p$ = .93, $R^2$ < .01. Therefore, Hypothesis 1 was not supported. Self-compassion explained less than an additional .1% of variance in emotion acceptance when added to the model. Regarding the results from the reduced dataset, no changes in significance levels were noted for standardized regression coefficients or model fit.

Table 5a: Hierarchical Regression for Emotion Acceptance

| Predictors | $R^2$ | $\Delta R^2$ | $df$ | $\Delta F$ | β* | $p$ |
|---|---|---|---|---|---|---|
| Step 1: | <.01 | n/a | 213 | n/a | | |
| Race/Ethnicity | | | | | .04 | .54 |
| Gender | | | | | .04 | .57 |
| Age | | | | | .04 | .55 |
| Step 2: Self-Compassion | <.01 | <.01 | 212 | .01 | .01 | .92 |

Table 5b: Hierarchical Regression for Emotion Acceptance in Reduced Dataset

| Predictors | $R^2$ | $\Delta R^2$ | $df$ | $\Delta F$ | β* | $p$ |
|---|---|---|---|---|---|---|
| Step 1: | <.01 | n/a | 205 | n/a | | |
| Race/Ethnicity | | | | | .04 | .63 |
| Gender | | | | | .02 | .78 |
| Age | | | | | .04 | 57 |
| Step 2: Self-Compassion | <.01 | <.01 | 204 | .01 | >-.01 | .97 |

Demographic Coding
Race/Ethnicity – White: 1; Racial/ethnic minority: 0
Gender – Woman: 1; Men and Gender Fluid: 0

***Hypothesis 2: Trait self-esteem will positively impact use of reappraisal emotion regulation strategies.*** Using hierarchical multiple regression, the control variables of REM, Gender, and Age were entered into the first step, and Self-Esteem was entered into the second step. The model fit for the first step of the hierarchical regression approached significance, $F$ (3, 213) = 2.50, $p$ = .06. Age was the only demographic variable that contributed significantly to this model, β* = .16, $p$ = .03. Adding self-esteem to the model resulted in a significant model fit, $F$ (4, 212) = 4.86, $p$ <. 01. The addition of self-esteem to the regression equation increased the percentage of variance explained in reappraisal by 5% and was a significant predictor of emotion reappraisal, β* = .23, $p$ < .01. Given these results, Hypothesis 2 was supported. Regarding the results from the reduced dataset, no changes in significance levels were noted for standardized regression coefficients or model fit.

| Table 6a: Hierarchical Regression for Emotion Reappraisal | | | | | | |
|---|---|---|---|---|---|---|
| Predictors | $R^2$ | $\Delta R^2$ | *df* | $\Delta F$ | β* | *p* |
| Step 1: | .03 | | 213 | n/a | | |
| Race/Ethnicity | | | | | -.06 | .39 |
| Gender | | | | | -.04 | .61 |
| Age | | | | | .16 | .03 |
| Step 2: | .08 | .05 | 212 | 11.54 | .23 | .001 |
| Self-Esteem | | | | | | |
| Table 6b: Hierarchical Regression for Emotion Reappraisal in Reduced Dataset | | | | | | |
| Predictors | $R^2$ | $\Delta R^2$ | *df* | $\Delta F$ | β* | *p* |
| Step 1: | .03 | | 205 | n/a | | |
| Race/Ethnicity | | | | | -.07 | .32 |
| Gender | | | | | -.04 | .59 |
| Age | | | | | .15 | .04 |
| Step 2: | .07 | .03 | 204 | 6.92 | .19 | .009 |
| Self-Esteem | | | | | | |

Demographic Coding
Race/Ethnicity – White: 1; Racial/ethnic minority: 0
Gender – Woman: 1; Men and Gender Fluid: 0

***Hypothesis 3: Trait self-compassion will negatively impact shame following exclusion manipulation.*** Multiple linear regression analysis was used to develop a model for predicting levels of participants' shame responses from their levels of self-compassion (Table 7a). The three demographic variables of interest were entered in the first step, and self-compassion was entered into the second step of the regression analyses. Regarding the initial step in the regression, the model fit reached significance, $F$ (3, 213) = 6.60, $p < .001$. Within this first model, White ethnicity ($\beta^* = .14$, $p < .045$) and Age ($\beta^* = -.19$, $p = .005$) significantly predicted shame. According to these results, participants who identified as racial/ethnic minorities experienced less shame in response to ostracism than their White counterparts. Regarding age, older participants experienced less shame following ostracism. Gender did not significantly predict a shame response to ostracism. When self-compassion was entered into the regression equation, the model fit maintained significance, $F$ (4, 212) = 91.77, $p < .001$, and self-compassion explained an additional 55% in total variance in shame. Participants who reported higher levels of self-compassion reported less shame following ostracism, $\beta^* = -.77$, $p < .001$. Together, the four variables explained 63% of variance in shame. These results support Hypothesis 3. Regarding the results from the reduced dataset, no changes in significance levels were noted for standardized regression coefficients or model fit.

| Table 7a: Hierarchical Regression for Shame | | | | | | |
|---|---|---|---|---|---|---|
| Predictors | $R^2$ | $\Delta R^2$ | *df* | $\Delta F$ | β* | *p* |
| Step 1: | .09 | n/a | 213 | n/a | | |
| Race/Ethnicity | | | | | .14 | .045 |
| Gender | | | | | .12 | .08 |
| Age | | | | | -.19 | .005 |
| Step 2: | .63 | .55 | 212 | 317.82 | -.77 | <.001 |
| Self-Compassion | | | | | | |
| Table 7b: Hierarchical Regression for Shame in Reduced Dataset | | | | | | |
| Predictors | $R^2$ | $\Delta R^2$ | *df* | $\Delta F$ | β* | *p* |
| Step 1: | .09 | n/a | 205 | n/a | | |
| Race/Ethnicity | | | | | .14 | .04 |
| Gender | | | | | .11 | .10 |
| Age | | | | | -.19 | .005 |
| Step 2: | .62 | .54 | 204 | 289.93 | -.76 | <.001 |
| Self-Compassion | | | | | | |

Demographic Coding
Race/Ethnicity – White: 1; Racial/ethnic minority: 0
Gender – Woman: 1; Men and Gender Fluid: 0

***Hypothesis 4: Trait self-esteem will negatively impact shame following exclusion manipulation.*** Demographic variables were entered in step one, and self-esteem was entered in step two of the hierarchical multiple regression analysis (Table 8a). The multiple regression revealed that REM and Age contributed significantly to the model, which produced a significant model fit, $F$ (3, 213) = 6.60, $p < .001$. Regarding the results of this initial model, participants who identified as racial/ethnic minorities experienced less shame in response to ostracism, compared to White participants, β* = .14, $p = .045$. Age had an inverse relationship with shame, β* = -.19, $p = .005$. Gender did not contribute significantly to the model. In the second model with self-esteem entered as a predictor, the model reached a significant model fit, $F$ (4, 212) = 81.55, $p <.001$, and self-esteem explained an additional 52% of variance in shame. Self-esteem showed an inverse relationship with shame, β* = -.76, $p < .001$. Therefore, Hypothesis 4 was

supported. Regarding the results from the reduced dataset, no changes in significance levels were noted for standardized regression coefficients or model fit.

| Table 8a: Hierarchical Regression for Shame | | | | | | |
|---|---|---|---|---|---|---|
| Predictors | $R^2$ | $\Delta R^2$ | *df* | $\Delta F$ | β* | *p* |
| Step 1: | .09 | | 213 | | | |
| Race/Ethnicity | | | | | .14 | .045 |
| Gender | | | | | .12 | .08 |
| Age | | | | | -.19 | .005 |
| Step 2: | .61 | .52 | 212 | 280.40 | -.76 | <.001 |
| Self-Esteem | | | | | | |
| Table 8b: Hierarchical Regression for Shame in Reduced Dataset | | | | | | |
| Predictors | $R^2$ | $\Delta R^2$ | *df* | $\Delta F$ | β* | *p* |
| Step 1: | .09 | | 205 | | | |
| Race/Ethnicity | | | | | .14 | .04 |
| Gender | | | | | .11 | .10 |
| Age | | | | | -.19 | .005 |
| Step 2: | .59 | .50 | 204 | 248.51 | -.75 | <.001 |
| Self-Esteem | | | | | | |

Demographic Coding
Race/Ethnicity – White: 1; Racial/ethnic minority: 0
Gender – Woman: 1; Men and Gender Fluid: 0

***Hypothesis 5: Compared to self-esteem, self-compassion will explain more variance in shame following exclusion manipulation.*** Sequential multiple linear regression analysis and relative weights analysis (RWA; Lundby & Johnson, 2006) were used to test Hypothesis 5 (Table 9a). Demographic variables were entered into the first step of the regression equation. The multiple regression revealed that REM and Age contributed significantly to the model, producing a significant model fit, $F$ (3, 213) = 6.60, $p < .001$. Participants who identified as racial/ethnic minorities experienced less shame in response to ostracism, compared to White participants, β* = .14, $p$ = .045. Age had an inverse relationship with shame, β* = -.19, $p$ = .005. Gender did not contribute significantly to the model. The addition of self-esteem and self-compassion in Step 2

resulted in a 64% increase of variance in shame explained by the model, which revealed a significant model fit, $F$ (5, 211) = 112.09, $p < .001$. A comparison of standardized regression weights revealed that self-esteem (β* = -.43, $p < .001$) and self-compassion (β* = -.49, $p < .001$) were significant predictors of shame, with self-compassion having more predictive power of shame, compared to self-esteem. Applying syntax based on that provided by Lundby and Johnson's (2006) to the current dataset, regression weights analysis was used to account for the distortion of regression weights caused by the high correlation between the predictors self-esteem and self-compassion. Using this method, self-esteem and self-compassion were transformed into their maximally related orthogonal counterparts, thereby factoring in each predictor's direct effect in combination with their joint effect (Chao et al., 2008). Results of the regression weights analysis indicated that the raw relative weight of self-esteem was .36, and self-compassion yielded a raw relative weight of .37. Because of self-compassion's greater relative weight, Hypothesis 5 was supported. Regarding the results from the reduced dataset, no changes in significance levels were noted for standardized regression coefficients or model fit.

Table 9a: Hierarchical Regression for Shame

| Predictors | $R^2$ | $\Delta R^2$ | *df* | $\Delta F$ | β* | *p* | *Semi-partial* $r^2$ |
|---|---|---|---|---|---|---|---|
| Step 1: | .09 | | 213 | | | | |
| Race/Ethnicity | | | | | .14 | .045 | .13 |
| Gender | | | | | .12 | .08 | .12 |
| Age | | | | | -.19 | .005 | -.19 |
| Step 2: | .73 | .64 | 211 | 247.42 | | | |
| Self-Esteem | | | | | -.43 | <.001 | -.30 |
| Self-Compassion | | | | | -.49 | <.001 | -.35 |

Demographic Coding
Race/Ethnicity – White: 1; Racial/ethnic minority: 0
Gender – Woman: 1; Men and Gender Fluid: 0

| Table 9b: Hierarchical Regression for Shame in Reduced Dataset | | | | | | | |
|---|---|---|---|---|---|---|---|
| Predictors | $R^2$ | $\Delta R^2$ | *df* | $\Delta F$ | β* | *p* | *Semi-partial* $r^2$ |
| Step 1: | .09 | | 205 | | | | |
| Race/Ethnicity | | | | | .14 | .04 | .14 |
| Gender | | | | | .11 | .10 | .11 |
| Age | | | | | -.19 | .005 | -.19 |
| Step 2: | .72 | .63 | 203 | 224.17 | | | |
| Self-Esteem | | | | | -.42 | <.001 | -.30 |
| Self-Compassion | | | | | -.49 | <.001 | -.36 |

Demographic Coding
Race/Ethnicity – White: 1; Racial/ethnic minority: 0
Gender – Woman: 1; Men and Gender Fluid: 0

***Hypothesis 6 stated: Self-compassion will positively impact prosocial behavior following ostracism.*** Sequential multiple regression analysis was conducted by entering demographic variables in the first step and self-compassion in the second step (Table 10a). Neither the first model, $F$ (3, 197) = .12, $p$ = .95, nor the second model, $F$ (4, 196) = .11, $p$ = .98, produced a significant model fit. Adding self-compassion to the regression equation added less than .1% of explained variance in prosocial response to ostracism. No predictors in step one or step two reached significance at $a$ = .05. Regarding the results from the reduced dataset, no changes in significance levels were noted for standardized regression coefficients or model fit. Hypothesis 6 was not supported.

| Table 10a: Hierarchical Regression for Prosocial Behavior | | | | | | |
|---|---|---|---|---|---|---|
| Predictors | $R^2$ | $\Delta R^2$ | *df* | $\Delta F$ | β* | *p* |
| Step 1: | <.01 | | 197 | | | |
| Race/Ethnicity | | | | | .03 | .70 |
| Gender | | | | | -.02 | .77 |
| Age | | | | | .03 | .68 |
| Step 2: | <.01 | <.01 | 196 | .07 | -.02 | .79 |
| Self-Compassion | | | | | | |
| Table 10b: Hierarchical Regression for Prosocial Behavior in Reduced Dataset | | | | | | |
| Predictors | $R^2$ | $\Delta R^2$ | *df* | $\Delta F$ | β* | *p* |
| Step 1: | <.01 | | 189 | | | |
| Race/Ethnicity | | | | | .04 | .59 |
| Gender | | | | | -.02 | .79 |
| Age | | | | | -.01 | .91 |
| Step 2: | <.01 | <.01 | 188 | .99 | -.08 | .32 |
| Self-Compassion | | | | | | |

Demographic Coding
Race/Ethnicity – White: 1; Racial/ethnic minority: 0
Gender – Woman: 1; Men and Gender Fluid: 0

***Hypothesis 7: Self-esteem will negatively impact prosocial behavior following ostracism.*** Demographic variables were entered in the first step of the multiple regression analysis, and self-esteem was entered into the second step (Table 11a). The initial regression model did not reach significant model fit, $F$ (3, 197) = .12, $p$ =.95. Likewise, the second model did not produce a significant model fit, $F$ (4, 196) = .12, $p$ = .97. The addition of self-esteem explained .1% more variance in prosocial response to ostracism. Regarding the results from the reduced dataset, no changes in significance levels were noted for standardized regression coefficients or model fit. Hypothesis 7 was also not supported.

| Table 11a: Hierarchical Regression for Prosocial Behavior | | | | | | |
|---|---|---|---|---|---|---|
| Predictors | $R^2$ | $\Delta R^2$ | *df* | $\Delta F$ | β* | *p* |
| Step 1: | <.01 | n | 197 | | | |
| Race/Ethnicity | | | | | .03 | .70 |
| Gender | | | | | -.02 | .77 |
| Age | | | | | .03 | .68 |
| Step 2: | <.01 | <.01 | 196 | .13 | -.03 | .72 |
| Self-Esteem | | | | | | |
| Table 11b: Hierarchical Regression for Prosocial Behavior in Reduced Dataset | | | | | | |
| Predictors | $R^2$ | $\Delta R^2$ | *df* | $\Delta F$ | β* | *p* |
| Step 1: | <.01 | | 189 | | | |
| Race/Ethnicity | | | | | .04 | .59 |
| Gender | | | | | -.02 | .79 |
| Age | | | | | -.01 | .91 |
| Step 2: | <.01 | <.01 | 188 | .39 | -.05 | .53 |
| Self-Esteem | | | | | | |

Demographic Coding
Race/Ethnicity – White: 1; Racial/ethnic minority: 0
Gender – Woman: 1; Men and Gender Fluid: 0

***Hypothesis 8a: Self-compassion will have a significant positive impact on external attribution of the ostracism event.*** This hypothesis was tested by entering external attribution as the outcome variable, entering demographic variables in step one, and entering self-compassion in Step 2 of the multiple regression analysis (Table 12a). The first model, with only demographic predictors, did not create a significant model fit, $F$ (3, 213) = .79, $p$ = .49. With the addition of self-compassion to the equation, the second model did not reach a significant model fit, $F$ (4, 212) = 1.21, $p$ = .31. Demographic variables explained 1% variance in external attribution, and self-compassion explained an additional 1% of variance in external attribution. Regarding the results from the reduced dataset, no changes in significance levels were noted for standardized regression coefficients or model fit. Hypothesis 8a was not supported.

| Table 12a: Hierarchical Regression for External Attribution | | | | | | |
|---|---|---|---|---|---|---|
| Predictors | $R^2$ | $\Delta R^2$ | *df* | $\Delta F$ | β* | *p* |
| Step 1: | .01 | n/a | 213 | n/a | | |
| Race/Ethnicity | | | | | .07 | .32 |
| Gender | | | | | .02 | .72 |
| Age | | | | | -.06 | .39 |
| Step 2: | .02 | .01 | 212 | 2.42 | -.11 | .12 |
| Self-Compassion | | | | | | |
| Table 12b: Hierarchical Regression for External Attribution in Reduced Dataset | | | | | | |
| Predictors | $R^2$ | $\Delta R^2$ | *df* | $\Delta F$ | β* | *p* |
| Step 1: | .02 | n/a | 205 | n/a | | |
| Race/Ethnicity | | | | | .09 | .19 |
| Gender | | | | | .04 | .58 |
| Age | | | | | -.07 | .36 |
| Step 2: | .03 | .01 | 204 | 1.97 | -.10 | .16 |
| Self-Compassion | | | | | | |

Demographic Coding
Race/Ethnicity – White: 1; Racial/ethnic minority: 0
Gender – Woman: 1; Men and Gender Fluid: 0

***Hypothesis 8b: Self-compassion will have a significant negative impact on internal attribution of the ostracism event.*** Via sequential multiple regression analysis, Hypothesis 8b was tested by entering REM, Gender, and Age in the first step of the modeling (Table 13a). Self-compassion was entered in the second step. The first model did not reach a significant model fit, $F$ (3, 213) = 1.27, $p$ = .29. No demographic variables had significant standardized regression coefficients, and together, they explained 2% of variance in internal attribution. With the addition of self-compassion, the second model did reach significant fit, $F$ (4, 212) = 6.40, $p$ < .001. Self-compassion explained an additional 9% of variance in internal attribution. As self-compassion increased, internal attribution of the ostracism decreased, β* = -.31, $p$ < .001. Given the significant negative relationship between self-compassion and internal attribution, Hypothesis 8b was supported. Regarding the results from the reduced dataset, no changes in significance levels were noted for standardized regression coefficients or model fit.

| Table 13a: Hierarchical Regression for Internal Attribution | | | | | | |
|---|---|---|---|---|---|---|
| Predictors | $R^2$ | $\Delta R^2$ | *df* | $\Delta F$ | β* | *p* |
| Step 1: | .02 | n/a | 213 | n/a | | |
| Race/Ethnicity | | | | | -.05 | .48 |
| Gender | | | | | -.06 | .39 |
| Age | | | | | -.13 | .07 |
| Step 2: | .11 | .09 | 212 | 21.42 | -.31 | <.001 |
| Self-Compassion | | | | | | |
| Table 13b: Hierarchical Regression for Internal Attribution in Reduced Dataset | | | | | | |
| Predictors | $R^2$ | $\Delta R^2$ | *df* | $\Delta F$ | β* | *p* |
| Step 1: | .02 | n/a | 205 | n/a | | |
| Race/Ethnicity | | | | | -.02 | .80 |
| Gender | | | | | -.06 | .37 |
| Age | | | | | -.13 | .07 |
| Step 2: | .08 | .06 | 204 | 13.83 | -.26 | <.001 |
| Self-Compassion | | | | | | |

Demographic Coding
Race/Ethnicity – White: 1; Racial/ethnic minority: 0
Gender – Woman: 1; Men and Gender Fluid: 0

***Hypothesis 9a: Self-esteem will have a significant positive impact on external attribution of the ostracism event.*** Hypothesis 9a was tested by modeling external attribution as the dependent variable, entering demographic variables as independent variables in Step 1, and entering self-esteem as an independent variable in Step 2 (Table 14a). The first model, with only demographic predictors, did not create a significant model fit, $F$ (3, 213) = .79, $p$ = .49. The addition of self-esteem to the model also failed to create a significant model fit**,** $F$ (4, 212) = .79, $p$ = .53. Adding self-esteem to the model increased the explained variance in external attribution by .4%. Regarding the results from the reduced dataset, no changes in significance levels were noted for standardized regression coefficients or model fit. Hypothesis 9a was not supported.

| Table 14a: Hierarchical Regression for External Attribution | | | | | | |
|---|---|---|---|---|---|---|
| Predictors | $R^2$ | $\Delta R^2$ | *df* | $\Delta F$ | β* | *p* |
| Step 1: | .01 | n/a | 213 | n/a | | |
| Race/Ethnicity | | | | | .07 | .32 |
| Gender | | | | | .02 | .72 |
| Age | | | | | -.06 | .39 |
| Step 2: | .02 | <.01 | 212 | .79 | -.06 | .38 |
| Self-Esteem | | | | | | |
| Table 14b: Hierarchical Regression for External Attribution in Reduced Dataset | | | | | | |
| Predictors | $R^2$ | $\Delta R^2$ | *df* | $\Delta F$ | β* | *p* |
| Step 1: | .02 | n/a | 205 | n/a | | |
| Race/Ethnicity | | | | | .09 | .19 |
| Gender | | | | | .04 | .58 |
| Age | | | | | -.07 | .36 |
| Step 2: | .02 | -.001 | 204 | .11 | -.02 | .74 |
| Self-Esteem | | | | | | |

Demographic Coding
Race/Ethnicity – White: 1; Racial/ethnic minority: 0
Gender – Woman: 1; Men and Gender Fluid: 0

***Hypothesis 9b: Self-esteem will have a significant negative impact on internal attribution of the ostracism event.*** This hypothesis was tested by inputting demographic variables in the first step of the regression equation and self-esteem in the second step (Table 15a). The first model did not reach a significant model fit, $F$ (3, 213) = 1.27, $p$ = .29. No demographic variables had significant standardized regression coefficients, and together, they explained 2% of variance in internal attribution. By adding self-esteem to the regression equation, the model reached significant model fit, $F$ (4, 212) = 3.61, $p$ = .01. Self-esteem explained an additional 5% of variance in internal attribution of the ostracism event. Self-esteem and internal attribution shared an inverse relationship, β* = -.23, $p$ = .001, offering support for Hypothesis 9b. Regarding the results from the reduced dataset, changes in significance levels were noted for the self-esteem standardized regression coefficient as well as the model fit for model 2. Self-esteem was no longer a

significant predictor of internal attribution, β* = -.12, $p$ = .11. Furthermore, Model 2 no longer reached significant model fit for the reduced dataset, $F$ (4, 204) = 1.64, $p$ = .17.

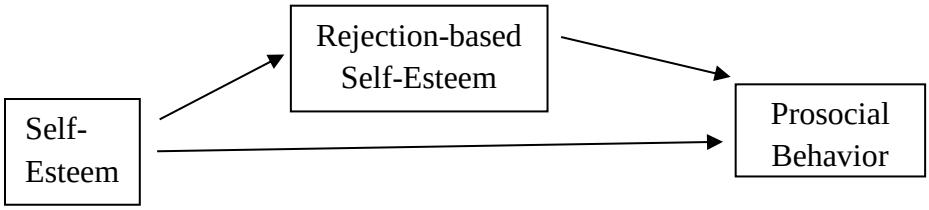
| Table 15a: Hierarchical Regression for Internal Attribution | | | | | | |
|---|---|---|---|---|---|---|
| Predictors | $R^2$ | $\Delta R^2$ | $df$ | $\Delta F$ | β* | $p$ |
| Step 1: | .02 | n/a | 213 | n/a | | |
| Race/Ethnicity | | | | | -.05 | .48 |
| Gender | | | | | -.06 | .39 |
| Age | | | | | -.13 | .07 |
| Step 2: | .06 | .05 | 212 | 10.44 | -.23 | .001 |
| Self-Esteem | | | | | | |
| Table 15b: Hierarchical Regression for Internal Attribution in Reduced Dataset | | | | | | |
| Predictors | $R^2$ | $\Delta R^2$ | $df$ | $\Delta F$ | β* | $p$ |
| Step 1: | .02 | n/a | 205 | n/a | | |
| Race/Ethnicity | | | | | -.02 | .80 |
| Gender | | | | | -.06 | .37 |
| Age | | | | | -.13 | .07 |
| Step 2: | .03 | .01 | 204 | 2.64 | -.12 | .11 |
| Self-Esteem | | | | | | |

Demographic Coding
Race/Ethnicity – White: 1; Racial/ethnic minority: 0
Gender – Woman: 1; Men and Gender Fluid: 0

***Hypothesis 10: Rejection-based self-esteem contingency will mediate the relationship between self-esteem and prosocial behavior.*** The multiple regression framework was used to test the mediating effects of rejection-based self-esteem contingency on the relationship between self-esteem and prosocial behavior. The mediation model is portrayed below.

Figure 3

*Mediation Model for Hypothesis 10*



Self-esteem significantly predicted rejection-based self-esteem, F (1, 201) = 78.49, $p$ <.001. However, self-esteem did not predict prosocial responses to ostracism, F (2, 200) = .06, $p$ = .94. Furthermore, using Hayes's (2013) PROCESS bootstrap sampling method, the indirect effect of self-esteem on prosocial behavior through rejection-based self-esteem contingency was tested using 5000 bootstrapped samples. For this indirect effect of self-esteem on prosocial behavior, the bootstrap estimation revealed a 95% confidence interval that included zero [CI = -2.59, 1.89], and therefore this mediation model was insignificant. Thus, Hypothesis 10 was not supported. The results of this hypothesis test did not change substantially in the reduced dataset, such that self-esteem significantly predicted rejection-based self-esteem, self-esteem did not predict prosocial behavior, and the indirect effect of the mediation model did not reach significance.

**Post-hoc analyses.** Four post-hoc analyses were run in order to provide greater clarification of the results of the multiple linear regression analyses outlined above. The Bonferroni corrected alpha level $\alpha = .005$ was also applied to the post-hoc analyses.

***Self-compassion versus self-esteem for internal attribution.*** Because self-compassion and self-esteem both negatively predicted internal attribution of the ostracism event, an additional multiple linear regression analysis and a relative weights analysis were conducted to determine which independent variable was a stronger predictor of internal attribution. The multiple regression analysis was executed by entering demographic variables in step one and both self-compassion and self-esteem in step two of the regression model. The initial model, including only demographic variables, did not reach a significant model fit, $F$ (3, 213) = 1.27, $p$ = .29, and no demographic variable yielded a significant regression coefficient. The second model did reach significant model

fit, $F$ (5, 211) = 5.11, $p < .001$. With the addition of both self-esteem and self-compassion as predictor variables, the second regression model explained an additional 9% of variance in internal attribution. Self-esteem lost significance as a predictor of internal attribution when self-compassion was added to the model, β* = -.03, $p = .78$. Self-compassion maintained significance, however, β* = -.29, $p = .001$, and showed a semi-partial correlation of $r^2 = -.21$. The relative weights analysis was conducted using syntax developed by Lundby and Johnson (2006). This analysis yielded a raw relative weight of .02 for self-esteem and a raw relative weight of .06 for self-compassion. Results from the reduced dataset showed no changes in significance levels of model fit or standardized regression coefficients.

Table 16a: Hierarchical Regression for Internal Attribution

| Predictors | $R^2$ | $\Delta R^2$ | *df* | β* | *p* | *Semi-partial* $r^2$ |
|---|---|---|---|---|---|---|
| Step 1: | .02 | | 213 | | | |
| Race/Ethnicity | | | | -.05 | .48 | -.05 |
| Gender | | | | -.06 | .39 | -.06 |
| Age | | | | -.13 | .07 | -.12 |
| Step 2: | .11 | .09 | 211 | | | |
| Self-Esteem | | | | -.03 | .78 | -.02 |
| Self-Compassion | | | | -.29 | .001 | -.21 |

Table 16b: Hierarchical Regression for Internal Attribution in Reduced Dataset

| Predictors | $R^2$ | $\Delta R^2$ | *df* | β* | *p* | *Semi-partial* $r^2$ |
|---|---|---|---|---|---|---|
| Step 1: | .02 | n/a | 205 | | | |
| Race/Ethnicity | | | | -.02 | .80 | -.02 |
| Gender | | | | -.06 | .37 | -.06 |
| Age | | | | -.13 | .07 | -.13 |
| Step 2: | .09 | .07 | 203 | | | |
| Self-Esteem | | | | .09 | .32 | .07 |
| Self-Compassion | | | | -.32 | .001 | -.23 |

Demographic Coding
Race/Ethnicity – White: 1; Racial/ethnic minority: 0
Gender – Woman: 1; Men and Gender Fluid: 0

***Self-compassion versus self-esteem for emotion reappraisal.*** The hypothesis that self-compassion would predict acceptance emotion regulation was not supported. To

determine which emotion regulation strategy self-compassion predicted in the current sample, a post-hoc analysis was warranted. Given self-compassion's correlation with self-esteem and self-esteem's prediction of emotion reappraisal, an additional post-hoc multiple linear regression analysis and a relative weights analysis were run to determine if self-compassion also predicted emotional reappraisal and to compare self-compassion's relationship with reappraisal to self-esteem's relationship with reappraisal. The multiple regression was conducted by entering demographic variables in the first step and self-esteem and self-compassion in the second step. The initial model did not reach significant model fit, although the model approached significance, $F$ (3, 213) = 2.50, $p$ = .06. Among the three demographic variables, only Age approached significance $\alpha = .0125$, $\beta^* = .16$, $p$ = .03. The second model reached significant model fit, $F$ (5, 211) = 4.98, $p < .001$. With self-esteem and self-compassion both entered into this model, only self-compassion approached significance as a predictor of reappraisal, $\beta^* = .21$, $p$ = .03. The relative weights analysis for this post-hoc test was conducted, indicating a raw relative weight of .04 for self-esteem was .04 and a raw relative weight of .05 for self-compassion. Regarding the regression results of the reduced dataset, no significant changes in model fit were observed in the first model. However, the second model showed a small reduction in significance of model fit, $F$ (5, 203) = 4.16, $p$ = .001. No significant changes were observed in the standardized regression coefficients in Model 1 or Model 2 of the reduced dataset for this regression equation.

| Table 17a: Hierarchical Regression for Emotion Reappraisal | | | | | | |
|---|---|---|---|---|---|---|
| Predictors | $R^2$ | $\Delta R^2$ | *Df* | β* | *p* | *Semi-partial* $r^2$ |
| Step 1: | .03 | n/a | 213 | | | |
| Race/Ethnicity | | | | -.06 | .39 | -.06 |
| Gender | | | | -.04 | .61 | -.03 |
| Age | | | | .16 | .03 | .15 |
| Step 2: | .11 | .07 | 211 | | | |
| Self-Esteem | | | | .09 | .30 | .07 |
| Self-Compassion | | | | .21 | .03 | .15 |
| Table 17b: Hierarchical Regression for Emotion Reappraisal in Reduced Dataset | | | | | | |
| Predictors | $R^2$ | $\Delta R^2$ | *Df* | β* | *p* | *Semi-partial* $r^2$ |
| Step 1: | .03 | n/a | 205 | | | |
| Race/Ethnicity | | | | -.07 | .32 | -.07 |
| Gender | | | | -.04 | .59 | -.04 |
| Age | | | | .15 | .04 | .14 |
| Step 2: | .09 | .06 | 203 | | | |
| Self-Esteem | | | | .04 | .68 | .03 |
| Self-Compassion | | | | .23 | .02 | .16 |

Demographic Coding
Race/Ethnicity – White: 1; Racial/ethnic minority: 0
Gender – Woman: 1; Men and Gender Fluid: 0

***Internal attribution as mediator between self-compassion and shame.*** Internal attribution was examined as a potential mediator of the relationship between self-compassion and shame. Hayes' 2013 syntax (version 3.0) was used to test significance of internal attribution as a mediator of the relationship between self-compassion and shame and the relationship between self-esteem and shame. The indirect effect was tested using a bootstrap estimation approach with 5000 samples. For the indirect effect of self-compassion on shame, the bootstrap estimation revealed a 95% confidence interval that included zero [CI = -.06, .01], and therefore this mediation model was insignificant. The mediation model remained insignificant in the reduced dataset as well.

***Internal attribution as mediator between self-esteem and shame.*** Internal attribution was also examined as a potential mediator between self-esteem and shame. The mediation analysis revealed a significant mediation effect of internal attribution on the relationship between self-esteem and shame. Self-esteem significantly predicted internal attribution, $F$ (1, 217) = 10.04, $p < .01$ and shame, $F$ (2, 216) = 175.65, $p < .01$. Finally, the bootstrap estimation 95% confidence interval of the indirect effect did not contain zero [CI = -.09, -.004]. The results of this analysis shows that internal attribution mediates the relationship between self-esteem and shame. This mediation model did not maintain significance in the reduced dataset. In the reduced dataset, self-esteem no longer predicted internal attribution significantly, $F$ (1, 209) = 2.91, $p = .09$. Self-esteem remained a significant predictor of shame, $F$ (2, 208) = 160.32, $p < .001$. Finally, the bootstrap estimation 95% confidence interval of the indirect effect contained zero (-.07, .01), which indicates that internal attribution did not mediate the relationship between self-esteem and shame in the reduced dataset.

| Table 18: Results of Hypothesis Testing and Post-Hoc Analyses | |
|---|---|
| **Hypothesis** | **Result of Hypothesis Test** |
| H1: Trait self-compassion will positively impact use of acceptance emotion regulation strategies. | Hypothesis not supported |
| H2: Trait self-esteem will positively impact use of reappraisal emotion regulation strategies. | Hypothesis supported |
| H3: Trait self-compassion will negatively impact shame following exclusion manipulation. | Hypothesis supported |
| H4: Trait self-esteem will negatively impact shame following exclusion manipulation | Hypothesis supported |
| H5: Compared to self-esteem, self-compassion will explain more variance in shame following exclusion manipulation. | Hypothesis supported |
| H6: Self-compassion will positively impact prosocial behavior following ostracism. | Hypothesis not supported |
| H7: Self-esteem will negatively impact prosocial behavior following ostracism. | Hypothesis not supported |
| H8a: Self-compassion will have a significant positive impact on external attribution of the ostracism event. | Hypothesis not supported |
| H8b: Self-compassion will have a significant negative impact on internal attribution of the ostracism event. | Hypothesis supported |
| H9a: Self-esteem will have a significant positive impact on external attribution of the ostracism event. | Hypothesis not supported |
| H9b: Self-esteem will have a significant negative impact on internal attribution of the ostracism event. | Hypothesis supported |
| H10: Rejection-based self-esteem contingency will mediate the relationship between self-esteem and prosocial behavior. | Hypothesis not supported |
| **Post-hoc analyses** | |
| 1: Self-esteem versus self-compassion for internal attribution | Self-compassion stronger predictor of internal attribution |
| 2: Self-compassion versus self-esteem for emotion reappraisal | Self-compassion stronger predictor of emotion reappraisal |
| 3: Internal attribution as mediator of relationship between self-compassion and shame. | Non-significant mediation |
| 4: Internal attribution as mediator of relationship between self-esteem and shame. | Significant mediation |

## Chapter IV: Discussion

This project compared the effects of self-esteem and self-compassion on undergraduate participants' responses to an experience of ostracism. The ostracism manipulation occurred online via a virtual ball-tossing game, Cyberball, and emotional (i.e., emotion regulation and shame), cognitive (i.e., internal and external attribution), and behavioral (i.e., prosocial behavior) responses were measured following the ostracism event. While previous research has shown that self-esteem and self-compassion have predicted positive mental health outcomes, some distinctions between the two traits have gained support (e.g., Neff, 2003). The current study adds to the understanding of the similarities and differences between these two constructs and how they differentially relate to ostracism responses. To our knowledge, the current study is the first study to examine the effects of self-esteem and self-compassion on responses to ostracism via Cyberball. Below is a discussion of the results of the hypotheses tests, implications for clinical practice, limitations of the study, and future directions in researching these topics. To begin the discussion, the relationship between self-esteem, self-compassion, and demographic variables found in the current study is explained in light of previous research. This discussion is followed by an account of the relationships between self-esteem and self-compassion with the outcome variables of the study: attribution, emotion

regulation, shame, and prosocial behavior. Finally, the clinical implications, limitations, and future research implications are discussed in turn.

**Self-Compassion and Demographic Variables**

Self-compassion showed significant correlations with all three demographic variables measured in this study: race/ethnicity, gender, and age. Regarding race/ethnicity, participants identifying as racial/ethnic minorities demonstrated significantly higher self-compassion than their White counterparts. Previous research of university counseling center client norms has shown insignificant differences in self-compassion between races and ethnicities (Lockard et al., 2014). Although Lockard et al. (2014) did not find significant differences in self-compassion between races, racial/ethnic minority students were trending toward higher compassion scores than their White counterparts, leading the authors to conclude that self-compassion may be a strength of racial/ethnic minority students. However, the relationship between race/ethnicity and self-compassion appears complex. For example, in a 2015 meta-analysis, Yarnell et al. found that, among studies with higher percentages of non-White participants, greater effect sizes of gender on self-compassion were found. Specifically, the self-compassion disparity favoring men was significantly larger for non-White participants than White participants. More research is needed to determine if self-compassion is indeed a psychological strength among racial/ethnic minorities and to identify differential mechanisms of developing self-compassion between races and ethnicities if such differences exist. More importantly, more self-compassion research that moves beyond static demographic differences is needed. Specifically, research into processes such as

identity development and oppressive experiences may help explain the development of self-compassion in connection with demographic variables.

Women reported lower self-compassion than participants not identifying as women (i.e., men and the one participant identifying as gender fluid) in this sample. This result is consistent with prior self-compassion research that has revealed lower self-compassion levels among undergraduate women compared to undergraduate men in both clinical settings (Lockard et al., 2014) and university settings (Neff, 2003, Neff et al., 2005, Yarnell et al., 2015). A 2014 meta-analysis of 88 studies of self-compassion revealed slightly higher levels of self-compassion in men than women, with a small effect size of $d$ = .18 (Yarnell et al., 2015). While some authors have speculated about these gender differences, more research is needed to determine the precipitants to lower self-compassion among women. Numerous gender norms may favor women in regards to self-compassion. For instance, self-compassion involves actively nurturing and soothing the self in times of stress, qualities that are most often socially prescribed to women, as described in Devore (2013). Furthermore, men are often conditioned to restrict their emotion and remain stoic in times of distress, potentially reducing their self-compassion (Levant, 2011). However, for the women in the current sample, it appears that the norms of self-sacrifice and self-criticism may overwhelm the positive self-compassionate effects of norms prescribed to women (Devore, 2013). Given the psychological protective factors of self-compassion, this population is particularly at risk of psychological disorder.

Finally, age showed significant positive correlations with self-compassion, such that compared to younger participants, older participants reported higher self-

compassion. This result replicates results from previous self-compassion research (Neff & Vonk, 2009). However, the extant research on the relationship between self-compassion is equivocal. For example, in a recent study, Lopez et al. (2018) found no significant effect of age on self-compassion level among a sample of adults with a mean age of 57 (SD = 15.2 years). On the other hand, Hwang et al. (2016) found a significant positive correlation ($r$ = .18) between age and self-compassion across a large range of ages (i.e., 22 to 61 years), similar to the correlation value found in the current study ($r$ = .19). This positive correlation between age and self-compassion may relate to the positive association between self-compassion and reflective wisdom found by Neff et al. (2007). Indeed, reflective wisdom has been shown to increase with age (Ardelt, 2010). Further research is needed to offer clarity on the relationship between age and self-compassion.

**Self-Esteem and Demographic Variables**

Self-esteem also showed significant correlations with the three demographic variables measured in this sample, including race/ethnicity, gender, and age. Regarding race and ethnicity, participants identifying as racial/ethnic minorities endorsed higher levels of self-esteem than their White counterparts. This positive relationship between racial/ethnic minority status and self-esteem has been observed in prior research of self-esteem among African-American participants, who have reported higher levels of self-esteem than other racial/ethnic groups, including White participants (Gayman et al., 2014; Twenge and Crocker, 2002). This trend is interesting, given the negative relationship between racism-related stress and psychological well-being (Pieterse & Carter, 2007) and the strong positive relationship between perceived racial discrimination

and psychological distress (Taylor & Turner, 2002). Some authors have theorized that the historic disenfranchisement of African-Americans may have led to a cultural transmission of personal coping through which African-American parents and communities have instructed their children to rely on themselves as opposed to social groups or society, leading to increases in self-esteem (Gayman et al., 2014). Furthermore, research has suggested that strength of attachment to one's identity group is positively correlated with self-esteem (Branscombe & Ellemers, 1998). Similar to future self-compassion research recommendations, future research into self-esteem should incorporate processes such as racial identity development, instead of merely static identity characteristics. This line of research may be vital for undergraduate students identifying as racial and ethnic minorities, as self-esteem has recently been shown to mediate the relationship between racial identity perceptions and imposter phenomenon experiences among African-American undergraduates (Lige et al., 2017)

In the current study, participants identifying as men reported higher self-esteem than participants identifying as women and gender-fluid. The disparity of self-esteem between men and women has been well documented. In a sample of over 45,000 participants, Helwig and Ruprecht (2017) found that women reported lower self-esteem than men in young adulthood. Similarly, Orth et al. (2010) and Bleidorn et al. (2016) also found that women reported significantly lower self-esteem than men in young adulthood. Several explanations have been suggested for this observed disparity. Self-esteem has been shown to be more strongly dependent on physical attractiveness in women (McKinley & Hyde, 1996). Indeed, unrealistic physical portrayals of women have been displayed as societal ideas in media (Grabe et al., 2008). Also, gender roles may

contribute to the self-esteem divide between genders, as masculinity and self-confidence, which have been historically men gender-normed traits, are associated with high self-esteem (Marsh et al., 1987).

In the current sample, age was positively associated with self-esteem, a finding that is supported by previous research of self-esteem. For example, in a large sample, Helwig and Ruprecht (2017) found that self-esteem increased with age, especially among young adults. Specifically, Helwig and Ruprecht (2017) revealed that self-esteem is high during childhood, sharply declines in adolescence, increases in young adulthood until middle adulthood, eventually declining again or stabilizing in late adulthood. Jiménez et al. (2017) found a similar trajectory of self-esteem with respect to age, and these authors attributed this trajectory to fluctuations in a sense of control and optimism. Given that the vast majority of participants in the current study were within the ages of 18 and 24, the positive association between age and self-esteem is intuitive in light of these previous findings of self-esteem increasing during young adulthood.

**Self-Esteem and Internal Attribution**

The hypothesis that self-esteem would negatively predict internal attribution of social exclusion was supported in this study. This result is consistent with prior research and with theory regarding the relationship between self-esteem and social exclusion. With his sociometer theory of self-esteem, Leary (1997) proposed that self-esteem functions as a gauge of one's sense of belonging in social circles. When considered in the context of previous research, the attributional finding in the current study may add understanding to the mechanisms of self-esteem as a sociometer. For example, Vanhalst et al. (2015) found that, compared to individuals high in loneliness, individuals low in

loneliness were significantly less likely to attribute exclusion internally. Individuals who experience chronic loneliness in Vanhalst et al. (2015) showed the same attributional style (i.e., high internal attribution) as participants with low self-esteem in the current study. When considered together, these parallel results offer a potential explanation for the mechanism within the sociometer model, such that experiences of social exclusion may lower self-esteem as a result of the individual's internal attribution. The post-hoc analysis discussed below sheds more light on internal attribution as a process involved in self-esteem.

Post-hoc analyses revealed that internal attribution mediated the relationship between self-esteem and shame, such that internal attribution may partially explain the inverse relationship between self-esteem and shame. Therefore, an individual with low self-esteem may experience shame from ostracism because they blame themselves for being excluded. Considering Leary's sociometer theory, internal attribution may serve as a cyclical mechanism by which experiences of social exclusion reduce self-esteem, and this lowered self-esteem may further result in maladaptive responses to exclusion (i.e., shame, social withdrawal) via internal attribution, further perpetuating the cycle of their own ostracism and decreasing trait self-esteem. Likewise, Gilbert (2000) found that self-blame, but not other-blame, was related to shame, indicating the distinct relationship between internal attribution and shame. This finding also suggests that the cognitive response of internal attribution may offer a fruitful point of entry for reducing shame, especially among individuals with low self-esteem. As Gilbert (2000) has shown, the maladaptive response of shame is characterized by attributing a negative event to the global self, while the more adaptive guilt response involves blame on a specific behavior

of the self. Therefore, someone with high self-esteem may attribute social exclusion to their specific behavior, a separate person, or circumstances of the exclusion event, reducing their feelings of shame. Reducing internal attribution in individuals with low self-esteem may decrease their feelings of shame and increase their self-esteem over time. Further investigation of internal attribution as a mechanism between the relationship of self-esteem and shame through longitudinal study designs may provide a promising avenue for future research of self-esteem as a sociometer.

**Self-Compassion and Internal Attribution**

As hypothesized, self-compassion also negatively predicted internal attribution. This finding is also consistent with findings from previous research. Leary et al. (2007) found that, compared to participants with low self-compassion, highly self-compassionate participants attributed negative experiences to themselves to a significantly lesser degree. The relationship between self-compassion and internal attribution may be best understood through the three individual facets of self-compassion, which each have a theoretical link to low internal attribution. Self-kindness is the inverse of a form of internal attribution, self-criticism. Mindfulness may also reduce internal attribution, as this facet of self-compassion involves nonjudgmental observation of the individual's experience. In other words, an individual equipped with mindfulness skills is able to take a balanced perspective of an ostracism event, acknowledging circumstances of the event as well as their own thoughts about the event without allowing them to dominate their experience. Specifically, a mindful person may observe their own internal attributive thought, "I deserve to be left out," without believing the thought as literal truth or searching for evidence for its truth. Furthermore, common humanity has a theoretical link to low

internal attribution of ostracism, given that this facet of self-compassion involves recognition that painful experiences (e.g., ostracism) are a part of the human experience. For example, if ostracized individuals are able to acknowledge that everyone experiences ostracism, they are unlikely to adopt the view that this experience is unique to themselves and thus unlikely to blame the self for being left out.

However, other research shows a positive relationship between self-compassion and internal attribution of negative self-relevant experiences like ostracism. In one study, Leary (2007) revealed that participants high in self-compassion were more likely to take responsibility for a negative life event compared to participants low in self-compassion. It is possible that the participants in Leary (2007) recalled events that warranted internal attribution, given that they were required to recall a negative event, and a self-induced negative life event is likely more memorable and impactful on the individual than an event that is free of self-blame. Perhaps, self-compassion is related to flexible attribution of social exclusion, dependent on the context of the exclusion and the individual's role in causing or deserving the exclusion. In the current study, the participants had little reason to believe that their own behaviors caused the exclusion. As observed, they were not expected to blame themselves for the exclusion if high in protective traits, such as self-compassion.

**Internal attribution as a mediator.** Post-hoc mediational analyses revealed that internal attribution mediated the relationship between self-esteem and shame, although internal attribution did not mediate the relationship between self-compassion and shame. This finding offers insight into a subtle yet meaningful difference between the mechanisms of self-esteem and the mechanisms of self-compassion. Evidently, self-

esteem may result in reductions of shame through low internal attribution, while self-compassion may not exhibit this pathway. Considering these self-constructs conceptually, self-esteem is a self-evaluative trait, while self-compassion is a self-affiliative response to a painful experience. A negative self-evaluation (i.e., low self-esteem) seems to be maintained through blaming the self, resulting in shame. Similar mediation relationships have been found in prior literature. Ford and Collins (2010) found that, following an online dating rejection, self-blame mediated the relationship between self-esteem and a physiological stress response in rejected participants. Indeed, Gilbert (2000) defined shame partly as a global negative evaluation of the self (Gilbert, 2000); and Libby et al. (2011) showed that, following recall of a past failure, participants with low self-esteem were more likely to overgeneralize this negative memory to a globally negative self-perception.

The relationship between self-esteem and shame may be strongly connected to internal attribution. Without this process of self-blame, the individual with low self-esteem may not generalize their negative experience (e.g., ostracism) to the global self (i.e, shame). On the other hand, the highly self-compassionate individual can evidently experience high internal attribution while still experiencing a low level of shame. This relationship was shown by Leary (2007), who found that highly self-compassionate individuals were able to take responsibility for their negative life event without experiencing negative affect. The results of the current study suggest that this enduring relationship between self-compassion and shame cannot be said of self-esteem, highlighting that self-compassion and self-esteem are not overlapping constructs. This difference has potential implications for therapeutic interventions for clients presenting to

therapy for an experience of ostracism. Briefly, targeting internal attribution appears pertinent for self-esteem bolstering interventions but not for self-compassionate interventions in therapy (A more in-depth discussion of clinical implications can be found on *page 97* below). More research is needed to determine the specific mechanisms involved in the inverse relationship between self-compassion and shame.

**Self-Esteem, Self-Compassion, and External Attribution**

Interestingly, while self-esteem and self-compassion both negatively predicted internal attribution, neither predictor positively predicted external attribution. In other words, compared to participants low in self-esteem and self-compassion, participants high in these traits were less likely to blame the ostracism on themselves. However, participants high in these traits were not more likely to blame others for the experience of ostracism. This result is inconsistent with results of prior studies of self-esteem and external attribution. For example, Heatherton and Vohs (2000) showed that participants with high self-esteem blamed others following experiences that threatened their self-worth. While self-esteem defensiveness was not measured in the current sample, this self-esteem trait has been shown to have a strong relationship with external attribution (Lo et al. 2014). Lo et al. (2014) found that individuals with non-defensive high self-esteem do not blame or negatively evaluate others following self-threats, while individuals high in self-esteem defensiveness do blame others following self-threats (Lo et al., 2014). Perhaps, the current sample consisted of participants with non-defensive high self-esteem, resulting in no observed relationship between self-esteem and external attribution. Although the mean self-esteem from the original 378-participant sample was 2.13 and the current sample reported a mean self-esteem of  2.88, this mean of 2.88 is

similar to means found in previous self-esteem studies. For example, a recent study of over 12,000 young adults revealed a self-esteem mean of 2.59 (Helwig & Ruprecht, 2017). Because the mean self-esteem of the current sample appears comparable to mean self-esteem levels in previous studies, the current sample appears representative of the population, regarding self-esteem.

Likewise, self-compassion failed to predict external attribution in the current study. Previous research suggests that individuals high in self-compassion are more prone to take responsibility for their actions, suggesting low external attribution of negative life events (Leary, 2007). This kind of accountability may be a strength of self-compassionate individuals, although this relationship was not observed in the current sample. Again, this lack of association may be due to the confines of the ostracism paradigm in the current study, such that the participant held no legitimate responsibility for being excluded. Perhaps, this inverse relationship between self-compassion and external attribution is appropriately isolated to experiences in which the individual is potentially responsible for their ostracism. Furthermore, this study incorporated only two types of attribution, internal (i.e., self) and external (i.e., other) attribution. Previous research suggests individuals low in chronic loneliness were more likely to attribute their experiences of rejection to coincidence or environmental factors, compared to their counterparts high in loneliness (Vanhalst, 2015). Perhaps, participants in the current study attributed their own ostracism to the circumstances of the online game. This mode of attribution would account for why a predictable pattern was observed for internal but not external attribution. This cognitive style of attributing the ostracism to the environment or coincidence may be part of the reappraisal process observed in this sample. In other

words, the participants may have reappraised the rejection to be an accident or a factor of the game as opposed to the participant's doing or the confederate player's doing.

**Self-Esteem and Emotion Regulation**

As hypothesized, the current study showed that self-esteem positively predicted use of reappraisal as an emotion regulation strategy following ostracism. Similarly, DeWall et al. (2011) showed that participants with high self-esteem showed a preference for emotionally positive stimuli following an experience of rejection, while participants with low self-esteem did not show this preference. Indeed, the reappraisal subscale of the SERI captures positive reappraisal and includes positively-valenced items, such as "I looked for positive aspects of the situation" and "I tried to reevaluate the situation more positively." The positive relationship between self-esteem and positive reappraisal found in the current study is consistent with the results of DeWall et al. (2011), such that high self-esteem participants in both studies showed a positive cognitive bias following rejection. When considered together, the parallel results of these two studies afford two possible explanations about the nature of self-esteem. High self-esteem may influence an individual to view an experience of ostracism in a more favorable light. For example, the high self-esteem individual may find positive opportunities resulting from their exclusion, or this individual may perceive that they may be happier outside of a particular group. Considered differently, an individual may be predisposed to *both* high self-esteem *and* to viewing ostracism positively because of their preexisting positive cognitive bias. In other words, an individual may have a globally positive worldview, which causes the individual to see the self (i.e., self-esteem) and their experiences (i.e., reappraisal) in a positive light. More research is needed to determine whether self-esteem is the cause of

positive reappraisal or if an underlying positive cognitive bias is the cause of both high self-esteem and positive reappraisal.

Furthermore, reappraisal may serve as a defense mechanism for maintaining and bolstering self-esteem following self-threats such as ostracism. Greunewald et al. (2004) demonstrated that following social devaluation, participants showed reductions in state self-esteem and increases in shame. However, these authors did not measure trait self-esteem or emotion regulation in their participants. Given the results of the current study, we suspect that by controlling for self-esteem, the observed relationship between social devaluation and state self-esteem and shame in Greunewald et al. (2004) would diminish. In other words, individuals with high self-esteem would likely reappraise the devaluation to maintain their self-esteem, whereas individuals with low self-esteem may fail to reappraise the experience, resulting in a decrease in self-esteem. Studying this mechanism directly, Hulme et al. (2012) found that individuals who deliberately held a positive self-image in mind report higher self-esteem following social exclusion via Cyberball compared to individuals who deliberately held a negative self-image in mind during the exclusion experience. Positive reappraisal appears to be an adaptive response to ostracism, especially in circumstances that are arbitrary and undeserved, such as Cyberball. Despite the positive relationship between self-esteem and emotion reappraisal, this association was not maintained when controlling for self-compassion. The relationship between self-compassion and emotion regulation is explained next.

**Self-Compassion and Emotion Regulation**

Considering the mindfulness component of self-compassion, we hypothesized that self-compassion would positively predict use of acceptance as an emotion regulation

strategy following the ostracism event, but this hypothesis was not supported. The positive relationship between self-compassion and acceptance is supported in prior literature, however. For example, Neff et al. (2005) found that that self-compassion positively predicted acceptance and positive cognitive restructuring following receipt of a poor midterm grade.

Perhaps, acceptance does not serve as an adaptive emotion regulation strategy in certain circumstances. In the current study, participants were left out of an arbitrary game by supposed online strangers, which had no actual consequences outside of potentially uncomfortable emotions. Therefore, as opposed to nonjudgmentally observing (i.e., accepting) emotions caused by the Cyberball game, participants may have more effectively reduced the impact of their negative emotions through positive reappraisal (e.g., "This is just a research study. These players don't know me.") rather than acceptance. Allen and Leary (2010) observed this adaptive response in participants high in self-compassion who relied on cognitive restructuring, rather than acceptance, as their primary emotion regulation strategy. Perhaps, acceptance emotion regulation strategies are more effective for enduring and deserved experiences of ostracism, as opposed to more transient and arbitrary experiences that can be easily reappraised. Furthermore, given the online format of the study, the participant may have felt some emotional distance from the ostracism event. With an in-person ostracism format, the participant may have perceived the ostracism as a more personal attack, as the excluder would be able to physically observe the participant and thwart their participation in the game for an ostensible reason. This type of direct ostracism may have led to greater emotional impact, thereby limiting the effectiveness of emotion reappraisal.

While self-compassion is typically depicted as involving acceptance mechanisms, research has shown support for reappraisal processes involved in self-compassion. Diedrich et al. (2016) separated participants into two groups, a self-compassion preparatory group and a control group. The researchers then induced a depressed state in participants, and instructed them to reappraise their depressed mood. Only participants in the self-compassion preparatory condition showed enhanced effectiveness in reappraising their depressed mood, supporting the notion that self-compassion facilitates reappraisal emotion regulation, not only acceptance. Furthermore, Ewert et al. (2018) recently found that self-compassion significantly predicted positive reframing following a social stressor. According to post-hoc analysis results of the current study, self-compassion approached significance in predicting emotion reappraisal, while controlling for self-esteem. This directionality, combined with results of previous self-compassion research, suggests that self-compassion processes incorporate reappraisal emotion regulation strategies as opposed to the sole emotion regulation process of acceptance. This finding highlights that the differential roles of positive reappraisal and acceptance in self-compassion should be thoroughly investigated. Possibly, the common humanity facet within self-compassion encompasses the regulation strategy of emotion reappraisal, such that recognizing a painful experience as a common human experience is a form of positive reappraisal. This potential explanation should be investigated empirically in future research.

**Self-Esteem, Self-Compassion, and Shame**

It was hypothesized that self-compassion and self-esteem would both negatively predict shame. These hypotheses were supported in the study. The negative inverse

relationships between shame and both self-esteem and self-compassion are consistent with findings in previous research. For example, Marshall et al. (2015) found that both self-compassion and self-esteem held an independent relationship with mental health in a sample of late adolescents. Indeed, both self-compassion and self-esteem remained significant predictors of shame in the current study when both predictors were included in the regression model. Evidently, as shown in the current study, both self-compassion and self-esteem serve as protective factors against shame following an immediate online ostracism experience. Previous research has overwhelmingly shown the deleterious effects of ostracism, including both emotional decline and emotional numbing (Gerber & Wheeler, 2009; Blackhart et al., 2009). The current study points to enduring traits that attenuate these effects, even in the immediate wake of the ostracism event.

Furthermore, in a sample of shame-prone undergraduate students, Johnson and O'Brien (2013) found that a self-compassion writing intervention showed significant reductions in shame, following the recollection of a shameful experience. The relationship between self-compassion and shame found in the current study sheds new light on the utility of self-compassion, given the immediate nature of the ostracism experience employed. Evidently, self-compassion is not only useful for ruminative experiences as Johnson and O'Brien showed, but self-compassion is associated with lower levels of shame in the moment of an ostracism experience. This relationship between self-compassion and shame is relevant to the mental health of undergraduate students, given the pervasiveness of potential ostracism among college students and the observed link between shame and mental health among college students (e.g., Kim et al., 2011).

It was also hypothesized that, compared to self-esteem, self-compassion would be a stronger predictor of shame, and this hypothesis was supported. Both self-compassion ($R^2$ = .63) and self-esteem ($R^2$ = .61) showed large effect sizes in their relationship with shame, and self-compassion (β* = -.49) held a higher standardized regression coefficient, compared to self-esteem (β* = -.43). Furthermore, compared to self-esteem, self-compassion showed greater semi-partial $R^2$ values and greater relative regression weights. This disparity between the mental health predictive power of self-compassion and self-esteem is also supported in previous research. Neff and Vonk (2009) found that self-compassion predicted more stable feelings of self-worth than self-esteem, and self-compassion was also less contingent on particular outcomes, compared to self-esteem. As previously noted, self-esteem predicted shame through internal attribution, a possible mechanistic link between self-esteem and shame. Self-compassion, however, did not show this mechanistic link to shame through internal attribution. More research is needed to investigate whether self-compassion, compared to self-esteem, has a more direct link to shame, or if self-compassion may be related to shame through mechanisms other than internal attribution. Neff and Vonk (2009) also found that, compared to self-esteem, self-compassion revealed a stronger negative association with social comparison and public self-consciousness, two constructs that are closely related to shame. As hypothesized, it appears that self-compassion may provide a strong and direct inverse relationship with the negative effects of ostracism. Potential mediators between self-compassion and shame warrant further exploration.

**Self-Esteem, Self-Compassion, and Prosocial Response**

I hypothesized that self-esteem would negatively predict prosocial behavior, and self-compassion would positively predict prosocial behavior. However, neither predictor approached a significant relationship with prosocial behavior. Furthermore, the hypothesis that rejection-based self-esteem would mediate the relationship between self-esteem and prosocial behavior was not supported. These null findings are understandable, considering that neither self-esteem nor self-compassion predicted external attribution. It seems that participants did not show a pattern of preference for excluding or including their previous excluders because they did not blame the excluder for leaving them out of the game. As suggested earlier, it is likely that participants attributed the ostracism to circumstances of the game itself, as opposed to the other players, resulting in little motivation to retaliate or forgive the excluder. Prior research using an inclusion trial of Cyberball has also shown low correlations between self-esteem and number of tosses to the previous excluder. Specifically, in a sample of 206 participants, Leiro et al. (2014) found a correlation of $r$ = -.15 between self-esteem and number of tosses to the excluder.

Furthermore, while previous research has highlighted aggression responses to ostracism (e.g., Warburton et al., 2006), participants in the current study may have shown a preference for social withdrawal following the activation of shame caused by the ostracism event. This social withdrawal response offers a potential explanation for the null findings regarding the prosocial behavior outcome, such that participants did not want meaningful contact with others, resulting in haphazard toss selections, and thus random toss patterns, as observed in the inclusion Cyberball trial. While Cyberball has shown substantial evidence for causing genuine feelings of ostracism, more research

needs to be conducted to determine its value in measuring prosocial behavior. Further investigation into this area will improve the validity of using Cyberball as a prosocial behavior measure, enhancing this area of research.

**Clinical Implications of Findings**

As noted, previous research has shown strong associations between shame and psychological dysfunction among college students (e.g., Kim et al., 2011). Given the large effect sizes of the relationship between self-esteem and shame and the relationship between self-compassion and shame found in this study, these two self-constructs are important to assess in clinical practice with college students. Addressing these predictors of shame is important due to shame's close relationships with risky and impulsive behavior (Rodriguez et al., 2015), psychopathology (Tangney & Dearing, 2002), self-harming behaviors (Gilbert et al., 2010), and increased suicidal ideation in college students (Feng et al., 2016). Self-compassion and self-esteem can be assessed with brief 12-item (i.e., SCS-SF) and 10-item (i.e., RSES) measures, providing feasibility of use in time-limited treatment, an often preferred modality in university counseling centers. Making this assessment offers significant clinical utility as well, and assessing for self-compassion is especially important with college women, given their potential for low self-compassion. Imagine a student who presents to the university counseling center with shame due to rejection from a sorority, for example. Determining the client's levels of self-compassion and self-esteem will help guide the treating therapist's tasks and goals of therapy. The clinical implications of self-esteem and self-compassion levels include targeting attributional style as well as emotion regulation strategies. These implications are discussed in more detail below.

Internal attribution mediated the relationship between self-esteem and shame but did not mediate the relationship between self-compassion and shame, and this difference has implications for treatment of maladaptive responses to ostracism. Specifically, reducing one's internal attribution may be important for therapeutic interventions that aim to bolster one's self-esteem (e.g., strengths-based counseling) but not for interventions that increase self-compassion (e.g., compassion-focused therapy). Considered practically, a strengths-based therapist may help their client find evidence for refuting the notion that the client was the cause of an ostracism experience. With a self-compassionate approach, however, the therapist may choose not to challenge the client's thoughts that they are at fault for their experience of ostracism. The therapist may instead focus on the three facets of self-compassion: mindfulness ("Notice in your body where you are feeling this pain."), common humanity ("Being rejected is an experience we all have."), and self-kindness ("How can you be kind to yourself in this moment?"). This type of intervention is common in third-wave behavioral approaches, such as Acceptance and Commitment Therapy and Compassion-Focused Therapy (Ashworth & McLeod, 2017). For example, a CFT therapist may guide their client through a self-compassion exercise during which the therapist asks their client to conjure the voice of an affectionate significant other saying these consoling words to them following a shameful experience. An ACT therapist may employ a defusion exercise with the shamed client, which facilitates cognitive distancing and mindful observance of their difficult thoughts. For example, an ACT therapist might facilitate defusion via a vocal repetition technique in which the client repeats a self-relevant thought out loud with increasing speed for about

20-30 seconds, decreasing the literal meaning of the phrase as well as its emotional impact without challenging the thought's accuracy (Hinton & Gaynor, 2010).

Furthermore, self-compassion strategies seem particularly relevant for experiences of ostracism or other shame-producing experiences, especially when lowering internal attribution is not feasible. For example, imagine a therapy client who presents with depression after being fired from his job (i.e., ostracized) for stealing money. Reducing the client's self-blame seems not only impractical but also anti-therapeutic. While maintaining the client's self-blame may decrease state self-esteem and increase shame for the individual, self-compassion interventions can support the client through their distress. The protective quality of self-compassion in situations when self-esteem is lowered has been shown in previous research (Marshall et al., 2015). Marshall et al. (2015) found that low self-esteem failed to predict decreases in mental health among participants high in self-compassion, but low self-esteem predicted significant declines in mental health among participants low in self-compassion. Therefore, in situations in which ostracism was rightfully experienced and reduction of internal attribution is not feasible, self-compassion strategies appear to be an effective route to preventing declines in mental health. Indeed, shame has been shown to mediate the relationship between self-compassion and mental health (Johnson & O'Brien, 2013), and targeting shame through self-compassionate strategies appears to be a fruitful intervention strategy for experiences of ostracism, as indicated by the current study.

No relationship was found between self-compassion and use of acceptance emotion regulation strategy. This finding has implications for clinical work involving self-compassion interventions. When employing a self-compassion intervention with a

client presenting with complications from an ostracism experience, a therapist may consider teaching other emotion regulation strategies besides acceptance. The therapist may find more efficacy by considering the context of the ostracism to inform an appropriate emotion regulation strategy. For instance, if the client was truly at fault for the ostracism experience, then acceptance of the emotional experience may be beneficial to the client. If the client was ostracized for no fault of their own (as in the current study), however, then the adaptive response of positive reappraisal may lead to better outcomes for the client. This nuanced distinction should be incorporated into self-compassion intervention trainings, as unknowing clinicians may haphazardly apply acceptance techniques to ostracism victims, potentially impeding their progress in treatment.

**Limitations**

The current study has several limitations, including the research design limitations of using an online survey and an online ostracism manipulation. Cyberball provided an immediate, in vivo experience of ostracism, as opposed to other forms of ostracism used in previous studies, which require participants to recall experiences of ostracism (Libby et al., 2011) or to imagine experiences of ostracism (Life Alone Paradigm, Twenge et al., 2003). Using Cyberball allowed for a standardized ostracism experience, as opposed to one that varied in degree of impact or timescale, among many other variables, confounding factors inherent in these previous studies. While Cyberball provides many benefits over other forms of social exclusion used in ostracism research, this paradigm has its limitations. While Cyberball is standardized to a large degree, given the protocol of number of throws and visual stimuli established by the experimenter, Cyberball participation occurred online in this study, resulting in notable limits to standardization.

Online participation allows the participant to complete the study under virtually any circumstance in any environment, given the portability of laptops and smartphones. Indeed one participant responded to the open-ended prompt at the end of the study by disclosing that he accidentally participated in the study via his smartphone. This variability creates a threat to the internal validity of the ostracism event because the participants had the ability to participate in the Cyberball ostracism manipulation while talking among friends and family at home. Furthermore, the participants had the freedom to complete the study at their leisure, allowing potential time lapses between completion of the ostracism manipulation and the outcome measures. The directions at the beginning of the study and at the onset of the Cyberball game directed participants to complete the study continuously and in privacy, but this instruction could not be enforced. If the participant was, for example, surrounded by family or roommates during their completion of the study, the participant's awareness of their presence may have inoculated them from some effects of the ostracism experience. Considering consequences to outcomes of this study, this environment could reduce the negative emotional valence of the event, thereby potentially altering their emotion regulation strategy of choice. Furthermore, the presence of loved ones offers alternative coping strategies to ones measured by the SERI. The participant need not accept their negative feelings about the ostracism experience when they can reduce their salience by conversing with a friend or roommate. One way of accounting for this confound and gauging the validity of the ostracism manipulation is to create two conditions, one group of participants that only participates in an inclusion Cyberball condition and another group that received the ostracism Cyberball condition. Given that the current study was not examining the differences between responses to

inclusion and responses to exclusion, this experimental design was not feasible for the purposes of this study.

Furthermore, the Cyberball paradigm may have limited ecological validity. Indeed, undergraduate students of 2018 are exposed to highly technical video games and advanced media, such as virtual reality. Cyberball was established in 1997, and little has changed in the development of the graphics of the interface. Therefore, as years progress and technology improves, participants may be less inclined to believe that Cyberball is a legitimate game with real people participating in the game with them. Indeed, three participants in this study indicated skepticism of the legitimacy of the game. While this issue has obvious implications for limiting internal validity, participants in the current study appeared to have felt ostracized, evidenced by endorsing receipt of two or less tosses and by their distinct patterns of attribution of the ostracism, emotion regulation strategies used, and experiences of shame.

The potentially low ecological validity of Cyberball may also limit the external validity of the study. Results of this study of course have limited useful implications if only applied to future experiences of ostracism in a virtual online ball-tossing game, which college students are unlikely to encounter again. However, college students are virtually guaranteed to encounter ambiguous online experiences of ostracism on a regular basis, via social media, emails and dating websites, to name a few. More research is needed to establish the relationship between Cyberball ostracism and naturalistic experiences of online ostracism. For example, one foreseeable difference between the two contexts may be the likelihood of external attribution, which was highlighted in the current study. The hypothesized patterns of external attribution were not observed in this

study; however, these patterns may be more relevant to more naturalistic experiences of ostracism wherein the excluder is more realistically at fault. The use of only internal and external attribution is another limitation of this study. As at least one previous study used, the inclusion of an "environmental" or "coincidental" attribution may have better captured the attributional style of participants in this study.

Another limitation of importance is the violation of linear regression assumptions observed in the data. These violations limit the generalizability of the current findings, as the violations suggest that the current sample does not reflect the population from which the sample was pooled. The outcome variable of prosocial behavior showed the greatest divergence from homoscedasticity, as shown in *Figure 2*. While this violation was caused by only four data points, caution should still be taken when interpreting and generalizing the results of this study. Furthermore, the outcome variable of internal attribution violated the assumption of normality, showing a slightly positive skew. While minimal violations of normality do not typically cause significant bias in regression analyses, generalizations made from results involving internal attribution should be interpreted with caution.

Furthermore, some characteristics of the sample, including attrition and gender composition, may limit the generalizability of the study findings. The high rate (42%) of participant posed a threat to the external validity of the study's findings, as the self-esteem mean of the final sample was 2.88 and the self-esteem mean of the total sample that accepted consent was 2.13. This potential difference between mean self-esteem levels could suggest that individuals with lower self-esteem were less likely to persist through the duration of the study. Therefore, the findings of this study may not be generalizable to college students with low levels of self-esteem. In support of the

population representativeness of the current sample, however, the self-esteem mean in the current sample is comparable to the self-esteem mean found in a recent sample of over 12,000 young adults (Helwig & Ruprecht, 2017).

Also, regarding gender identification, the overwhelming majority of the sample (79%) identified as women. According to 2013 data from the U.S. Department of Education, 57% of undergraduate students identified as women (Aud et al., 2013). Although the college enrollment gender gap favors women, and this gap is projected to increase through 2020, the current sample's gender imbalance nonetheless limits the generalizability of the results (Burge et al., 2018). Therefore, the implications of the study results should be cautiously applied to college students of other genders, given their limited representation in this study. In addition, recent research on gender-based processes has shown differential responses to Cyberball and other cyber-based ostracism paradigms that may have not been detected in the current study due to the imbalance in gender identification and the limited scope of outcomes measured (e.g., Cursan et al., 2017; Wright, 2017). Furthermore, research suggests that women and men employ ostracism differently. For example, Nezlek et al. (2015) showed that, compared to men, women were more likely to ostracize others due to characteristics or behaviors of the ostracized other and less likely to attribute their own ostracism to themselves. Women also used punitive ostracism (i.e., ostracism used to motivate behavioral changes in group members) more frequently than men, and compared to men, women reported significantly greater increases in sense of control following use of ostracism (Nezlek et al., 2015). Indeed, these gender-based ostracism processes highlight a potential limitation of the ecological validity of Cyberball as a potent ostracism experience for women. More

research should be conducted to determine Cyberball's validity among women, especially regarding the paradigm's relevance to punitive ostracism.

Finally, as with all cross-sectional research, the results of this study cannot imply causational relationships between any predictor and outcome variables. This limitation can be resolved in future experimental designs in which the experimenter randomly assigns participants to a control group, one experimental group that induces self-esteem, and another experimental group that induces self-compassion. Following this random assignment, the experimenter can then expose participants to an ostracism experience and measure their cognitive, emotional, and behavioral responses. Further areas of needed research are expanded upon below.

**Future Research**

While results of the current study answers several questions about self-esteem and self-compassion's effects on responses to ostracism, the results also pose several more questions to be answered in future research. First, investigating internal attribution as a mechanism that engages the relationship between self-esteem and shame may provide a promising avenue for future research of self-esteem as a sociometer. For example, a longitudinal examination of changes in levels of self-esteem, shame, and internal attribution of social exclusion may provide further insight into the causal relationships between these three constructs. Ecological momentary assessment (i.e., in vivo) research may also be a fruitful method of investigating internal attribution as the mechanism of the cyclical relationship between self-esteem and shame, adding explanatory and predictive power to the sociometer theory.

Also, more research is needed to determine the nature of the temporal relationship between self-esteem and positive reappraisal. In lay understanding, it is common to consider self-esteem as a cause of emotion regulation. However, when seen through a contextual lens such as the sociometer theory, reappraisal of ostracism and other negative life events may serve as the mechanism that develops, bolsters, and defends one's self-esteem. There are several ways to research this notion. This type of research may be conducted by creating two groups, a control group, and an experimental group that is instructed, through psychoeducation, to reappraise negative life events. Comparing their levels of self-esteem over time would provide insight into the directionality of the relationship between self-esteem and reappraisal.

Similarly, more experimental research is needed in the context of ostracism. Specifically, randomized controlled trials should be conducted by randomly assigning participants to either an ostracism group or an inclusion group and comparing outcomes between groups. This type of research will likely provide stronger distinctions between responses that are specific to ostracism contexts and responses that are more general and enduring through constructs such as self-esteem and self-compassion. Furthermore, compared to cross-sectional research, this experimental research will better control for effects of ostracism. Myriad potential confounds of the current study, such as inadequate deception, can be reduced through experimental design.

Of vital importance to understanding the clinical utility of self-compassion, more research is needed to determine which circumstances of ostracism to which the inverse relationship between self-compassion and internal attribution applies. While participants high in self-compassion in this study did not take responsibility for their ostracism, this

result is not consistent with some previous findings that suggest self-compassion is positively related to internal attribution. For example, in a study by Leary (2007), participants who underwent a self-compassion induction condition were more likely to take responsibility for a negative life event, compared to participants who did not undergo the self-compassion induction. It is evident that individuals with high self-compassion do not necessarily have low internal attribution; but they may instead demonstrate an adaptive flexibility of internal attribution, depending on the circumstances and the degree of their own accountability for the negative experience. More research is needed to determine under which circumstances self-compassion is related to internal attribution. Moreover, future research should examine the circumstances in which self-compassion relates to acceptance versus reappraisal emotion regulation strategies. This research may show that self-compassion is related to flexibility in attribution and regulation strategies instead of predicting a particular type of attribution or regulation strategy across contexts.

Furthermore, future research is needed to determine which specific facets of self-compassion (i.e., self-kindness, mindfulness, and common humanity) relate to internal attribution. Perhaps the three facets affect internal attribution of ostracism in different ways, contingent on the particular circumstances of the ostracism event. Studying self-compassion through various social exclusion paradigms may shed light on these questions. Also, component analyses of self-compassion interventions would provide perspective on the differential effects of self-compassion facets on internal attribution. For instance, investigators may implement four conditions following ostracism (i.e., a self-kindness condition, a mindfulness condition, a common humanity condition, and a

full self-compassion condition), and investigate the differential effects of each condition. Also, recent research suggests disagreement and a lack of clarity regarding the precise factor structure of self-compassion, and further rigorous research is needed on this construct as the debate continues (Brenner et al., 2018). This type of research will enhance the efficacy of self-compassion interventions on college campuses. Indeed, a recent study provided evidence that self-compassion can reduce suicidal behavior in college students (Kelliher Rabon et al., 2018). Precise determination of self-compassion mechanisms will facilitate the dissemination of self-compassion benefits, such as suicide prevention, on college campuses.

Additionally, future research should examine personality variables (e.g., narcissistic characteristics, interpersonal coldness) as moderators of the relationship between self-compassion and responses to ostracism. This addition to the literature is important to facilitate the therapeutic effectiveness of self-compassion interventions for clients with personality characteristics that interfere with treatment progress. Specifically, use of a self-compassion intervention for ostracism with a client with narcissistic behaviors will likely be effective if it leads to an activating experience, including genuine reflection and positive behavior change. However, given the nature of such clients, a self-compassion intervention may inadvertently facilitate defensiveness in the client and inhibit positive behavior change following an ostracism event. More research is needed to examine the function of self-compassion processes among individuals with personality characteristics that interfere with treatment. Studying these personality traits as moderators of the relationship between self-compassion and ostracism responses will shed light on this question.

While this study showed the promising utility of self-compassion for an immediate experience of online bullying, more research is necessary to explore effective ways of employing self-compassion strategies in the aftermath of similar ostracism experiences. Concerningly, Potts and Weidler (2015) found that undergraduate victims of cyberbullying show a significant decline in their overall level of self-compassion. Therefore, it seems that the undergraduate students who would benefit most from self-compassion (i.e., victims of cyberbullying) are likely to have the lowest levels of self-compassion. More research is needed to increase the efficacy of self-compassion interventions as well as the effectiveness of self-compassion focused outreach to victims of ostracism on college campuses. This research endeavor should examine self-compassion interventions' impact on young undergraduate women in particular, who are at-risk for low self-compassion, as evidenced by results of this study.

Finally, more research is needed to examine the ecological validity of the Cyberball inclusion condition as a measure of prosocial behavior. Two previous studies to date have used the Cyberball inclusion condition as an outcome measure, one defining the number of throws to the excluder as a behavioral measure of forgiveness (Dorn et al., 2014), the other defining these throws as prosocial behavior (Leiro et al., 2014). Given the lack of patterns observed in external attribution of the ostracism event, the Cyberball inclusion condition appeared to be an invalid measure of prosocial behavior in the current study. Perhaps, under different conditions that increase external attribution, the Cyberball inclusion condition may prove to be a valid measure of prosocial behavior. Increasing external attribution of participants may be accomplished by facilitating interaction between participant and confederate players prior to the ostracism event or by providing

false identifying information between confederate players and participants. Of course, this type of experimental manipulation also produces numerous potential confounds that raise concern about internal validity. Future Cyberball research should also include attributional measures that include self, other, and coincidental/environmental attribution. Cyberball appears to be an ostracism paradigm that occasions attribution of coincidence, and this attributional style needs more research in the context of self-esteem and self-compassion.

## Conclusion

The current study compared the effects of self-esteem and self-compassion on cognitive, emotional, and behavioral responses to an online ostracism experience. Self-esteem and self-compassion showed several similarities, including large effect sizes in their relationship with shame, prediction of internal attribution of the ostracism event, and prediction of emotion reappraisal of the ostracism. Subtle differences between self-esteem and self-compassion also emerged. Compared to self-esteem, self-compassion revealed stronger predictive power in relation to shame. Also, internal attribution mediated the relationship between self-esteem and shame, but this attributional style did not mediate the relationship between self-compassion and shame. Finally, when controlling for self-esteem, self-compassion approached significance in predicting emotion reappraisal, while self-esteem lost significance in predicting reappraisal when controlling for self-compassion. This study supports the notion that both self-esteem and self-compassion are protective buffers against the immediate, ill effects of ostracism. This study also adds to the understanding of these two traits by highlighting the differences in cognitive mechanisms that lead to shame and by providing deeper insight

into emotion regulation processes involved with each trait. Finally, this study offers new direction for investigating self-esteem and self-compassion as theoretical constructs and clinical tools.

## References


Adams, C., & Leary, M. (2007). Promoting self-compassionate attitudes toward eating among Restrictive And Guilty Eaters. *Journal of Social and Clinical Psychology, 26(10),* 1120-1144.

Allen, A. B., Barton, J., & Stevenson, O. (2015). Presenting a self-compassionate image after an interpersonal transgression. *Self & Identity, 14(1),* 33-50.

Allen, A. B., & Leary, M. R. (2010). Self-compassion, stress, and coping. *Social and Personality Psychology Compass, 4,* 107–118.

Allison, P.D. (1999). *Multiple Regression: A Primer*. Thousand Oaks, CA: Pine Forge Press.

Allison, P.D., Gorman, B., Primavera, L. (1993). Some of the most common questions asked of statistical consultants: Our favorite responses and recommended readings. *Genetic, Social, and General Psychology Monographs, 119 (2),* p. 153-185.

Anto, S. P., & Jayan, C. (2016). Self-esteem and emotion regulation as determinants of mental health of youth. *Journal of Projective Psychology and Mental Health, 23(1),* 34-40.

Ardelt, M. (2010). Are older adults wiser than college students? A comparison of two age cohorts. *Journal of Adult Development, 17*(4), 193-207.

Ashworth, F., Evans, J. J., & McLeod, H. (2017). Third wave cognitive and behavioural therapies: Compassion focused therapy, acceptance and commitment therapy and positive psychotherapy. In B. A. Wilson, J. Winegardner, C. M. van Heugten, T. Ownsworth, B. A. Wilson, J. Winegardner, T. Ownsworth

(Eds.), *Neuropsychological rehabilitation: The international handbook* (pp. 327-339). New York, NY, US: Routledge/Taylor & Francis Group.

Aud, S., Wilkinson-Flicker, S., Kristapovich, P., Rathbun, A., Wang, X., & Zhang, J. (2013). The condition of education 2013. Report No. 2013–037, National Center for Education Statistics, U.S. Department of Education, Washington, DC. Retrieved from http://nces.ed.gov/pubs2013/ 2013037.pdf.

Balsamo, M., Macchia, A., Carlucci, L., Picconi, L., Tommasi, M., Gilbert, P., & Saggino, A. (2015). Measurement of external shame: An inside view. *Journal of Personality Assessment, 97(1),* 81-89.

Barnard, L., & Curry, J. (2012). The relationship of clergy burnout to self-compassion and other personality dimensions. *Pastoral Psychology, 61(2),* 149-163.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182. doi:10.1037/0022-3514.51.6.1173

Baumeister R. F., DeWall C. N., Ciarocco N. J., & Twenge J. M. (2005). Social exclusion impairs self-regulation. *Journal of Personality and Social Psychology, 88,* 589–604.

Baumeister, R., Leary, M., & Steinberg, Robert J. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*(3), 497-529.

Baumeister R. F., Twenge J. M., & Nuss C. (2002). Effects of social exclusion on cognitive processes: Anticipated aloneness reduces intelligent thought. *Journal of Personality and Social Psychology, 83,* 817–827.

Bauriedl-Schmidt, Jobst, Gander, Seidl, Sabab, Sarubin, & Buchheim. (2017). Attachment representations, patterns of emotion regulation, and social exclusion in patients with chronic and episodic depression and healthy controls. *Journal of Affective Disorders, 210,* 130-138.

Bernstein, M. J., Claypool, H. M., Young, S. G., Tuscherer, T., Sacco, D. F., & Brown, C. M. (2013). Never let them see you cry: Self-presentation as a moderator of the relationship between exclusion and self-esteem. *Personality and Social Psychology Bulletin, 39(10),* 1293-1305. doi:10.1177/0146167213495281

Blackhart G. C., Nelson B. C., Knowles M. L., & Baumeister R. F. (2009). Rejection elicits emotional reactions but neither causes immediate distress nor lowers self-esteem: A meta-analytic review of 192 studies on social exclusion. *Personality and Social Psychology Review*.

Bleidorn, W., Arslan, R. C., Denissen, J. A., Rentfrow, P. J., Gebauer, J. E., Potter, J., & Gosling, S. D. (2016). Age and gender differences in self-esteem—A cross-cultural window. *Journal of Personality and Social Psychology, 111*(3), 396-410. doi:10.1037/pspp0000078

Borsari, B., Carey, K., & Carey, K. B. (2006). How the quality of peer relationships influences college alcohol use. *Drug & Alcohol Review, 25(4),* 361-370.

Borton, J. S., Crimmins, A. E., Ashby, R. S., & Ruddiman, J. F. (2012). How do individuals with fragile high self-esteem cope with intrusive thoughts following ego threat? *Self & Identity, 11(1),* 16-35.

Branscombe, N. R., & Ellemers, N. (1998). Coping with group-based discrimination: Individualistic versus group-level strategies. In J. K. Swim, C. Stangor, J. K. Swim, C. Stangor (Eds.) , *Prejudice: The target's perspective* (pp. 243-266). San Diego, CA, US: Academic Press. doi:10.1016/B978-012679130-3/50046-6

Brenner, R. E., Vogel, D. L., Lannin, D. G., Engel, K. E., Seidman, A. J., & Heath, P. J. (2018). Do self-compassion and self-coldness distinctly relate to distress and well-being? A theoretical model of self-relating. *Journal of Counseling Psychology*, *65*(3), 346-357. doi:10.1037/cou0000257

Brenning, K., Soenens, B., Van Petegem, S., & Vansteenkiste, M. (2015). Perceived maternal autonomy support and early adolescent emotion regulation: A longitudinal study. *Social Development, 24(3),* 561-578.

Brown, J. D. (2010). High self-esteem buffers negative feedback: Once more with feeling. *Cognition & Emotion*, *24(8),* 1389-1404.

Brown, J. D., & Marshall, M. A. (2001). Self-esteem and emotion: Some thoughts about feelings. *Personality And Social Psychology Bulletin, 27(5),* 575-584. doi:10.1177/0146167201275006

Burge, S. W., & Beutel, A. M. (2018). Gender, high school romantic involvement, and college enrollment. *Social Science Quarterly*, doi:10.1111/ssqu.12493

Castilho, P., Pinto-Gouveia, J., & Duarte, J. (2015). Evaluating the multifactor structure of the long and short versions of the self-compassion scale in a clinical sample. *Journal of Clinical Psychology, 71*(9), 856-870.

Chao, Y.-C., Zhao, Y., Kupper, L., & Nylander-French, L. (2008). Quantifying the relative importance of predictors in multiple linear regression analyses for public health studies. *Journal of Occupational and Environmental Hygiene, 5(8),* 519-529.

Cheung M.S.-P., Gilbert P., & Irons C. (2004). An exploration of shame, social rank and rumination in relation to depression. *Personality and Individual Differences, 36,* 1143–1153.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Cook, D. R. (1987). Measuring shame: The Internalized Shame Scale. *Alcoholism Treatment Quarterly, 4*(2), 197-215. doi:10.1300/J020v04n02_12

Cook, D.R. (2001). *Internalized Shame Scale: Technical Manual*. Multi-Health Systems, Inc., North Tonawanda, NY.

Crocker, J. (2002). The costs of seeking self–esteem. *Journal of Social Issues, 58(3),* 597-615.

Crocker, J., & Park, L. E. (2004). The costly pursuit of self-esteem. *Psychological Bulletin, 130(3),* 392-414. doi:10.1037/0033-2909.130.3.392

Cursan, A., Bernstein, M. J., Pascual, A., & Félonneau, M. (2017). Impact of gendered ingroup/outgroup ostracism on women's academic performances. *Journal Of Social Psychology, 157*(3), 338-351.

Del Rosario, P. M., & White, R. M. (2006). The Internalized Shame Scale: Temporal stability, internal consistency, and principal components analysis. *Personality And Individual Differences, 41(1),* 95-103. doi:10.1016/j.paid.2005.10.026

DeVore, R. (2013). Analysis of gender differences in self-statements and mood disorders. *McNair Scholars Research Journal*, 9, 7.

Dewall, C., & Baumeister, R. (2006). Alone but feeling no pain: Effects of social exclusion on physical pain tolerance and pain threshold, affective forecasting, and interpersonal empathy. *Journal of Personality and Social Psychology, 91*(1), 1-15.

DeWall C. N., Twenge J. M., Bushman B. J., Im C., & Williams K. D. (2010). Acceptance by one differs from acceptance by none: Applying social impact theory to the rejection-aggression link. *Social Psychological and Personality Science, 1*, 168–174.

DeWall C. N., Twenge J. M., Gitter S. A., & Baumeister R. F. (2009). It's the thought that counts: The role of hostile cognition in shaping aggressive responses to social exclusion. *Journal of Personality and Social Psychology, 96*, 45–59.

DeWall, C., Twenge, J., Koole, S., Baumeister, R., Marquez, A., Reid, M., & Phelps, Elizabeth A. (2011). Automatic emotion regulation after social exclusion: Tuning to positivity. *Emotion, 11(3),* 623-636.

Dickerson, S. S., Gruenewald, T. L., & Kemeny, M. E. (2004). When the social self is threatened: Shame, physiology, and health. *Journal of Personality, 72(6),* 1191-1216. doi:10.1111/j.1467-6494.2004.00295.x

Diedrich, A., Hofmann, S. G., Cuijpers, P., & Berking, M. (2016). Self-compassion enhances the efficacy of explicit cognitive reappraisal as an emotion regulation

strategy in individuals with major depressive disorder. *Behaviour Research and Therapy,* 821-10. doi:10.1016/j.brat.2016.04.003

Dodgson, P., Wood, J., & Diener, Ed. (1998). Self-esteem and the cognitive accessibility of strengths and weaknesses after failure. *Journal of Personality and Social Psychology, 75(1),* 178-197.

Dorn, K., Hook, J. N., Davis, D. E., Van Tongeren, D. R., & Worthington, E. J. (2014). Behavioral methods of assessing forgiveness. *The Journal of Positive Psychology*, *9*(1), 75-80. doi:10.1080/17439760.2013.844267

Dyer, K. W., Dorahy, M. J., Corry, M., Black, R., Matheson, L., Coles, H., & Middleton, W. (2017). Comparing shame in clinical and nonclinical populations: Preliminary findings. *Psychological Trauma: Theory, Research, Practice, and Policy, 9(2),* 173-180. doi:10.1037/tra0000158

Dzwonkowska, I., & Żak-Łykus, A. (2015). Self-compassion and social functioning of people: Research review. *Polish Psychological Bulletin, 46(1),* 82-87.

Eisenberg, N., Eggum-Wilkens, N. D., & Spinrad, T. L. (2015). The development of prosocial behavior. In D. A. Schroeder, W. G. Graziano, D. A. Schroeder, W. G. Graziano (Eds.), The Oxford handbook of prosocial behavior (pp. 114-136). New York, NY, US: *Oxford University Press.*

Elison, J., Garofalo, C., & Velotti, P. (2014). Shame and aggression: Theoretical considerations. *Aggression and Violent Behavior, 19(4),* 447-453. doi:10.1016/j.avb.2014.05.002

Enders, C. K. (2010). *Applied missing data analysis*. New York: Guilford Press.

Ewert, C., Gaube, B., & Geisler, F. M. (2018). Dispositional self-compassion impacts immediate and delayed reactions to social evaluation. *Personality and Individual Differences*, 12591-96. doi:10.1016/j.paid.2017.12.037

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39,* 175-191

Feng, M., Liu, Y., & Kong, Q. (2016). Relation of suicide ideation to shame, alexithymia and perceived social support in college students from Gansu Province. *Chinese Mental Health Journal, 30(1),* 53-57.

Finlay-Jones, A., Kane, R., & Rees, C. (2016). Self-compassion online: A pilot study of an internet-based self-compassion cultivation program for psychology trainees. *Journal of Clinical Psychology,* doi:10.1002/jclp.22375

Ford, M. B., & Collins, N. L. (2010). Self-esteem moderates neuroendocrine and psychological responses to interpersonal rejection. *Journal of Personality and Social Psychology, 98,* 405–419.

Frasure-Smith, N., Lesperance, F., Gravel, G., Masson, A., Juneau, M., Talajic, M., & Bourassa, M. G. (2000). Social support, depression, and mortality during the first year after myocardial infarction. *Circulation.* 1919–1924.

Fritz, M. S., & MacKinnon, D. P. (2007). Required Sample Size to Detect the Mediated Effect. *Psychological Science (0956-7976)*, *18*(3), 233-239.

Gaertner, L., Iuzzini, J., & O'Mara, E. M. (2008). When rejection by one fosters aggression against many: Multiple-victim aggression as a consequence of social

rejection and perceived groupness. *Journal of Experimental Social Psychology, 44,* 958–970.

Gayman, M. D., Cislo, A. M., Goidel, A. R., & Ueno, K. (2014). SES and race-ethnic differences in the stress-buffering effects of coping resources among young adults. *Ethnicity & Health, 19*(2), 198-216.

Gerber, J., & Wheeler, L. (2009). On being rejected: A meta-analysis of experimental rejection research. *Perspectives in Psychological Science, 4,* 468–488.

Gilbert, P. (1998). What is shame? Some core issues and controversies. In P. Gilbert, B. Andrews, P. Gilbert, B. Andrews (Eds.), *Shame: Interpersonal behavior, psychopathology, and culture* (pp. 3-38). New York, NY, US: Oxford University Press.

Gilbert, P. (2000). The relationship of shame, social anxiety and depression: the role of the evaluation of social rank. *Clinical Psychology & Psychotherapy, 7(3),* 174-189.

Gilbert, P. (2005). *Compassion: Conceptualisations, research and use in psychotherapy*. New York, NY, US: Routledge.

Gilbert, P. (2010). *Compassion focused therapy: Distinctive features*. New York, NY, US: Routledge/Taylor & Francis Group.

Gilbert, P., McEwan, K., Irons, C., Bhundia, R., Christie, R., Broomhead, C., & Rockliff, H. (2010). Self-harm in a mixed clinical population: The roles of self-criticism, shame, and social rank. *British Journal of Clinical Psychology*, 49, 563–576. doi:10.1348/014466509X479771

Gilbert, P., & Procter, S. (2006). Compassionate mind training for people with high shame and self-criticism: overview and pilot study of a group therapy approach. *Clinical Psychology & Psychotherapy, 13(6),* 353-379.

Goodwin S. A., Williams K. D., & Carter-Sowell A. R. (2010). The psychological sting of stigma: The costs of attributing ostracism to racism. *Journal of Experimental Social Psychology, 46,* 612–618.

Grabe, S., Ward, L. M., & Hyde, J. S. (2008). The role of the media in body image concerns among women: A meta-analysis of experimental and correlational studies. *Psychological Bulletin*, *134*(3), 460-476. doi:10.1037/0033-2909.134.3.460

Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment, 26(1),* 41-54. doi:10.1023/B:JOBA.0000007455.08539.94

Gruenewald T. L., Dickerson S. S., & Kemeny M. E. (2007). A social function for the self-conscious emotions: Social-self preservation theory. In J. Tracy, R. Robins, & J. Tangney (Eds.), *Self-Conscious Emotions* (2nd ed.). New York: Guilford Press.

Gruenewald T. L., Kemeny M. E., Aziz N., & Fahey J. L. (2004). Acute threat to the social self: Shame, social self-esteem, and cortisol activity. *Psychosomatic Medicine, 66,* 915–924.

Gunnell, K. E., Mosewich, A. D., McEwen, C. E., Eklund, R. C., & Crocker, P. E. (2017). Don't be so hard on yourself! Changes in self-compassion during the first

year of university are associated with changes in well-being. *Personality And Individual Differences, 107,* 43-48.

Hartgerink, C., Wicherts, J., & Williams, K. (2015). The ordinal effects of ostracism: A meta-analysis of 120 cyberball studies. *PLoS One, 10*(5), E0127002.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press, New York, NY.

Hayes, J. A., Lockard, A. J., Janis, R. A., & Locke, B. D. (2016). Construct validity of the Self-Compassion Scale-Short Form among psychotherapy clients. *Counselling Psychology Quarterly*, *29*(4), 405-422.

Hayes, A. F., & Scharkow, M. (2013). The relative trustworthiness of inferential tests of the indirect effect in statistical mediation analysis: Does method really matter? *Psychological Science (0956-7976), 24*(10), 1918-1927.

Heatherton, T. F., & Vohs, K. D. (2000). Interpersonal evaluations following threats to self: Role of self-esteem. *Journal of Personality and Social Psychology, 78(4),* 725-736. doi:10.1037/0022-3514.78.4.725

Heffernan, M., Griffin, M. Q., McNulty, S. R., & Fitzpatrick, J. J. (2010). Self-compassion and emotional intelligence in nurses. *International Journal of Nursing Practice, 16(4),* 366-373. doi:10.1111/j.1440-172X.2010.01853.

Helwig, N. E., & Ruprecht, M. R. (2017). Age, gender, and self-esteem: A sociocultural look through a nonparametric lens. *Archives of Scientific Psychology, 5*(1), 19-31. doi:10.1037/arc0000032

Hinton, M. J. & Gaynor, S. T. (2010). Cognitive defusion for psychological distress, dysphoria, and low self-esteem: A randomized technique evaluation trial of

vocalizing strategies. *International Journal of Behavioral Consultation and Therapy,* 6, 164-185.

Hofmann, S. G., Grossman, P., & Hinton, D. E. (2011). Loving-kindness and compassion meditation: Potential for psychological interventions. *Clinical Psychology Review, 31(7),* 1126-1132. doi:10.1016/j.cpr.2011.07.003

Howell, J. L., & Shepperd, J. A. (2017). Social exclusion, self-affirmation, and health information avoidance. *Journal of Experimental Social Psychology,* 6821-26. doi:10.1016/j.jesp.2016.05.005

Hulme, N., Hirsch, C., & Stopa, L. (2012). Images of the self and self-esteem: Do positive self-images improve self-esteem in social anxiety? *Cognitive Behaviour Therapy, 41(2),* 163-173.

Hwang, S., Kim, G., Yang, J., & Yang, E. (2016). The moderating effects of age on the relationships of self-compassion, self-esteem, and mental health. *Japanese Psychological Research, 58*(2), 194-205.

Jackson, J. S., Torres, M., Caldwell, C. H., Neighbors, H. W., Nesse, R. M., Taylor, R., & Williams, D. R. (2004).The national survey of American life: A study of racial, ethnic and cultural influences on mental disorders and mental health. *International Journal of Methods in Psychiatric Research,* 13, 196-207. doi:10.1002/mpr.177

Jiménez, M. G., Montorio, I., & Izal, M. (2017). The association of age, sense of control, optimism, and self-esteem with emotional distress. *Developmental Psychology, 53*(7), 1398-1403. doi:10.1037/dev0000341

Johnson, M., & Blom, V. (2007). Development and validation of two measures of contingent self-esteem. *Individual Differences Research*, *5*(4), 300-328.

Johnson, E. A., & O'Brien, K. A. (2013). Self-compassion soothes the savage ego-threat system: Effects on negative affect, shame, rumination, and depressive symptoms. *Journal of Social and Clinical Psychology, 32(9),* 939-963. doi:10.1521/jscp.2013.32.9.939

Katz, B. A., Lustig, N., Assis, Y., & Yovel, I. (2017). Measuring regulation in the here and now: The development and validation of the State Emotion Regulation Inventory (SERI). *Psychological Assessment*, *29*(10), 1235-1248. doi:10.1037/pas0000420

Kelliher Rabon, J., Sirois, F. M., & Hirsch, J. K. (2018). Self-compassion and suicidal behavior in college students: Serial indirect effects via depression and wellness behaviors. *Journal of American College Health*, *66*(2), 114-122.

Keltner, D. (1995). Signs of appeasement: Evidence for the distinct displays of embarrassment, amusement, and shame. *Journal of Personality and Social Psychology, 68(3),* 441-454. doi:10.1037/0022-3514.68.3.441

Keltner, D., & Young, R. C. (1997). Appeasement in human emotion, social practice, and personality. *Aggressive Behavior*, *23(5),* 359-374.

Kennedy, G. J., & Tuckman, B. W. (2013). An exploration into the influence of academic and social values, procrastination, and perceived school belongingness on academic performance. *Social Psychology of Education, 16(3),* 435-470. doi:10.1007/s11218-013-9220-z

Kernis, M.H. (1984). Internal versus external attributions are important determinants of subsequent performance. *ERIC Document Reproduction Service No. ED 252 789*

Kim, S., Thibodeau, R., & Jorgensen, R. S. (2011). Shame, guilt, and depressive symptoms: A meta-analytic review. *Psychological Bulletin, 137(1),* 68-96. doi:10.1037/a0021466

Kirkpatrick, L. A., Waugh, C. E., Valencia, A., & Webster, G. D. (2002). The functional domain specificity of self-esteem and the differential prediction of aggression. *Journal of Personality and Social Psychology, 82(5),* 756-767. doi:10.1037/0022-3514.82.5.756

Knowles, M. L., Haycock, N., & Shaikh, I. (2015). Does Facebook magnify or mitigate threats to belonging? *Social Psychology, 46(6),* 313-324. doi:10.1027/1864-9335/a000246

Krishnan, L. (2015). Social exclusion, mental health, disadvantage and injustice. *Psychology And Developing Societies, 27(2),* 155-173. doi:10.1177/0971333615594053

Lakin J. L., Chartrand T. L., & Arkin R. M. (2008). I am too just like you: Nonconscious mimicry as an automatic behavioral response to social exclusion. *Psychological Science, 19,* 816–822.

Leary, M., & Baumeister, R. (2000). The nature and function of self-esteem: Sociometer theory. *Advances In Experimental Social Psychology, 32,* 1-62.

Leary, M. R., Haupt, A. L., Strausser, K. S., & Chokel, J. T. (1998). Calibrating the sociometer: The relationship between interpersonal appraisals and state self-esteem. *Journal of Personality and Social Psychology, 74,* 1290–1299.

Leary M. R., Tambor E. S., Terdal S. K., & Downs D. L. (1995). Self-esteem as an interpersonal monitor: The sociometer hypothesis. *Journal of Personality and Social Psychology*

Leary, M. R., Tate, E. B., Adams, C. E., Allen, A. B., & Hancock, J. (2007). Self-compassion and reactions to unpleasant self-relevant events: The implications of treating oneself kindly. *Journal of Personality and Social Psychology, 92,* 887–904.

Leary M. R., Twegne J. M., & Quinlivan E. (2006). Interpersonal rejection as a determinant of anger and aggression. *Personality and Social Psychology Review, 10,* 111–132.

Lebret, S., Perret-Vaille, E., Mulliez, A., Gerbaud, L., & Jalenques, I. (2006). Elderly suicide attempters: Characteristics and outcome. *International Journal of Geriatric Psychiatry, 21(11),* 1052-1059.

Leiro, J., & Zwolinski, J. (2014). How are prosocial responses to ostracism related to thwarted psychological needs? *Psi Chi Journal of Psychological Research, 19,* 76-84.

Leskela, J., Dieperink, M., & Thuras, P. (2002). Shame and posttraumatic stress disorder. *Journal of Traumatic Stress, 15(3),* 223.

Levant, R. F. (2011). Research in the psychology of men and masculinity using the gender role strain paradigm as a framework. *American Psychologist, 66,* 765– 776.

Libby, L. K., Valenti, G., Pfent, A., & Eibach, R. P. (2011). Seeing failure in your life: Imagery perspective determines whether self-esteem shapes reactions to recalled

and imagined failure. *Journal of Personality and Social Psychology, 101(6),* 1157-1173. doi:10.1037/a0026105

Lige, Q. M., Peteet, B. J., & Brown, C. M. (2017). Racial identity, self-esteem, and the impostor phenomenon among African American college students. *Journal of Black Psychology, 43*(4), 345-357. doi:10.1177/0095798416648787

Lim, M., & Yang, Y. (2015). Effects of users' envy and shame on social comparison that occurs on social network services. *Computers in Human Behavior, 51(Pt A),* 300-311. doi:10.1016/j.chb.2015.05.013

Lindsay, E. K., & Creswell, J. D. (2014). Helping the self help others: Self-affirmation increases self-compassion and prosocial behaviors. *Frontiers in Psychology, 5.*

Lo, W., & Yeh, K. (2014). The defensive reactions and automatic emotion regulation of defensive high self-esteems under threaten situation. *Chinese Journal of Psychology, 56(1),* 117-134.

Lockard, A. J., Hayes, J. A., Neff, K., & Locke, B. D. (2014). Self-compassion among college counseling center clients: An examination of clinical norms and group differences. *Journal of College Counseling*, *17*(3), 249-259.

López, A., Sanderman, R., Ranchor, A. V., & Schroevers, M. J. (2018). Compassion for others and self-compassion: Levels, correlates, and relationship with psychological well-being. *Mindfulness*, *9*(1), 325-331. doi:10.1007/s12671-017-0777-z

Lundby, K.M. and Johnson, J.W. (2006). Relative weights of predictors: What is important when many forces are operating. In Kraut, A.I. (Ed.), *Getting action from organizational surveys*, Jossey-Bass, San Francisco, CA.

Luoma, J., Guinther, P., Potter, J., & Cheslock, M. (2017). Experienced-based versus scenario-based assessments of shame and guilt and their relationship to alcohol consumption and problems. *Substance Use & Misuse, 52*(13), 1692-1700

MacBeth, A., & Gumley, A. (2012). Exploring compassion: A meta-analysis of the association between self-compassion and psychopathology. *Clinical Psychology Review, 32(6),* 545-552. doi:10.1016/j.cpr.2012.06.003

MacKinnon, D. P., Fairchild, A. J., & Fritz, M. S. (2007). Mediation analysis. *Annual Review of Psychology, 58,* 593-614.

Maner J. K., DeWall C. N., Baumeister R. F., & Schaller M. (2007). Does social exclusion motivate interpersonal reconnection? Resolving the "porcupine problem*." Journal of Personality and Social Psychology, 92,* 42–55

Marsh, H. W., Antill, J. K., & Cunningham, J. D. (1987). Masculinity, femininity, and androgyny: Relations to self-esteem and social desirability. *Journal of Personality, 55*(4), 661-685.

Marshall, W. L., Marshall, L. E., Serran, G. A., & O'Brien, M. D. (2009). Self-esteem, shame, cognitive distortions and empathy in sexual offenders: Their integration and treatment implications. *Psychology, Crime & Law, 15(2-3),* 217-234. doi:10.1080/10683160802190947

Marshall, S. L., Parker, P. D., Ciarrochi, J., Sahdra, B., Jackson, C. J., & Heaven, P. L. (2015). Self-compassion protects against the negative effects of low self-esteem: A longitudinal study in a large adolescent sample. *Personality and Individual Differences, 741,* 16-121. doi:10.1016/j.paid.2014.09.013

McKinley, N. M., & Hyde, J. S. (1996). The objectified body consciousness scale. *Psychology of Women Quarterly, 20*(2), 181.

Mead, N. L., Baumeister, R. F., Stillman, T. F., Rawn, C. D., & Vohs, K. D. (2011). Social exclusion causes people to spend and consume strategically in the service of affiliation. *Journal of Consumer Research, 37(5),* 902-919. doi:10.1086/656667

Mezulis, A.H., Abramson, L.Y., Hyde, J.S., & Hankin, B.L. (2004). Is there a universal positivity bias in attributions? A meta-analytic review of individual, developmental, and cultural differences in the self-serving attributional bias. *Psychological Bulletin, 130(5),* 711-747.

Mokros, H. B. (1995). Suicide and shame. *American Behavioral Scientist, 38(8),* 1091-1103. doi:10.1177/0002764295038008005

Naragon-Gainey, K., McMahon, T. P., & Chacko, T. P. (2017). The structure of common emotion regulation strategies: A meta-analytic examination. *Psychological Bulletin, 143(4),* 384-427. doi:10.1037/bul0000093

Neff, K. (2003). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self & Identity, 2(2),* 85.

Neff, K. D., Kirkpatrick, K. L., & Rude, S. S. (2007). Self-compassion and adaptive psychological functioning. *Journal of Research in Personality, 41,* 139–154.

Neff, K. D., & McGehee, P. (2010). Self-compassion and psychological resilience among adolescents and young adults. *Self & Identity, 9(3),* 225-240.

Neff, K. D., & Pommier, E. (2013). The relationship between self-compassion and other-focused concern among college undergraduates, community adults, and practicing meditators. *Self & Identity, 12(2),* 160-176.

Neff, K. D., Rude, S. S., & Kirkpatrick, K. (2007). An examination of self-compassion in relation to positive psychological functioning and personality traits. *Journal of Research in Personality,* 41, 139–154.

Neff, K. D., & Vonk, R. (2009). Self-compassion versus global self-esteem: Two different ways of relating to oneself. *Journal of Personality, 77,* 23–50.

Neff, K. D., Ya-Ping, H., & Dejitterat, K. (2005). Self-compassion, achievement goals, and coping with academic failure. *Self & Identity, 4(3),* 263-287.

Nezlek, J. B., Wesselmann, E. D., Wheeler, L., & Williams, K. D. (2015). Ostracism in Everyday Life: The Effects of Ostracism on Those Who Ostracize. *Journal Of Social Psychology*, *155*(5), 432-451.

Ogden, P., Minton, K., & Pain, C. (2006). *Trauma and the body: A sensorimotor approach to psychotherapy.* New York, NY, US: W W Norton & Co.

Orth U., Berking M., & Burkhardt S. (2006). Self-conscious emotions and depression: Rumination explains why shame but not guilt is maladaptive. *Personality and Social Psychology Bulletin, 32,* 1608–1619.

Orth, U., Trzesniewski, K. H., & Robins, R. W. (2010). Self-esteem development from young adulthood to old age: A cohort-sequential longitudinal study. *Journal of Personality and Social Psychology*, *98*(4), 645-658. doi:10.1037/a0018769

Park, L. E., & Crocker, J. (2005). Interpersonal consequences of seeking self-esteem. *Personality and Social Psychology Bulletin, 31(11),* 1587-1598. doi:10.1177/0146167205277206

Park, L. E., & Crocker, J. (2008). Contingencies of self-worth and responses to negative interpersonal feedback. *Self & Identity, 7(2),* 184-203.

Park L., & Maner J. K. (2009). Does self-threat promote social connection? The role of self-esteem and contingencies of self-worth. *Journal of Personality and Social Psychology, 96,* 203–217.

Pieterse, A. L., & Carter, R. T. (2007). An examination of the relationship between general life stress, racism-related stress, and psychological health among black men. *Journal of Counseling Psychology, 54*(1), 101-109. doi:10.1037/0022-0167.54.1.101

Pollatos, O., Matthias, E., & Keller, J. (2015). When interoception helps to overcome negative feelings caused by social exclusion. *Frontiers in Psychology, 6.*

Potts, S. K., & Weidler, D. J. (2015). The virtual destruction of self-compassion: Cyberbullying's damage to young adults. *Psi Chi Journal of Psychological Research, 20*(4), 217-227.

Raes, F. (2011). The effect of self-compassion on the development of depression symptoms in a non-clinical sample. *Mindfulness, 2*(1), 33-36. doi:10.1007/s12671-011-0040-y

Raes, F., Pommier, E., Neff, K. D., & Van Gucht, D. (2011). Self-Compassion Scale--Short Form. *Psyctests*, doi:10.1037/t10179-000

Rice, S., & Fallon, B. (2011). The indirect relationship between rumination, shame and depression: A mediation analysis for those experiencing relationship difficulties. *Journal of Relationships Research, 2(1),* 43-52. doi:10.1375/jrr.2.1.43

Robinaugh, D. J., & McNally, R. J. (2010). Autobiographical memory for shame or guilt provoking events: Association with psychological symptoms. *Behaviour Research and Therapy, 48(7),* 646-652. doi:10.1016/j.brat.2010.03.017

Rodriguez, L. M., Young, C. M., Neighbors, C., Campbell, M. T., & Lu, Q. (2015). Evaluating guilt and shame in an expressive writing alcohol intervention. *Alcohol, 49(5),* 491-498. doi:10.1016/j.alcohol.2015.05.001

Roos, S., Hodges, E. E., & Salmivalli, C. (2014). Do guilt- and shame-proneness differentially predict prosocial, aggressive, and withdrawn behaviors during early adolescence? *Developmental Psychology, 50(3),* 941-946. doi:10.1037/a0033904

Rosenberg, M. (1965). Rosenberg Self-Esteem Scale. *Psyctests,* doi:10.1037/t01038-000.

Sargent, K. S., Krauss, A., Jouriles, E. N., & McDonald, R. (2016). Cyber victimization, psychological intimate partner violence, and problematic mental health outcomes among first-year college students. *Cyberpsychology, Behavior, and Social Networking, 19(9),* 545-550. doi:10.1089/cyber.2016.0115

Scheff, T. (2014). Goffman on emotions: The pride-shame system. *Symbolic Interaction, 37(1),* 108-121. doi:10.1002/symb.86

Schmitt, D. P., & Allik, J. (2005). Simultaneous administration of the Rosenberg Self-Esteem Scale in 53 nations: Exploring the universal and culture-specific features of global self-esteem. *Journal of Personality and Social Psychology*, *89*(4), 623-642. doi:10.1037/0022-3514.89.4.623

Schmitt, M. T., & Branscombe, N. R. (2002). The internal and external causal loci of attributions to prejudice. *Personality and Social Psychology Bulletin*, *28*(5), 620-628. doi:10.1177/0146167202288006

Schoch, S., Nikitin, J., & Freund, A. (2015). Why do(n't) you like me? The role of social approach and avoidance motives in attributions following social acceptance and rejection. *Motivation & Emotion, 39(5),* 680-692.

Scoglio, A., Rudat, D., Garvert, D., Jarmolowski, M., Jackson, C., Herman, J. (2015). Self-compassion and responses to trauma: The role of emotion regulation. *Journal of Interpersonal Violence.* doi.org/10.1177/0886260515622296

Shim, S. S., Wang, C., & Cassady, J. C. (2013). Emotional well-being: The role of social achievement goals and self-esteem. *Personality and Individual Differences, 55(7),* 840-845. doi:10.1016/j.paid.2013.07.004

Sinclair, S. J., Blais, M. A., Gansler, D. A., Sandberg, E., Bistis, K., & LoCicero, A. (2010). Psychometric properties of the Rosenberg Self-Esteem Scale: Overall and across demographic groups living within the United States. *Evaluation & The Health Professions*, *33*(1), 56-80. doi:10.1177/0163278709356187

Sirois, F. M., Molnar, D. S., & Hirsch, J. K. (2015). Self-Compassion, stress, and coping in the context of chronic illness. *Self & Identity*, *14(3)*, 334-347.

Smart Richman, L., Blodorn, A., & Major, B. (2016). An identity-based motivational model of the effects of perceived discrimination on health-related behaviors. *Group Processes & Intergroup Relations, 19(4),* 415-425. doi:10.1177/1368430216634192

Smith, A., & Williams, K. (2003). Ostracism through mobile phone SMS communication. *Australian Journal of Psychology*, 5561-62.

Sollitto, M., Johnson, Z. D., & Myers, S. A. (2013). Students' perceptions of college classroom connectedness, assimilation, and peer relationships. *Communication Education, 62(3),* 318-331. doi:10.1080/03634523.2013.788726

Stillman, T. F., & Baumeister, R. F. (2013). Social rejection reduces intelligent thought and self-regulation. In C. N. DeWall, C. N. DeWall (Eds.), *The Oxford handbook of social exclusion* (pp. 132-139). New York, NY, US: Oxford University Press.

Stillman, T. F., Baumeister, R. F., Lambert, N. M., Crescioni, A. W., DeWall, C. N., & Fincham, F. D. (2009). Alone and without purpose: Life loses meaning following social exclusion. *Journal of Experimental Social Psychology, 45(4),* 686-694. doi:10.1016/j.jesp.2009.03.007

Stuber, J. M., Klugman, J., & Daniel, C. (2011). Gender, social class, and exclusion: Collegiate peer cultures and social reproduction. *Sociological Perspectives, 54(3),* 431-451. doi:10.1525/sop.2011.54.3.431

Sznycer, D., Tooby, J., Cosmides, L., Porat, R., Shalvi, S., & Halperin, E. (2016). Shame closely tracks the threat of devaluation by others, even across cultures. *PNAS Proceedings of The National Academy of Sciences of The United States of America, 113(10),* 2625-2630. doi:10.1073/pnas.1514699113.

Tafarodi, R. W., & Milne, A. B. (2002). Decomposing global self-esteem. *Journal of Personality*, *70*(4), 443-484.

Tangney, J. P., & Dearing, R. L. (2002). *Shame and guilt*. New York: Guilford.

Tangney, J. P., Wagner, P., & Gramzow, R. (1992). Proneness to shame, proneness to guilt, and psychopathology. *Journal of Abnormal Psychology, 101(3),* 469-478. doi:10.1037/0021-843X.101.3.469

Taylor, S. E., & Brown, J. D. (1994). Positive illusions and well-being revisited: Separating fact from fiction. *Psychological Bulletin, 116(1),* 21-27. doi:10.1037/0033-2909.116.1.21

Taylor, J., & Turner, R. J. (2002). Perceived discrimination, social stress and depression in the transition to adulthood: Racial contrasts. *Social Psychology Quarterly, 65*(3), 213-225. doi:10.2307/3090120

Thomaes, S., Bushman, B. J., Stegge, H., & Olthof, T. (2008). Trumping shame by blasts of noise: Narcissism, self-Esteem, shame, and aggression in young adolescents. *Child Development, 79(6),* 1792-1801.

Thompson, C., Kim, R., Aloe, A., & Becker, B. (2017). Extracting the variance inflation factor and other multicollinearity diagnostics from typical regression results. *Basic and Applied Social Psychology, 39*(2), 81-90.

Twenge J. M., Baumeister R. F., DeWall C. N., Ciarocco N. J., & Bartels J. M. (2007). Social exclusion decreases prosocial behavior. *Journal of Personality and Social Psychology, 92,* 56–66.

Twenge J. M., Baumeister R. F., Tice D. M., & Stucke T. S. (2001). If you can't join them, beat them: Effects of social exclusion on aggressive behavior. *Journal of Personality and Social Psychology, 81,* 1058–1069.

Twenge J. M., Catanese K. R., & Baumeister R. F. (2003). Social exclusion and the deconstructed state: Time perception, meaninglessness, lethargy, lack of emotion, and self-awareness. *Journal of Personality and Social Psychology, 85,* 409–423.

Twenge, J. M., & Crocker, J. (2002). Race and self-esteem: Meta-analyses comparing Whites, Blacks, Hispanics, Asians, and American Indians and comment on Gray-Little and Hafdahl (2000). *Psychological Bulletin*, *128*(3), 371-408. doi:10.1037/0033-2909.128.3.371

vanDellen, M. R., Campbell, W. K., Hoyle, R. H., & Bradfield, E. K. (2011). Compensating, resisting, and breaking: A meta-analytical investigation of reactions to threat. *Personality and Social Psychology Review, 15,* 51–74.

Vanhalst, J., Soenens, B., Luyckx, K., Van Petegem, S., Weeks, M., & Asher, S. (2015). Why do the lonely stay lonely? Chronically lonely adolescents' attributions and emotions in situations of social inclusion and exclusion. *Journal of Personality and Social Psychology,* 2015.

Velotti, P., Garofalo, C., Bottazzi, F., & Caretti, V. (2017). Faces of shame: Implications for self-esteem, emotion regulation, aggression, and well-being. *Journal of Psychology, 151(2),* 171-184.

Vettese, L. C., Dyer, C. E., Li, W. L., & Wekerle, C. (2011). Does self-compassion mitigate the association between childhood maltreatment and later emotion regulation difficulties? A preliminary investigation. *International Journal of Mental Health and Addiction, 9(5),* 480-491. doi:10.1007/s11469-011-9340-7

Vohs, K. D., & Heatherton, T. F. (2001). Self-esteem and threats to self: Implications for self-construals and interpersonal perceptions. *Journal of Personality and Social Psychology, 81(6),* 1103-1118. doi:10.1037/0022-3514.81.6.1103

Wang, Z., Zhang, L., Gao, J., & Qian, M. (2009). Similarities and differences of shame experiences between Chinese and American college students. *Chinese Mental Health Journal, 23(2),* 127-132.

Warburton W. A., Williams K. D., & Cairns D. R. (2006). When ostracism leads to aggression: The moderating effects of control deprivation. *Journal of Experimental Social Psychology, 42,* 213–220.

Webb, J. B., & Forman, M. J. (2013). Evaluating the indirect effect of self-compassion on binge eating severity through cognitive–affective self-regulatory pathways. *Eating Behaviors, 14(2),* 224-228. doi:10.1016/j.eatbeh.2012.12.005

Wesselmann E. D., Butler F. A., Williams K. D., & Pickett C. L. (2010). Adding injury to insult: Unexpected rejection leads to more aggressive responses. *Aggressive Behavior, 36,* 232–237.

Wesselmann, E. D., Ren, D., Swim, E., & Williams, K. D. (2013). Rumination hinders recovery from ostracism. *International Journal of Developmental Science, 7(1),* 33-39.

Will, G., van Lier, P. C., Crone, E. A., & Güroğlu, B. (2016). Chronic childhood peer rejection is associated with heightened neural responses to social exclusion during adolescence. *Journal of Abnormal Child Psychology, 44(1),* 43-55. doi:10.1007/s10802-015-9983-0

Williams, K. (2007). *Ostracism*. 58, 425-452.

Williams, K. (2009). Ostracism: A temporal need-threat model. In M. Zanna (Ed.), *Advances in Experimental Social Psychology* (Vol. 41, pp. 279–314). NY: Academic Press.

Williams, K. D., Cheung, C. K. T., & Choi, W. (2000). CyberOstracism: Effects of being ignored over the Internet. *Journal of Personality and Social Psychology, 79,* 748-762.

Williams, K., Forgas, J., & Hippel, W. (2005). The social outcast : Ostracism, social exclusion, rejection, and bullying. *Sydney Symposium of Social Psychology series* (7). New York: Psychology Press.

Wong, Y., & Tsai, J. (2007). Cultural models of shame and guilt. In J. L. Tracy, R. W. Robins, J. P. Tangney, J. L. Tracy, R. W. Robins, J. P. Tangney (Eds.), *The self-conscious emotions: Theory and research* (pp. 209-223). New York, NY, US: Guilford Press.

Woods, H., & Proeve, M. (2014). Relationships of mindfulness, self-compassion, and meditation experience with shame-proneness. *Journal of Cognitive Psychotherapy, 28(1),* 20-33. doi:10.1891/0889-8391.28.1.20

Wright, M. F. (2017). Adolescents' Perceptions of Popularity-Motivated Behaviors, Characteristics, and Relationships in Cyberspace and Cyber Aggression: The Role of Gender. *Cyberpsychology, Behavior & Social Networking*, *20*(6), 355-361.

Yarnell, L. M., Stafford, R. E., Neff, K. D., Reilly, E. D., Knox, M. C., & Mullarkey, M. (2015). Meta-analysis of gender differences in self-compassion. *Self & Identity*, *14*(5), 499-520

Zadro L., Williams K. D., & Richardson R. (2004). How low can you go? Ostracism by a computer is sufficient to lower self-reported levels of belonging, control, self-esteem, and meaningful existence. *Journal of Experimental Social Psychology, 40,* 560–567.

Zoccola P. M., Dickerson S. S., & Lam S. (2012). Eliciting and maintaining ruminative thought: The role of social-evaluative threat. *Emotion*. doi: 10.1037/a0027349.