Self-Compassionate Perspective in the Face of Social Rejection: Effects on Eating Cognitions and Behaviors

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Abstract of Dissertation

Self-Compassionate Perspective in the Face of Social Rejection: Effects on Eating Cognitions and Behaviors

The present study examined the influence of an experience of social rejection and self-compassion (both state and trait) on unhealthy eating among college women – specifically cravings for unhealthy foods, willingness to eat unhealthy foods in risk-conducive scenarios, restrictive eating intentions, and candy consumption (food intake). Cognitive and affective precursors to unhealthy eating (specifically negative affect and perceived control) that potentially mediate this relationship were also assessed. Analyses tested whether inducing a self-compassionate perspective reduces the negative impact of rejection on negative affect, perceived control, and resulting unhealthy eating cognitions and candy intake. An additional goal of the study was to examine whether trait self-compassion buffers these reactions to rejection. Therefore, baseline self-compassion was explored as a moderator of the experimental effects of rejection on cognitions and behavior.

College women completed an initial online survey assessing past food-related attitudes and behaviors, trait self-compassion, and demographic variables, before participating in the experimental portion of the study approximately 1-2 weeks later. During the experiment, participants were randomly assigned to one of four conditions that varied on two variables: (1) rejected (or not) by purported peers during a lab group task, and (2) read and write about self-compassionate mindset in the face of stress, or a neutral topic (sleep) prior to the rejection. Following the experimental manipulations, participants completed a computer-based survey assessing eating cognitions, and participated in a bogus taste test to assess candy intake.

Results revealed that rejected participants felt less control, reported higher negative affect, marginally lower cravings for salty and fast foods, lower willingness to eat unhealthy foods, higher restrictive eating intentions, and marginally greater candy intake during a taste test. These results extend beyond previous research examining the effects of rejection on eating to reflect a constellation of responses to rejection characterized by increased desires to
restrict unhealthy food intake (cognitions), while exhibiting a counter-attitudinal response associated with increasing unhealthy food intake (behavior). Mediation results revealed that negative affect mediates (explains) some unhealthy eating outcomes following rejection, while feelings of control do not. The results did not provide any evidence for the hypothesis that inducing a self-compassion mindset in the face of rejection buffers rejection’s negative effects. To account for this finding - potentially suggesting failure to induce self-compassion - trait self-compassion was subsequently explored as a moderator of the effects of experimental rejection condition. Indeed, trait self-compassion moderated responses to rejection, such that the association between rejection and restrictive eating intentions was only significant among those low in self-compassion. Analyses of independent self-compassion constructs revealed that common humanity, isolation, and mindfulness were significant moderators of rejection. Mediated moderation analysis further elucidates the mechanisms by which self-compassion buffers the rejection → negative affect → restrictive eating intentions pathway.

Overall, results suggest future directions for research on unhealthy eating cognitions in the face of rejection, and how self-attitudes may reduce or exacerbate this link, as well as strategies young women can use to have healthier responses to social rejection.
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Chapter 1: Introduction

A balanced diet and a healthy relationship with food are vital to maintaining or improving overall health. Yet, both disordered eating (e.g. chronic restrained eating, extreme dieting) and unhealthy weight gain remain some of the most significant health issues facing college women (Delinsky & Wilson, 2008; Eisenberg, Nicklett, Roeder, & Kirz, 2011; Lowe et al., 2006; Smith-Jackson & Reel, 2012). As the rate of overweight and obesity remain high in the United States (Ogden, Carroll, Kit, & Flegal, 2012), and the college years represent a period of rapid weight gain (Truesdale et al., 2006), the prevalence of unhealthy dieting practices and disordered eating, has persisted (Neumark-Sztainer, Wall, Larson, Eisenberg, & Loth, 2011). In particular, the negative effects of both disinhibited eating and restrained eating are more pronounced in females, who have higher rates of dysfunctional or pathological eating tendencies than males (Lowe & Thomas, 2009). While dysfunctional eating behaviors such as overeating or undereating are influenced by individual or biological factors (e.g. physiology and genetics; Ericsson, Poston, & Foreyt, 1996), the increase in these problems in the past three decades suggests that environmental or contextual factors are also to blame (Kumanyika et al., 2008). While uncontrolled eating and restrictive eating arise from the same cultural contexts - an environment that promotes thinness, stigmatizes overweight, while at the same time encourages uncontrolled consumption of energy-dense, hyper-palatable foods (Irving & Neumark-Sztainer, 2002) - they may also be negatively impacted by a more insidious social context that is not, on its face, directly related to weight and food: the experience of social rejection.

Social rejection is a common yet painful experience which occurs when an individual is deliberately excluded from a social interaction for social (rather than practical) reasons (Leary, 2001). The causes of rejection may be attributionally ambiguous, or the reasoning for the rejection may be more clear. The present research characterizes rejection as being left out by a group of people, deliberately and explicitly, without any clear reason for the rejection (e.g. Leary, Tambor, Terdal, & Downs, 1995; Burson, Cocker, & Mischkowski, 2012).
Social rejection, even by strangers, increases health risk behaviors and decreases health protective behaviors (Abrams, Hogg, & Marques, 2005; Baumeister, DeWall, Ciarocco, & Twenge, 2005; Pascoe & Smart Richman, 2009; Williams, Forgas, & von Hippel, 2005), including unhealthy and healthy eating, respectively (Twenge, Catanese, & Baumeister, 2002; Salvy et al., 2011). When one is rejected, they experience a loss of perceived control over their environment (Warburton, Williams, & Cairns, 2006), which may lead to maladaptive behaviors including overeating (Slochower & Kaplan, 1980; Tangney, Baumeister, & Boone, 2004) or restrictive eating (Zysberg & Tell, 2013). Rejection also has pronounced affective consequences, leading to negative responses such as anger, sadness, and distress (Dickerson, Gruenewald, & Kemeny, 2004; Zwolinski, 2014; Leary et al., 1995; Leary, Twenge, & Quinlivan, 2006; Svetieva et al., 2015; Williams, 2007). These emotional reactions to rejection may also lead to the use of eating behaviors as an emotion-focused coping mechanism (Arnow, Kenardy, & Agras, 1995; Cervera et al., 2003; Evers, Stok, & de Ridder, 2010; Martyn-Nemeth, Penckofer, Gulanick, Velsor-Fredrich, & Bryant, 2009).

While several methods of coping with rejection have been proposed and explored (Smart Richman & Leary, 2009; Sommer, 2001), one potentially productive way of confronting with and reacting to rejection that has not yet been explored in the face of rejection - and is particularly relevant to inspiring healthy eating cognitions and behaviors - is self-compassion. As the name implies, self-compassion involves treating oneself compassionately and with the same kindness and concern that one would treat a loved one who is experiencing stress, hardship, failure, rejection, or any number of negative social experiences. It is a malleable, non-evaluative, emotionally positive self-attitude (Neff, 2003a) that has demonstrably promoted adaptive psychological functioning (Neff, Kirkpatrick, & Rude, 2007a), positive mood (Odou & Brinker, 2014) and physical health (Sirois, Kitner, & Hirsch, 2014) including healthy eating in college women (Schoenfeld & Webb, 2013).

To date, however, no published research has examined how holding a self-compassionate perspective may buffer the effects of rejection on unhealthy eating and related cognitions. Therefore, the aim of the present research is to examine the relations between
social rejection and unhealthy eating cognitions and behaviors, cognitive and affective precursors to unhealthy eating (specifically negative affect and perceived control) that mediate this relationship, and to test whether inducing a self-compassionate perspective - or, having pre-existing high trait self-compassion - reduces the negative impact of rejection on unhealthy eating cognitions and behaviors among college women.
Social Rejection and Eating Behaviors and Cognitions

Rejection is a social stressor (Williams et al., 2005) that leads to aversive physiological, cognitive, and affective responses such as physiological arousal (Beekman, Stock, & Marcus, 2015; Kouchaki & Wareham, 2015), negative affect (Williams, Cheung, & Choi, 2000), hostility (DeWall, Twenge, Gitter, & Baumeister, 2009), and self-defeating behavior (e.g., taking foolish risks, procrastination; Twenge et al., 2002). Of particular interest to the present study, repeated and acute rejection have been linked to health risk behaviors and cognitions such as substance use and unhealthy eating (Cole, Logan, & Walker, 2011; Salvy et al., 2011). This link between rejection experiences and health risk behaviors is particularly strong among adolescents and young adults (Smart Richman & Leary, 2009).

Rejection and unhealthy eating. One important health risk behavior that is affected by social rejection is unhealthy eating; in fact, the link between rejection and eating is well established. One experimental study examined the effects of acute social rejection on food intake among overweight and normal weight adolescent boys and girls (Salvy et al., 2011). Following inclusion or exclusion via Cyberball, a computer-based ball-tossing game designed to simulate rejection (Williams et al., 2001), excluded participants had greater food intake than participants who were not excluded. Oaten and colleagues (2008) conducted two similar studies among adults in which excluded individuals ate more unhealthy but palatable biscuits in Study 1, but drank less of an unpleasant but healthy beverage in Study 2; results indicated prolonged regulatory impairment (the inability to inhibit impulses to make unhealthy choices) among excluded participants as compared to included participants, which in turn led to an unhealthy behavioral outcome. Subsequent research has tested this rejection-food intake link, but uncovered individual differences that moderate it: Specifically, a distinction has been drawn between stress hyperphagics, or people who habitually eat more in response to stress, and stress hypophagics, or people who habitually eat less in response to stress. Following rejection, stress hyperphagics ate significantly more in a bogus laboratory taste test than
hypophagics (Sproesser, Schupp, & Renner, 2014), suggesting the importance of accounting for individual differences when examining the link between rejection and unhealthy eating. The present study therefore, measured and controlled for emotional eating, or the trait tendency to eat in response to stress.

Some experimental studies on eating following rejection have used unhealthy/uncontrolled eating as a laboratory measure of self-regulation. Across six experiments, Baumeister and colleagues (2005) demonstrated that rejection threatens self-regulation, and two of these studies used eating-related outcomes as behavioral self-regulation measures: participants who were led to anticipate future rejection - based on a personality test, they were told they would be alone later in life - consumed less of a purportedly healthy but bad-tasting beverage (Study 1). Additionally, participants who were excluded from a group task ate more cookies than participants who were not excluded (Study 2). In another set of studies, participants who were intentionally excluded (rejected) from a group task ate more cookies than participants who were unintentionally excluded, though the effect was reduced when participants were given a chance to affirm a self-transcendent value (Burson et al., 2012). Once again, unhealthy eating via cookie consumption was used as a measure of self-regulation.

**Operationalizing and measuring unhealthy eating.** There are multiple ways of conceptualizing and capturing eating cognitions and behaviors in the laboratory and in naturalistic settings, and each method presents unique challenges and opportunities. Traditional “diary” type studies often include follow-back questionnaires that ask participants to recall exactly what they ate over the course of the past day (see Lai et al., 2014; Rao, Afshin, Singh, & Mozaffarian, 2013, for meta-analyses). These measures offer a thorough snapshot into food choices, but often take a long time to complete and do not fully capture restrictive behaviors. Other large survey studies measure propensity towards certain food choices via measures like the food frequency questionnaire (FFQ; e.g. Mulligan et al., 2014), which include a checklist of various foods and beverages consumed, on average, over the past weeks, months, or year. These types of recall measures are limited in their ability to assess
“unhealthy” eating, however, since there is so much individual variability both in ability to recall food choices and in what is truly “unhealthy” for each individual. Additionally, they are representative of habitual intake, and may not capture day-to-day variability, so it is not an ideal method of measuring the effects of daily or acute stressors on unhealthy eating.

Thus, other self-report measures of unhealthy cognitions and explicit disordered eating behaviors are sometimes used to capture unhealthy eating outcomes. For example, cognitions can be measured by asking participants to recall past cravings for unhealthy foods (Buss et al., 2014), or in-the-moment cravings in a lab setting (Chao, Grilo, White, & Sinha, 2015). Cravings motivate actual food consumption (Martin, O’Neil, Tollefson, Greenway, & White, 2008), predict higher consumption better for those under emotional stress (Davis, 2013), and are highly responsive to food cues, which pervade modern environments (Dobson & Dozois, 2004; Mogg & Bradley, 2005).

Measuring unhealthy eating behavioral willingness is another way to capture eating cognitions. Behavioral willingness, or an openness to engage in a certain risky behavior if given the opportunity (Gerrard, Gibbons, Houlihan, Stock, & Pomery, 2008), is particularly relevant to weight because individuals are consistently surrounded by risk-conducive circumstances with respect to diet; empty calorie foods are heavily advertised and highly available (Wansink, 2004). In many cases, willingness to engage in a certain behavior is an independent predictor of actual behavior in the future (controlling for more deliberate intentions to engage in the behavior) (Gerrard et al., 2008). With respect to eating BW - or willingness to eat healthy or unhealthy foods when the opportunity is present - research has only just begun to explore the predictive validity of behavioral willingness to eat unhealthy foods for eating behavior. In one study, willingness to eat unhealthy foods accounted for substantial variance in general eating patterns over four weeks (Fuchs, Steinhilber, & Dohnke, 2013). Yet another study found that willingness to eat unhealthy foods is affected by doctor-patient interactions, and is higher when overweight patients feel more blamed for their weight than when they feel less blame (Beekman, Ferrer, Klein, & Persky, 2016) - suggesting it is a malleable eating-related cognition in social contexts.
While unhealthy eating willingness and cravings may predict actual intake of unhealthy foods (or foods in unhealthy quantities), cravings and willingness have not been examined in terms of how they predict restrictive eating behaviors; might low willingness to eat unhealthy foods (or any foods) and cravings for unhealthy foods correspond to intentions to restrict? Or do cravings, willingness, and restrictive intentions operate independently? Such questions have not yet been explored empirically, and are open for exploration in the present study, which will look at both ends of the unhealthy eating “spectrum” – from under-eating to over-eating. Regardless, the most explicit way to measure the low end of the spectrum, restrictive eating cognitions and behaviors, is to ask about restriction directly. Past studies have measured the extent to which individuals have engaged in specific restrictive eating behaviors in a given time period - such as the past day (Brienes, Toole, Tu, & Chen, 2014), and also the extent to which individuals intend to engage in such explicitly restrictive eating behaviors in the future (Brienes et al., 2014).

Rejection and Unhealthy Eating: Theoretical Mechanisms

Why might individuals engage in unhealthy eating practices - or avoid healthy eating options - when rejected? The mechanisms by which this phenomenon occurs are a focus of the present research. The Needs Threat Model of Ostracism (Williams, 2007) offers support for how perceived control and negative affect may help explain the rejection and eating behavior link. Other literature on the affective consequences of rejection and the stress and coping literature offer support beyond this model to demonstrate how negative affect may lead to unhealthy eating. Finally, the emotional eating literature (e.g. Arnow et al., 1995; Waller & Osman, 1998) offers an additional lens through which to explore the causal link between rejection and unhealthy eating.

Perceived Control

Perceived (or personal) control refers to how much individuals explicitly perceive that they have personal power and control over their environment (e.g., Lachman & Weaver, 1998; Pearlin & Schooler, 1978; Schaie, Perlin, & Zarit, 2003). The Needs Threat Model of Ostracism (Williams, 2001) posits that one reason experiences like ostracism, social exclusion,
discrimination, and rejection are stressful is because they threaten one’s fundamental need for control (Warburton et al., 2006; Williams, 2007). While related to self-regulation, as described above, this form of control is more active compared to the automatic process of self-regulation. Several studies demonstrate the benefits of perceived control, including the facilitative power to adapt under stressful life conditions (Jang, Borenstein-Graves, Haley, Small, & Mortimer, 2003; Johnson & Kreuger, 2005).

Stressful social situations may reduce perceived control because they threaten one’s drive for control over events and people in their environment. According to the Needs Threat Model, rejection specifically robs individuals of a sense of perceived control over their interactions and their environment (Bruneau, 1973; Williams, 2001), which in turn weakens self-efficacy and harms psychological well-being (Taylor & Brown, 1988; Williams & Sommer, 1997). For example, in a cross-sectional analysis, Jang and colleagues (2008) found that perceived discrimination among primarily White adults (i.e. not based on race, rather general maltreatment) was associated with reduced perceived control and negative affect. Several studies from the ostracism literature provide evidence for rejection’s impact on loss of control as well (e.g., Baumeister, DeWall, & Vohs, 2009; Van Beest & Williams, 2006). Ostracism from both real-life confederates and virtual confederates (via Cyberball) accounted for significant decreases in feelings of perceived control (Zadro, Williams, & Richardson, 2004). Furthermore, experiences with discrimination, a form of rejection characterized by a threat to a particular social identity, have also been associated with a loss of perceived control: reports of discrimination among Arab Americans were significantly related to distress and decreases in self-esteem, and reduced perceived control associated with the discrimination accounted for (mediated) this effect (Moradi & Hasan, 2004). One reason why race-based and other rejection leads to lack of control is the related need for perceptions of predictability: rejection can be unpredictable, and when core assumptions of a predictable and just world are violated by seemingly undeserved suffering (e.g. getting rejected), perceptions of injustice arise, leading to loss of feelings of control (Monden, Trost, Scott, Bogart, & Driver, 2016).
Reduced perceived control that results from race-based rejection is, in turn, related to one’s inability to make good health-related decisions (Gibbons et al., 2012; Stock, Gibbons, & Beekman, 2015). Thus, it follows that this link extends to healthy vs. unhealthy eating decisions. A number of studies have emphasized the role of perceived control in the onset and maintenance of eating disorders such as anorexia nervosa and bulimia nervosa (Dalgleish et al., 2001). However, this association is not limited to clinical populations. A high sense of perceived control is associated with engaging in regular exercise and eating a healthy diet in midlife (Lachman & Firth, 2004), and a higher quality of diet among women with low educational attainment (Lawrence et al., 2011). Low perceived control is a strong predictor of poorer health in general and the adoption of fewer healthy behaviors, including healthy eating (Leganger & Kraft, 2003). Although beyond the scope of the present study, a closely-related construct from the Theory of Planned Behavior (Ajzen, 1991), perceived behavioral control, is more specific than general perceived control as it is directly related to the behavior one does or does not have control over; nonetheless, several studies have also demonstrated a positive relationship between this form of perceived control and healthy eating outcomes (e.g. Conner, Norman, & Bell, 2002; Povey, Conner, Sparks, James & Shepherd, 2000; Schifter & Ajzen, 1985).

Affective Consequences of Rejection

Over a decade of research on experimentally-manipulated rejection (primarily social exclusion) has demonstrated consistent effects on negative affect. The majority of these studies used the same affect scale (for a review, Williams, 2007) to measure self-reported affect as an immediate response to the experience. Rejection via Cyberball has resulted in negative affect in a host of studies (e.g. Abrams, Weick, Thomas, Colbe, & Franklin, 2011; Chen, Williams, Fitness, & Newton, 2008; Sommer, Williams, Ciarocco, & Baumeister, 2001; Wirth, Lynam, & Williams, 2010). The negative affective reactions to Cyberball have also been corroborated with physiological responses, such as increases in intranasal oxytoin (Alvares, Hickie, & Guastella, 2010) and prefrontal cortex activity (Eisenberger, Lieberman, & Williams, 2003; Moor et al., 2012), and neural sensitivity (Slavich, Way, Eisenberger, & Taylor, 2010), all
physical manifestations of negative affect. Furthermore, one meta-analysis on exclusion and rejection (Blackhart, Nelson, Knowles, & Baumeister, 2009) concluded that rejection causes significant shifts in emotion and affect, from positive to negative affect. Simply put, rejected people feel worse than their accepted and neutral-condition counterparts. These effects on affect are larger than those caused by nonsocial negative events (e.g., warnings about health problems) and comparable to those caused by explicit threats to self-esteem.

Negative affect also leads to unhealthy dietary patterns (Grossniklaus et al., 2010; Haedt-Matt & Keel, 2011; Lane, 2007; Macht, 2008). In one study utilizing Ecological Momentary Assessment (EMA), college women reported mood and eating behaviors throughout the day (Heron, Scott, Slawinsky, & Smyth, 2014). Results confirmed that negative affect - in this case, a composite of anger, worry, sadness, frustration, and unhappiness - was higher when women reported losing control over eating, restricted food intake, and reported eating large quantities of food. Interestingly, however, EMA assessment allowed the researchers to confirm that negative affect did not necessarily precede these behaviors, but rather occurred while the participants were engaging in these behaviors, somewhat challenging or complicating the temporal relationship between affect and unhealthy eating (Heron et al., 2014). Therefore, while affect may be an important factor for explaining (or mediating) unhealthy eating behaviors, though it may be challenging to detect by traditional ways of measuring affect prior to - and not during - eating in lab setting.

Recent research has tested the effect of experimentally-manipulated rejection (via Cyberball) on negative affect in normal-weight and obese individuals. Compared to control participants, rejected individuals reported negative affect (sadness, anger, & shame) overall, and especially for overweight participants, the most intense of these emotions was shame (Westermann, Reif, Euteneuer, & Kohlmann, 2015). Another study manipulated rejection in a similar way as the present study, and found that rejection significantly increased hurt and sadness and decreased happiness (Buckley, Winkel, & Leary, 2004).

Negative affect also causes breakdowns in individuals’ impulse control or ability to assert self-control, in part because emotional distress regulation takes precedence over the
effortful control of impulses. In one study, negative affect (conceptualized as distress) led to eating fattening snacks, but this association was eliminated when participants were told that their mood was unchangeable (Tice, Bratslavsky, & Baumeister, 2001, study 1), suggesting that when people are undergoing negative emotional distress, they indulge their immediate impulses to eat fattening snacks, giving short-term emotion regulation precedence over other goals. This was confirmed among a sample of highly restrictive eaters: following a pre-load of unhealthy food, a sample of highly restrained eaters reported high levels of negative affect, which lead to more disinhibited eating (eating candy) than their less-restrained counterparts (Adams & Leary, 2007). Put another way, a paradoxical short-term lapse in impulse control was caused by the more immediate need to cope with negative feelings and regulate emotions. Thus, the present study examines how negative affect and control are related following exclusion. While a single wave of data cannot determine directionality, this past research would suggest that increases in negative affect lead to decreases in perceived control.

Another negative affective response to social rejection that is well documented is anger (for a review, Leary et al., 2006). Anger is a powerful and harmful result of rejection in many forms. For example, participants who were rejected via ostensive evaluation by peers during a lab task were more angry than participants who got neutral or positive feedback (Buckley et al., 2004). Multiple studies using Cyberball have demonstrated the effect of more passive rejection (social exclusion) on anger (e.g. Chow, Tiedens, & Govan, 2008; Svetieva et al., 2015; Weik, Maroof, Zöller, & Deinzer, 2010). Additional studies that manipulated rejection in a similar way to the present study also found that rejection from unseen strangers based on minimal personal criteria is enough to inspire a hostile and angry response (Romero-Canyas et al., 2010; Twenge, Baumeister, Tice, & Stucke, 2001). Anger following social rejection may increase risky behavior, and this relation may extend to unhealthy eating. For example, exclusion via Cyberball increases self-reported risk taking inclinations (Study 1) and risky driving during a simulated driving video game (Study 2), and this relation was mediated by anger, over and above any other emotion or cognition such as sadness or perceived control (Svetieva et al., 2015). Anger following rejection also leads to antisocial behavior, cleverly
operationalized as giving others unappealing snacks such as prunes and saltines (Chow et al., 2008).

Robust literature associates anger with emotional eating or unhealthy eating responses. State anger is a particularly relevant affect during the onset of eating disorders (Meyer et al., 2005; Waller et al., 2003). One study using daily assessments of bulimic behaviors and affect concluded that binge and purge activities strongly corresponded to spikes in anger/hostility, and this anger/hostility frequently preceded the activities (Smyth et al., 2007). Among a sample of female prisoners, loss of control over one’s eating was associated with trait anger and with externally-directed anger, while drastic weight loss (restrictive eating) was linked to state anger (Milligan, Waller, & Andrews, 2002), suggesting that different facets of anger may lead to divergent - but both unhealthy - eating cognitions and behaviors. Anger is one particular form of externalizing negative affect that is just one of many affective responses to exclusion that is combined into overall negative affect inventories (e.g. Adams & Leary, 2007). Therefore, the present research assesses the role of overall negative affect, using an inventory including several negative emotions.

Loss of perceived control and increased negative affect are established, harmful consequences of social rejection, and are stressful feelings and experiences with which people need resources to cope. The stress and coping literature can offer further explanation for how unhealthy and disordered eating can be used to cope with social rejection.

Rejection and Coping

Eating to cope with stress is widely accepted to be a form of maladaptive emotion regulation that is a significant contributor to the current obesity epidemic (Adam & Epel, 2007). Stress effects eating in a bidirectional way. For roughly 70% of individuals, stress leads to an increase in food intake; for 30%, stress leads to restriction (Epel et al., 2004). Eating too much or too little are both unhealthy and maladaptive, as discussed previously. However, when accounting for a highly palatable food environment -- like the United States, where highly palatable foods are widely available - the trends sway heavily toward a stress-induced drive for dense calories (Zellner et al., 2006).
Eating as emotion-focused coping has been demonstrated experimentally. One study which manipulated social rejection via Cyberball found that rejected participants exhibited a greater desire for warm food and drink than participants who were not rejected; the authors attributed this desire as a way to cope with the literal ‘cold’ feeling of rejection, and demonstrated in a prior experiment that participants who wrote about a past experience with exclusion reported the temperature of the room as colder (Zhong & Leonardelli, 2008). A more recent study extends this “Chicken Soup for the Soul” concept, demonstrating that the desire for comfort foods following social rejection (in this case, writing about a past experience of rejection) is driven by social surrogacy, meaning food, although non-human, fulfills a need to belong and buffers against belongingness threats (Triosi & Gabriel, 2011).

Emotional eating has been conceptualized both at the trait and state level. For example, trait emotional eating may affect the way participants respond to lab stressors vis a vis eating cognitions and behaviors. Research on the moderating effect of trait (self-reported) emotional eating on the relationship between laboratory stressors and actual food intake has yielded mixed results, but recent research has suggested that if participants have extreme emotional eating scores, emotional eating can be a significant moderator of laboratory stressors (van Strien et al., 2012): following emotion induction and a control or stress task (Trier Social Stress Task), extremely low emotional eaters ate less during a sad movie or after stress than during the neutral movie or after the control task, but extremely high emotional eaters ate more in these instances (van Strein et al., 2012). Given the importance of a priori emotional eating tendencies to predict the emotional eating response to a stressor, trait emotional eating tendencies are measured in the present study and included as a covariate.

If unhealthy eating is one coping response to social rejection, substituting this coping mechanism with another strategy could reduce the negative impacts of rejection on eating. However, this coping mechanism would need to address the emotion regulation needs of a rejected individual in order to thwart the need for emotion-focused coping. Therefore, one possible coping strategy - self-compassion - was examined in the face of rejection in the present research.
Self-Compassion

One strategy for confronting social stress, that has been shown to promote well-being and positive psychological functioning, is self-compassion (SC; Allen & Leary, 2010; Neff, 2003a; 2011). SC is typically conceptualized as being comprised of six components that form three facets - self-kindness (versus self-judgment), common humanity (versus isolation), and mindfulness (versus over-identification with one’s emotions) (Neff, 2003a; 2003b). A person can be compassionate toward oneself whether the suffering - in the case of the present study, the cause of the ‘suffering’ is social rejection - is perceived to occur through no fault of one’s own (an external attribution) or whether it results from one’s own failures or inadequacies (an internal attribution) (Neff, 2011). Since social rejection is often attributionally ambiguous, as it is in the present study, self-compassion may buffer against its negative effects regardless of how it is perceived.

The first and central construct of SC is self-kindness. When people fail or experience a stressor, self-compassionate people are more likely than non-self-compassionate people to treat themselves with greater care and kindness, and less likely to respond with feelings of anger directed at others and the self (Barnard & Curry, 2007; Neff & Vonk, 2009) and self-directed criticism (Brienes & Chen, 2012). Common humanity involves regarding one’s own experiences as part of the common, broader human experience. Rather than feeling isolated or alone when things go wrong, self-compassionate people do not feel that their experience is personal and unique; rather, they recognize that everyone experiences suffering, loss, rejection, humiliation, etc; this reduces feelings of isolation (Soysa & Wilcomb, 2013). Finally, mindfulness involves taking a balanced perspective of a negative or stressful situation so as not to get carried away with one’s emotions. Those low in self-compassion may ruminate or wallow in their emotions or dwell on the negative aspects of the situation; approaching the situation with mindfulness, on the other hand, allows victims of hardship to maintain a homeostatic perspective in the face of stress (Brown & Ryan, 2003). Each of these facets plays an important role in the function of SC as a coping mechanism in the face of rejection, as discussed further below. However, the subscales are highly inter-correlated (Neff, 2003b), thus were considered
part of a single higher-order factor of SC, as is common in extant literature, in addition to individual subscales.

SC has been shown to be distinct from other ways of relating to oneself (Neff, 2003a), but it is most often compared to, and contrasted (yet correlated) with self-esteem (Neff & Vonk, 2007). Self-esteem boosts well-being because it helps people feel superior and self-confident, often resulting in self-enhancement bias (Sedikides & Gregg, 2008); SC boosts well-being because it helps people feel secure and safe, and does not rely on comparing oneself to others or derogating others to boost one’s own feelings of self-worth, which can be a consequence of boosting self-esteem (Neff, 2011). At a physiological level, SC may help activate the self-soothing and attachment systems, reducing feelings of isolation and anxiety (Gilbert & Irons, 2005); self-esteem on the other hand, which relies on social comparisons and competition against others, has been linked to stimulating, energizing impulses and dopamine activation (Gilbert et al., 2008). It is theorized that this important distinction between outcomes associated with SC and self-esteem is because SC deactivates the threat system (associated with the limbic system; feelings of defensiveness, insecurity, or inferiority), and activates the self-soothing system (associated with the oxytocin-opiate system; feelings of safeness and belonging) (Gilbert & Irons, 2005); self-esteem, on the other hand, activates the threat system (Gilbert et al., 2008). While it is certainly more adaptive to hold oneself in high esteem rather than feel ashamed of oneself, self-esteem is associated with negative or maladaptive traits or cognitions that SC simply is not, including neuroticism (Neff, Rude, & Kirkpatrick, 2007b). Furthermore, SC remains a significant predictor of positive affect, happiness, and optimism - as well as other constructs, described below - even when controlling for self-esteem (Neff & Vonk, 2009), suggesting that although these constructs are related, SC predicts variance in outcomes over and above self-esteem.

Small gender differences in SC have been found, such that women tend to be less self-compassionate than men; furthermore, these gender differences are more pronounced in samples with higher percentages of ethnic minorities (Yarnell et al., 2015). Therefore, women may have more to gain than men by learning to engage in a more self-compassionate
perspective. It is hypothesized, although not directly tested, that such gender differences are related to gender norms that hinder the development of self-compassion in women (Yarnell et al., 2015; Neff, 2011). Women are often more self-critical, and they tend to ruminate more on flaws in themselves than men (Leadbeater, Kuperminc, Blatt, & Hertzog, 1999), which may partially explain how gender socialization contributes to these differences in SC. If this is the case, and environment (socialization) can influence levels of self-compassion, it follows that a variable that is otherwise considered to be trait-level can be changed with intervention.

Indeed, recent research has begun to manipulate SC, through both in-depth, long-term interventions (Diedrich et al., 2014; Kelly, Zuroff, Foa, & Gilbert, 2010; Neff, Kirkpatrick, & Rude, 2007b) and laboratory manipulations (Adams & Leary, 2007; Brienes & Chen, 2012; Chandler, 2013; Leary, Tate, Adams, Batts Allen, & Hancock, 2007; Johnson & O’Brien, 2013; Odou & Brinker, 2014; Zabelina & Robinson, 2010); all of these studies demonstrated main effects of SC-induction condition on cognitive, emotional, and behavioral outcomes, suggesting that SC can be changed, both over time and in-the-moment. Nonetheless, the surplus of research on SC has been conducted cross-sectionally, using the 26-item Self Compassion Scale (SCS; Neff, 2003b). Research on the effects of both trait-level and manipulated SC are reported herein.

**SC in the Face of Rejection.** SC may be a particularly useful self-attitude that is especially important in the face of ambiguous rejection - perhaps even more so than other coping strategies or self-attitudes that focus on enhancing feelings of control or positive mood. This is because SC involves both cognitive and affective methods, and addresses emotion-and problem-focused coping strategies (Allen & Leary, 2010); these methods are important because rejection harms both cognitions and emotions. Strategies that focus on just one or the other may not be optimal. For example, mood-boosting coping strategies that aim solely at improving one’s mood or regulating one’s emotions may also serve to harm feelings of personal control, as active emotion regulation can take precedence over self-control (Tice, Bratslavsky, & Baumeister, 2001). SC is unlikely to have this same effect on emotion regulation, since it emphasizes mindfulness (a more passive observance of one’s emotions; Neff, 2003a) over
“over-identification,” or the state in which individuals become so carried way with their own emotional responses that other aspects of the person - e.g. perceived control or alternate mental representations - are inaccessible (Bennett-Goleman, 2001).

One reason that SC may be particularly helpful in the face of rejection - and one which sets it apart from other self-focused coping such as self-affirmation or boosting self-esteem - is the common humanity component. The converse of common humanity is isolation (Neff, 2003a), so it follows that when one reframes rejection as a universal and common experience, they feel less isolated and thus experience greater feelings of belonging (a vital need that is threatened by rejection). To the extent that self-compassion includes an acknowledgment that rejection is common, and millions of others experience it every day, self-compassionate people should feel less alone in their experience - even though the immediate environment may be rejecting. No other coping mechanism emphasizes this “we’re all in this suffering together” component, and since isolation is a key component of rejection, SC as coping with rejection offers unique buffering potential.

**SC and Potential Mediators.** Adopting a self-compassionate perspective to cope with rejection may affect eating cognitions and behaviors because of its effect on the two potential mediators: perceived control and negative affect.

*Perceived Control.* Though the effects of SC on perceived control have not been directly studied, SC has been shown to improve cognitions closely related to perceived control. More specifically, SC may boost a sense of personal control through positive cognitive restructuring. While one may not have the power or ability to change the cause of rejection, through self-compassion, individuals can reframe the experience by engaging in positive thinking and optimism (Adams & Leary, 2010). People high in SC also view negative events in less drastically dire terms than people low in SC, leading them to perceive more control over the situation and have more intrinsic motivation. For example, after receiving a poor grade on a midterm, students higher in SC reported using acceptance and positive reinterpretation to cope with the failure (Neff et al., 2005) self-compassionate students specifically had a reduced fear of failure, which lead to increased intrinsic motivation, another construct closely related
to personal control. In an academic domain, individuals higher in trait SC report greater self-efficacy and greater control beliefs than low SC individuals (Iskender, 2009). The mindfulness component of self-compassion may specifically positively influence perceived control; One study of non-clinical 16-24 year-olds showed that participants who took part in a mindfulness intervention reported greater calm and balance, more self-efficacy, and higher perceived control than a control group (Monshat et al., 2013).

While perceived control is an important mediating factor to explain the effects of rejection on eating, it is not clear from existing studies exactly how SC affects perceived control. Therefore, while I explore the moderating role of SC on the relationship between rejection and perceived control, this moderation was not explicitly hypothesized in the present study.

**Negative Affect.** Perhaps the most direct way that self-compassion buffers in the face of rejection is via emotion-focused coping; or, more specifically, reducing, controlling, or preventing negative affect. In fact, emotion regulation is a defining characteristic of self-compassion (Neff, Hsieh, & Dejitterat, 2005). People who are highly self-compassionate report greater life satisfaction, higher positive affect, lower negative affect, and even better mental health than less self-compassionate people (Allen & Leary, 2010; Leary et al., 2007; Neff, Kirkpatrick, & Rude, 2007a). Mindfulness, a component of SC, positively predicts positive affect and negatively predicts perceived stress and negative affect (Bluth & Blanton, 2014). In a cross-sectional examination of young female athletes, high self-compassion was negatively associated with shame-proneness, fear of negative evaluation, fear of failure, and social physique anxiety, among others (Mosewich, Crocker, Kowalski, & DeLongis, 2013). Notably, self-compassion explained variance in these negative emotions above and beyond self-esteem.

SC is incompatible with negative emotional reactions resulting from various forms of social stress. In an experimental setting which manipulated distressing social events, trait self-compassion buffered participants against negative self-feelings in the face of stress (Leary et al., 2007). Conversely, low self-compassion can lead to increased distress; for example, one study among breast cancer patients demonstrated that low body image caused increased
distress, but this relationship was mediated through decreased self-compassion (Przezdziecki et al., 2013). The authors postulate that this suggests the protective power of high levels of self-compassion particularly for women affected by low body image. Additionally, there has been one preliminary exploration of the effects of SC distress tolerance - an individuals’ expectancies for experiencing negative emotional states in response to several aversive social interactions - and it’s consequence on adaptive food intake and eating-related cognitions. Based on self-report measures, self-compassion was positively related to distress tolerance, however this distress tolerance was not, in turn, related to the eating outcome of interest, intuitive eating (Schoenfeld & Webb, 2013).

When threatened, self-compassionate people tend to treat themselves with greater self-kindness and less self-judgment and anger than people who are low in SC (Gilbert, Clarke, Kemple, Miles, & Irons, 2004). Treating oneself kindly can manifest itself in overt actions such as taking time off to give oneself a break emotionally, rather than reacting angrily or emotionally. Indeed, when self-compassion was manipulated in an experimental setting (Leary et al., 2007, study 5), college students who wrote about a past stressful event in a self-compassionate way reported feeling significantly lower negative affect (a composite of anger, sadness, anxiety, happiness) than students in any other condition, including expressive writing, self-esteem, and a true neutral condition. Longer SC interventions have also had demonstrated effects on reducing reactive emotional responses; SC promotes processing negative affect in ways that are balanced and non-judgmental rather than reactive. Notably, self-compassionate people do not view the severity or importance of their problems as any less serious (Terry & Leary, 2011), they just manage their emotional reactions more effectively than people who are low in self-compassion because they adopt a mindful approach to emotional reactivity.

**Self-compassion and Health.** The benefit of self-compassion on physical health is a relatively new but burgeoning domain of study, and has primarily been studied cross-sectionally. One meta-analysis of community and student samples (N=3,232) exploring SC and a set of health-promoting behaviors - including eating habits, exercise, sleep, and stress management - found strong associations between self-reported trait self-compassion and these
behaviors (Sirois et al., 2014). This may operate through self-compassionate individuals’ propensity to value their health more, or perhaps they are more self-compassionate because they feel better about themselves and their health; the directionality of this relationship as not been tested. SC correlates positively with motivation to avoid unhealthiness, health consciousness, as well as subjective health status (Terry, Leary, Mehta, & Henderson, 2013, study 1).

Beyond motivation to be healthy, SC may promote health via the self-regulation of health-related behaviors. Indeed, self-reported SC and scores on a 63-item self-regulation measure are positively correlated (Terry et al., 2013, study 2). SC also lowers defensiveness, negative emotional states, and self-blame, all of which can interfere with self-regulation. In a theoretical discussion of self-compassion’s effect on health, Terry and Leary (2011) suggested that SC promotes health and adaptive reactions to health-related stressors such as illness or injury. Specifically, their tendency to take greater responsibility for their failures and shortcomings (Leary et al., 2007; Neff, 2003b), combined with their mindful approach to emotions (the tendency to not to be overcome by emotion), should lead self-compassionate people to cope more effectively with threats, including engaging in health-promoting behaviors - and avoiding health-risk behaviors. While measuring the effects of SC on self-regulation, and resulting health outcomes, is beyond the scope of this research, self-regulation and perceived control, a mediating mechanism explored herein, are closely related constructs (Bandura, 1989).

**SC and Healthy Eating.** The health benefits of self-compassion have also been explored specifically in the domain of eating, in clinical disordered eating samples and general samples alike. Among college women, self-reported self-compassion positively predicted intuitive eating, even when adjusting for BMI (Schoenfeld & Webb, 2013). Intuitive eating is a relatively new construct designed to capture a “healthy relationship with food.” It is based on the premise that being attuned to the body’s natural signals for hunger is more effective than keeping close track of what one eats (e.g. calorie counting or selectively restricting certain foods). The relationship between SC and intuitive eating, in this case, was mediated by
increases in body image acceptance, suggesting that SC leads to a more accepting view of one’s body, thus leading to a healthier relationship with food.

This healthy relationship with food, as conceptualized in the present study as well, includes the avoidance of both highly restrictive eating and uncontrolled overeating. Indeed, self-reported SC is negatively associated with both the severity of binge eating symptoms (Webb & Forman, 2013) and restricted disordered eating (Brienes et al., 2014). According to a daily diary-based study that followed college women over the course of four days, daily reports of appearance-related self-compassion were correlated across time with lower levels of disordered eating (Brienes et al., 2014, study 1). Additionally, in one cross-sectional analysis of college women, self-reported SC predicted disordered eating along with maladaptive perfectionism (Stuart, 2009). This relation may be, in part, due to the buffering effect of trait SC in the face of threat: for example, SC buffered links between media thinness-related pressures and disordered eating. In a sample of community women in the US, higher SC was associated with lower disordered eating, and this operated via fewer perceived thinness-related threats (Tylka, Russell, & Neal, 2015). Relatedly, manipulating state self-compassion after a body-related threat can reduce the threat’s negative effects on disordered eating cognitions: after college women were asked to write about a perceived body flaw in a self-compassionate way – rather than just writing about it with no SC-related instructions, they reported lower body shame and lower anticipated disordered eating (Brienes et al., 2014, study 2). Furthermore, experimentally-manipulated SC reduced distress and restricted eating following a pre-load of unhealthy foods among college females who are highly-restrictive eaters (Adams & Leary, 2007).

Although there is robust evidence to suggest that self-compassion allows for effective coping with life’s stressors (for a review, Allen & Leary, 2010), there have been no published studies that have examined the impact of inducing a self-compassionate mindset in the face of social rejection, nor how self-compassion and rejection interact to impact unhealthy eating-related cognitions and behaviors. Therefore, the way that self-compassionate perspective
interacts with rejection to predict unhealthy eating cognitions and behaviors was the primary focus of the present investigation.
Chapter 3: Preliminary Daily Diary Study

While the relationship between social rejection and unhealthy eating has been established causally (Baumeister et al., 2005; Oaten, Williams, Jones, & Zadro, 2008; Salvy et al., 2011; Sproesser, Schupp, & Renner, 2014), the impact of SC on this relationship has yet to be explored. Furthermore, the association between social rejection and unhealthy eating cravings, cognitions, and behaviors has not been assessed using a daily diary method.

Therefore, to conduct an initial test of the relationships between rejection, unhealthy eating, and the moderating role of SC, a 7-day daily diary study was conducted utilizing a sample of college women. It was hypothesized that daily experiences with rejection would be positively associated with reports of unhealthy eating and negative affect, and negatively associated with perceived control. It was also hypothesized that trait SC would moderate these effects, such that individuals high in SC would report less unhealthy eating, loss of perceived control, and negative affect than individuals low in SC.

**Method.** The study consisted of a 7-day daily diary with an additional initial baseline assessment. All data was collected online using SurveyMonkey. The daily dairy took place during the same week for all participants, which was between 1 and 3 weeks after the initial baseline assessment. Participants completed the daily diary between 5pm and bedtime each day, and were prompted by email. Participants were told that that the study will help us learn more about college women’s day-to-day feelings, health behaviors, and life experiences. Nothing was explicitly said about rejection or eating. The protocol for this daily diary study is commonly used, and was most expressly adapted from a recent study on daily self-compassion and disordered eating (Breines, Toole, Tu, & Chen, 2014).

**Participants.** One hundred thirty-three undergraduate women (M\text{age} = 19.47; 71.9% White) completed at least 5 diary entries in addition to the baseline. Participants were recruited from the departmental subject pool, and I advertised the study in undergraduate psychology classes in order to reach a cohort of women to go through the study concurrently. 12 participants were excluded from analyses because they failed to complete several measures across all 5 days,
leaving a total of 121 women in the final analyses. When data was available, I compared participants who were excluded from analyses to the rest of the sample on all study variables; means on available study variables did not differ significantly between these participants and those included in main analyses.

**Baseline Survey Measures.** Trait-level variables were assessed at baseline to measure both planned covariates for the daily diary study, as well as variables for moderation. *Restrained Eating* (10 items, α = .92) and *Emotional eating* (13 items, α = .95) were measured with the respective subscales from the Dutch Eating Behavior Questionnaire (Van Strein et al., 1986). Sample items include “Do you watch exactly what you eat?” for restrained eating and “Do you have a desire to eat when someone lets you down?” for emotional eating. Response categories ranged from 1 = *Never* to 5 = *Very Often*. *Trait self-compassion* was measured with the 26-item Self Compassion Scale (SCS; Neff, 2003b; see Appendix B for full set of SC items). Subscales reflected all facets of self-compassion: Self-kindness (vs. self-judgment) common humanity (vs. isolation) and mindfulness (vs. over-identification). Responses ranged from 1 = *Almost never* to 5 = *Almost always*. Reverse-scores were calculated for isolation, self-judgment, and over-identification, and then mean scores were calculated for each subscale to assess each dimension of SC: Common Humanity versus Isolation (CH/I; α = .75), Self-Kindness versus Self-Judgment (SK/SJ; α = .86), and Mindfulness versus Over-identification (M/OI; α = .73). The reliability for the full 26-item SC scale was also high (α = .91). *Self-esteem* was also assessed, using the 10-item Rosenberg self-esteem scale (Rosenberg, 1979; α = .88). Body *Mass Index (BMI)* was calculated using self-report height and weight (imperial units). Prior to inclusion in analyses, all baseline (level 1) variables were centered around their group mean, per previous research utilizing multilevel HLM (e.g. David & Suls, 1999).

**Daily Diary Measures.** Daily surveys measured within-person covariation on main predictor and outcome variables.

**Rejection experiences.** Daily experiences of rejection was measured each day by first asking if they felt rejected or excluded by a friend, romantic partner, someone else at work or school; excluded or left out by a group of people; and rejected, excluded, or left out on social
media (0 = did not happen, 1 = occurred but not meaningful, 2 = occurred and somewhat meaningful, 3 = occurred and very meaningful, 4 = occurred and extremely meaningful). There were also four rejection items embedded in the daily affect scale: rejected, excluded or left out, alone, and connected to others (reverse coded) (0 = did not happen at all to 4 - occurred and extremely meaningful). Means for all 9 rejection items for each day were calculated and combined to form a rejection experiences composite score (αs = .82 to .89).

**Negative affect.** Participants were asked to reflect on the extent to which they felt several feelings and emotions ‘today.’ Emotions included in the present analyses include Ashamed, Sad, and Anxious. In exploratory factor analyses, all three emotions loaded onto a single factor for each day; however, across all days, anger was reliably represented by the lowest communality estimate. Thus, means for the negative affect items ashamed, sad, and anxious were calculated and combined (daily αs = .66 to .78).

**Perceived control.** Daily perceived control was measured using a four-item scale, which has been used in a previous study examining impacts of daily social rejection on daily feelings of control over one’s environment (Ford & Collins, 2013). Sample items include, Overall I felt like I had a lot of willpower today and I found it difficult to focus or concentrate today (reverse coded). Responses ranged from 1 = Strongly disagree to 5 = Strongly agree. Means for all items for each day were calculated and combined (as = .65 to .77).

**Macronutrient/unhealthy food cravings.** Cravings for select types of foods were assessed and analyzed as separate dependent variables. Participants were asked to rate how much they were craving the following foods today: Salty snacks; fast foods; high calorie drinks; refined baked goods; sweets; fruits; and vegetables. Examples of each food were provided, and response categories ranged from 1 = not at all to 5 = very much. Cravings were assessed as individual dependent variables, since reliabilities were too low to assess together (αs = .51 to .62).

**Restrictive eating behaviors.** An abbreviated version of the scale used by Brienes and colleagues (2013) was used to measure restrictive disordered eating behaviors. Participants were prompted to reflect back on the day and respond with how frequently they engaged in several disordered eating behaviors, e.g. avoided eating when you were hungry, tried to control your
weight by eating little or no food, dieted (6 items, as = .79 to .84). Responses ranged from 1 = never to 5 = always.

**Statistical Analyses.** Hierarchical Linear Modeling (HLM) was conducted using MPlus software. Multiple observations taken from individuals can be thought of as multi-level data, with observations (e.g. diary entries) constituting the Level 1 data and the individual characteristics (e.g. trait-level moderators: BMI, past eating attitudes and behaviors, SC, and self-esteem) constituting level 2 data (Nezlek, 2008). Therefore, where moderation was examined, diary measures were included as Level 1 data in the models, while baseline measures were included as Level 2 data. I initially conducted a single-level (Level 1) analysis testing the extent to which within-person rejection constructs and eating constructs covary across time points, controlling for some Level 2 constructs (BMI and dietary concern). I then used a nested data structure, specifically multilevel random coefficient modeling, to measure how the between-person Level 2 constructs moderate the within-person Level 1 relationships. HLM automatically omits participants whose data do not vary across the seven diary recording days. Then, collapsing average Level 1 variables across time, I tested for mediation and moderated mediation using PROCESS Macro (Hayes, 2013).

**Results**

**Direct effects of daily rejection experiences.** Previous research has shown that individual differences in attitudes toward food and previous food behaviors can predict variable unhealthy eating outcomes following rejection (Beekman, Stock, & Lieberman, 2015), so dietary concern and restrained and emotional eating (in addition to BMI) at Level 2 were controlled in analyses.

**Macronutrient/unhealthy food cravings.** As expected, on days when participants reported greater rejection, they also reported higher cravings for salty foods ($\beta = .06, p < .03$) and baked goods ($\beta = .05, p < .05$). Rejection was also marginally associated with higher cravings for sweets ($\beta = .04, p = .10$) and lower cravings for fruits ($\beta = -.04, p = .09$) and vegetables ($\beta = -.04, p = .10$). Daily rejection experiences did not significantly predict cravings for high-calorie drinks ($\beta = .02, p = .20$) or fast food ($\beta = .01, p = .49$).
**Disordered eating behaviors.** On days when participants reported greater rejection, they also reported higher daily disordered eating ($\beta = .10, p < .01$). Concerning covariates, surprisingly, individual differences in dietary concern ($\beta = -.01, p = .98$) did not significantly positively predict daily disordered eating. BMI did also not predict daily disordered eating ($\beta = .01, p = .99$).

**Negative affect and perceived control.** Daily rejection was also significantly related to daily variations in affect. On days when participants reported greater rejection, they also reported greater negative affect ($\beta = .26, p < .001$). Furthermore, on days when participants reported greater experiences with rejection, they also reported less perceived control ($\beta = -.18, p < .001$).

**Moderating Role of Self-Compassion.** Moderation was examined only on outcomes that were significantly predicted by rejection experiences in the one-level analyses above. Significant $b_1$ slopes are reported below for individual dependent variables. Simple slopes were computed using the method of Aiken & West (1991). Additionally, to determine if each facet of self-compassion (as well as global self-compassion) affect responses to rejection over and above self-esteem, models were run both controlling for and not controlling for self-esteem, in addition to other study controls of past eating behavior and BMI.

Not controlling for self-esteem, SC moderated the effects of rejection on negative affect ($b = -.046, p < .04$, Figure 1a). The less self-compassionate participants were, the stronger the positive relationship between rejection and negative affect. However, simple slopes computed at +/-1 SD revealed that the relationship between rejection and negative affect is significant at both relatively higher and lower levels of SC ($ps < .01$). SC did not moderate the relationship between rejection and perceived control; single slope analyses confirmed that this relation was significant in both participants high ($b = -.16, p < .004$) and low ($b = -.18, p < .002$) in trait SC (Figure 1b). Finally, SC did moderate the effects of rejection on restrictive eating ($b = -.072, p < .013$), such that participants lower in self-compassion indicated a stronger relationship between rejection and restrictive eating (Figure 1c). Simple slopes revealed the relationship between rejection and restrictive eating was significant at low
levels of SC ($b = .113, p > .001$) but not high SC ($b = .027, p = .24$). SC did not moderate rejection’s effects on cravings ($ps > .12$).

Figure 1. 
Self-compassion (SC), not controlling for self-esteem, moderates effects of daily rejection on negative affect, perceived control, and restrictive eating behaviors.

Thus, participants with lower self-compassion scores showed unhealthier eating outcomes, worse affect, and lower perceived control in response to more (versus less) daily rejection. However, this relationship was either not evident for participants high in SC, or the relationship was weaker for those high in SC compared to those low in SC. Notably, however, when self-esteem was entered into this model, the moderating effects of SC were no longer present: controlling for SE and BMI, there was no moderating effect of SC on the relationship between rejection and affect ($b = -.023, p = .408$), rejection and perceived control ($b = -.025, p = .399$) or rejection and disordered eating ($b = -.046, p = .326$) independent of self-esteem.

**Self-compassion components.** Probing the three different components of SC while controlling for self-esteem, however, revealed one compelling buffering effect independent of self-esteem: controlling for BMI and self-esteem, the common humanity/isolation (CH/I) component of SC moderated the effects of rejection on restrictive eating ($b = -0.068, p < .05$),
such that the lower participants were in CH/I, the stronger the relationship between rejection and restrictive eating (Figure 2). CH/I only marginally moderated the effect of rejection on negative affect ($b = -0.039$, $p = .07$). Neither self-kindness/self-judgment nor mindfulness/over-identification significantly moderated the effects of daily rejection on affect or restricted eating, independent of self-esteem ($ps > .11$).

Figure 2.  
*Common Humanity/Isolation component of SC moderates effects of daily rejection on restrictive eating independent of self-esteem.*

**Mediated Moderation Analyses**

To determine the extent to which negative affect *explains* the relationship between rejection and restrictive eating at different levels of trait self-compassion and self-esteem - mediated moderation analyses were conducted (MacKinnon & Valente, 2014) only on those rejection-eating relationships where significant moderation of self-attitudes was present. I first examined within-level mediation on the level 2 data, with between-level moderation at level 1. Prior to inclusion in analyses, all baseline Level 2 variables were centered around their group mean (e.g. David & Suls, 1999). Then, at the within level, I calculated three slope estimates for the effect of (1) rejection on affect, (2) affect on restrictive eating, and (3) rejection on restrictive eating. Then, at the between level, I regressed each centered proposed moderator on the three slope estimates. Mediated moderation was present when *either* the rejection $\rightarrow$ mediator path was moderated and the mediator $\rightarrow$ outcome path was constant, *or* the rejection $\rightarrow$ mediator path was constant and the mediator $\rightarrow$ outcome path was moderated.
Finally, using RMediation (Tofighi & MacKinnon, 2011), I tested for a simple mediation effects and confidence intervals at +/- 1 SD levels of the moderator variables to probe the presence of mediation at high and low levels of self-esteem and self-compassion.

Figure 3.  
*Mediated Moderation Models*

Two patterns of mediated moderation emerged. The first pattern is rejection to negative affect moderation, in which the moderator qualifies the rejection-affect path of the model, but the affect-eating path is constant (Figure 3a). The second pattern is affect to eating moderation, in which the moderator qualifies the affect-eating path, but the rejection-affect path is constant (Figure 3b). I report estimates ($\mu$) and 95% confidence intervals representing the indirect rejection-affect-eating effects at +/- 1 SD of the moderators (self-esteem and the common humanity component of SC).

When potential moderation of CH/I was entered into the model, controlling for self-esteem and BMI, affect-eating moderation was present (Figure 3b): the rejection $\rightarrow$ negative affect pathway was constant ($b = .251, p < .001$), while the negative affect $\rightarrow$ restrictive eating pathway was moderated by CH/IS (interaction $b = -.13, p < .001$). For low CH/IS participants, the indirect effect estimate is $\mu = 0.068$, and the distribution of the product of coefficients method 95% CI is [0.047, 0.092], indicating an indirect effect. However, for high CH/I participants, the indirect effect estimate is $\mu = -0.006$ [-0.023, 0.01], indicating no indirect effect.
Discussion

Diary data collected over a one-week period provided initial evidence for the impact of rejection on unhealthy cravings for food, disordered eating behaviors, affect, and perceived control. The buffering relationship between rejection and trait self-compassion was established - especially the common humanity / isolation dimension over and above self-esteem - but may also be bidirectional: self-compassionate people may perceive less ostracism in the first place, or ostracism over time may break down people's self-compassionate resources/perspective. Only an experiment manipulating rejection and self-compassion can elucidate these causal pathways.

Consistently across eating-related outcomes, affect, and perceived control, participants who were high in trait SC had healthier and more adaptive cognitions than participants who were low in trait SC, across time. Furthermore, the impact that rejection experiences had on eating-related cognitions was only present in the low-SC group (and not the high-SC group), providing preliminary support for the buffering potential of a self-compassionate perspective. In terms of explaining the relation between rejection and eating outcomes, mediation analyses suggested that the role of affect and perceived control may be most important among those participants low, but not high, in SC. But, this effect washed away when self-esteem was controlled for, confirming the importance of including self-esteem as a covariate in tests of SC effects. Only two subscales of SC - common humanity and isolation - buffered rejections affects over and above self-esteem.

Finally, mediated moderation reveals the mechanism by which common humanity/isolation component of self-compassion moderates the mediation pathway: on the “back” of the model - regardless of how self-compassionate the women were (on this one dimension of self-compassion), they were similarly affectively affected; however, only the less self-compassionate women indicated that this negative affect lead to restrictive eating. In other words, self-compassion buffers against the effects of rejection on eating because it buffers against the negative effects of inevitable feelings of sadness, shame, and anxiety in the face of rejection - not by buffering against the feelings themselves.
Rejection hurts, and inspires shame and sadness, but no one is alone in these feelings, and remembering this common humanity can result in a healthier response to one of life’s most hurtful inevitabilities. In order to determine causality, these phenomena will be explored in the present experimental study.
Chapter 4. Present Study

The present study examined the potential protective benefits of inducing a self-compassionate perspective in the context of rejection on college women's unhealthy eating cognitions and behaviors. The impact of the SC induction, as well as social rejection, was examined on maladaptive and unhealthy eating cognitions similar to the preliminary study, including unhealthy eating willingness, food cravings, and anticipated disordered eating. The present study also includes a behavioral measure of unhealthy eating.

Expanding on previous research supporting the health-protective benefits of self-compassion (Adams & Leary, 2007; Sirois, Kitner, & Hirsch; Terry, Leary, Mehta, & Henderson, 2013), as well as confirming research supporting the harmful impact of rejection on eating behaviors (Baumeister et al., 2005; Oaten, Williams, Jones, & Zadro, 2008; Salvy et al., 2011) using different outcome measures, this research allowed a causal test of the relationship between rejection and cravings for and willingness to eat unhealthy foods, and the buffering role of SC. It also used a novel paradigm to induce a self-compassionate perspective, expanding on the growing body of literature that has attempted to experimentally induce this state (Johnson & O’Brien, 2013; Leary et al., 2007; Odou & Brinker, 2014). Results are useful for determining whether college women should be informed about what SC is, and whether they should be encouraged to practice it in the face of social threat, as it has important health benefits related to food-related cognitions and behaviors in this population susceptible to maladaptive eating patterns.

**Design.** The present study used a 2 (SC reading vs. sleep reading) x 2 (rejection vs. control) design to test these research questions. The study was completed in two time waves. At Time 1 (T1), an initial survey was administered online, via SurveyMonkey, to assess trait-level variables included in analyses as covariates. This survey assessed demographics, trait SC, trait self-esteem, BMI, and past eating attitudes and behaviors. Approximately one week later, at Time 2 (T2), participants came to a lab appointment where they were randomly assigned
into one of four conditions that varied on whether they read about SC or a neutral topic (sleep), and whether or not they were rejected from a group of their peers.

**Hypothesized main effects of rejection condition.** Main effects of both the rejection condition and the SC condition were hypothesized. Consistent with previous research on rejection and unhealthy/excessive eating behaviors (Salvy et al., 2011; Troisi, Gabriel, Derrick, & Geisler, 2015; Twenge et al., 2002) and the association between daily rejection and disordered eating behaviors found in the preliminary study, it was hypothesized that participants in the rejection condition would report greater unhealthy eating willingness and anticipated disordered eating, and eat more during a taste test, compared to participants in the neutral condition - all controlling for BMI and past disordered eating attitudes and behaviors. In other words, participants in the rejection/sleep group and the rejection/SC group would report unhealthier eating cognitions than participants in the control/sleep group and the control/SC group, respectively. Also, consistent with the Needs Threat Model of Ostracism (Baumeister, DeWall, & Vohs, 2009; Van Beest & Williams, 2006; Williams, 2009), it was hypothesized that rejected participants would report lower perceived control than participants who were not rejected. Finally, following the findings of the preliminary study as well as literature on the effects of rejection on dysregulation of emotions (Chow, Tiedens, & Govan, 2008; Han & Kim, 2012; Leary, Koch, & Hechenbleikner, 2001; McLaughlin, Hatzenbuehler, & Hilt 2009; Twenge & Campbell, 2003), it was hypothesized that rejected participants would have higher negative affect than participants who are not rejected.

**Hypothesized main effects of SC condition.** While SC has not been found to be a significant predictor of restrained eating (Wasylkiw, MacKinnon, & MacLellan, 2012), mindfulness and SC more broadly - mindfulness is a component of SC - has been shown to have an effect on reducing binge/uncontrolled eating severity (Webb & Forman, 2013) and anticipated disordered eating (Brienes, Toole, Tu, & Chen, 2014). Furthermore, findings from the preliminary study provided support for a negative relationship between SC and emotional eating. Therefore, consistent with the health-protective potential of being self-compassionate (Sirois et al., 2015), it was hypothesized that participants in the SC induction condition would report lower unhealthy
eating willingness and less anticipated disordered eating than participants in the neutral reading condition. In other words, participants in the rejection/SC group and the control/SC group would report healthier eating cognitions than participants in the rejection/sleep group and the control/sleep group, respectively. Also, consistent with findings on the negative relationship between SC and negative affect (Johnson & O'Brien, 2013; Neff & Vonk, 2009), it was hypothesized that participants in the SC induction condition would report less negative affect. Furthermore, given the impact of SC on utilizing secondary control as an accommodative coping strategy (Allen & Leary, 2007), it follows that SC would have a positive impact on perceived control. Thus, although the effects of SC on perceived control have not been hypothesized or tested, exploratory analysis on the effects of the SC condition on perceived control were conducted.

Hypothesized SC by rejection condition interaction. A two-way interaction was hypothesized between the SC induction condition and the rejection condition, such that SC would buffer the effects of rejection: rejected individuals who were primed to be self-compassionate would have similar (or better/healthier) outcomes than non-rejected (control) individuals in the sleep reading condition. Participants in the rejection/sleep group would report the unhealthiest eating cognitions and behaviors, the highest negative affect, and the lowest levels of perceived control than any other group. More detail about planned group comparisons and testing for interactions is found in the analysis plan on page 52. See Figure 4 for hypothesized interaction effects on two sample dependent variables: unhealthy eating willingness and negative affect.
**Mediation.** Previous research on the effects of social rejection on health risk behaviors, including unhealthy eating, have suggested that rejection’s adverse effects operate via a loss of perceived control (e.g. Warburton, Williams, & Cairns, 2006). I hypothesized that the impact of rejection on unhealthy and anticipated disordered eating would be mediated by perceived control and negative affect. Specifically, women who are rejected would report higher willingness to eat unhealthy foods and more anticipated disordered eating than women who are not rejected, particularly due to a loss in perceived control and an increase in negative affect. See Figure 5 for the full proposed theoretical model, including mediation.

**Trait SC as moderator.** To further explore the buffering effect of SC in a trait - rather than state - way, ancillary analyses substituted trait SC (+/- 1 SD from the mean) in for SC condition effects. In the analyses of the hypothesized interactions between trait SC and the experimental rejection condition, SC was conceptualized both as a total score of all items on the Self Compassion Scale (Neff, 2003b). In addition, follow-up analyses also examined the influence of each of the six subscales, specifically *common humanity, isolation, self-kindness, self-judgment, mindfulness, and overidentification*. These follow-up analyses contribute to the literature by identifying whether specific components of SC underscore the protective benefits of women’s self-compassionate perspectives in the face of social rejection.
Participants

Female college students between the ages of 18 and 25 years were recruited for this study. Students were recruited via The George Washington University Psychology Department subject pool, using the department’s online research sign-up system. Using G*Power software (Faul, Erdfelder, Buchner, & Lang, 2009), an a priori power analysis was run for an ANCOVA with 4 groups, 3 covariates (BMI, past eating behaviors, past disordered eating) and a numerator df = 2. The results of this analysis suggest that 130 participants are needed to detect a medium effect size ($f = .35$) and have power = .95. To even cell sizes and allow room for error in recruitment efforts, I aimed to recruit 160 females for this study.

Time 1 (T1): Online Survey
Via the online sign-up system, participants received a link to enroll in the T1 online survey, which took between 10 and 36 minutes to complete. Informed consent was obtained electronically on the first screen of the survey. The survey assessed trait SC, trait self-esteem, and everyday experiences with ostracism, as well as past eating behaviors, food allergies, dietary concern, height and weight (to calculate BMI), and a battery of other scales that will be examined as moderators in future analyses (not included in the present study). At the completion of the survey, participants were given information on how to sign up for the T2 lab appointment, which took place between 7 and 23 days later.

**Time 2 (T2): Lab Appointment**

Participants were asked not to eat or drink anything other than water for two hours prior to the lab appointment, as the study includes a taste-test and they need a clear palate. Prior to T2, participants were randomly assigned (by random number generator) to one of four conditions according to the 2x2 factorial design: SC vs. sleep reading task, and rejection vs. acceptance from a supposed group task. Upon entering the lab, participants filled out three personal information sheets that asked their first name, age, hometown city and state, major, and what kind of music they like to listen to. Participants were told that they were filling out three sheets because they will be exchanged with the other three people that they are led to believe are in another room in the department who are also participating in the experiment (they are told that they are in separate rooms so that no interaction takes place before the experiment). They were then given three bogus information sheets from three other “participants,” and are asked to indicate who they would most want to work with in a subsequent group task after reading the other “participants’” personal information sheets. They also indicated their preference visually, by indicating in a checkbox on a sheet of paper affixed to each bogus personal information sheet “This is my first choice person to work with” or “This is not my first choice person to work with.” To reduce the possibility of gender-based effects, or leading the participants to make an attribution of gender-based rejection, the other three names are traditionally female or ambiguous names - Sarah, Lauren, and Sam - and were filled out by female graduate students. After deciding on a first choice, the experimenter leaves the room to ostensibly collect the
choices from the other “participants.” This sets up the rejection paradigm, but while the experimenter is gone from the room participants engaged in the SC manipulation.

**SC Manipulation.** While the experimenter was gone, participants were asked to read a pamphlet about different ways to deal with stress. This pamphlet was a laminated printout of the document that was used during the pilot study (which was online) (Appendix A). The researcher emphasized that these are evidence-based strategies that they can apply in their own lives. They were told that they will be asked questions about the content of the handouts, as well as their impressions of the information, during and after the group task. Depending on condition, half of the participants read a handout about what SC is, and how they can practice it the next time they experience rejection, failure, or other stress. Participants assigned to the neutral, or sleep, reading condition read a handout that is a similar style, but about the benefits of sleep for coping with rejection, failure, or other stress. Participants were then prompted to write a brief essay explaining why these strategies are important in college life. They were asked to pretend they were writing for a younger student (an incoming Freshman), and telling them why these strategies are important and how they can employ them.

**Rejection Manipulation.** Four minutes after leaving the room, the experimenter returned to deliver the rejection manipulation. Participants in the rejection condition were given their three sheets back, all of which were marked “This is not my first choice person to work with” and were told “You will move on to the essay and questionnaire while the other participants do this three-person task since you weren’t picked as anyone’s first choice as a group member.” In the acceptance condition, the sheets and the experimenter directions were the same as the rejected condition, but participants do not see their feedback and were told, “one of the other participants in this session couldn’t stay, actually, and the next task required all four people. So, you will all just skip the task move on to the essay and questionnaire.” Experimenters attended a group training session where they rehearsed on each other and with me, to ensure that the manipulation was delivered exactly the same way to all participants (in order to reduce experimenter effects).
Following the rejection manipulation, participants were led to the post-manipulation questionnaire in Medialab, which included manipulation checks, measures of negative affect, perceived control, and eating-related cognitions. Finally, pending food allergies (reported in T1), participants engaged in the behavioral eating task, which was disguised as a taste test.

**Pilot studies**

Two pilot studies were conducted to test whether the SC induction manipulation and rejection manipulation were psychologically valid and effective in inducing a self-compassionate mindset and in making participants feel rejected, respectively.

**Pilot study 1: SC manipulation.** 120 participants were recruited via Amazon Mechanical Turk to participate in the SC manipulation pilot study. Of these participants, 12 were excluded from analyses because participants did not follow instructions; the final sample analyzed included 108 adults (60 female; 45.4% White; $M_{age} = 32.92$). After agreeing to participate in the study, participants were told that they would be asked to read some information about different ways to deal with stress. They were told that these were evidence-based strategies, and were asked to think about ways that they can apply the information “in your daily life.” Depending on randomly-assigned conditions, participants either read about SC or sleep (the neutral control condition). See Appendix A for the content and formatting of the information presented. Following the reading section, participants completed a brief post-manipulation questionnaire.

The post-manipulation questionnaire assessed comprehension (*list two specific things you can do to cope with stress that you learned from the previous reading passage*); rating of how much they can use the information the next time they need to cope with stress (1 = not at all - 5 = definitely); and any other comments about the content and formatting of the reading passage. Affect and control items were measured on a 5-point scale, 1 = definitely do not feel to 5 = definitely feel, and measures with multiple items were averaged and assessed for reliability: Feelings of belonging were measured with three items, *I feel... disconnected; like an outsider; like I don’t belong* (all reverse-coded; $\alpha = .942$). Affect was measured with the following items: *I feel... ashamed, good about myself, liked, insecure* (reverse-coded),
irritated, angry, hostile, annoyed, wrathful, enraged, and mad (α = .823). Overall mood was also assessed on a 21-point thermometer scale from -10 = very unpleasant to 10 = very pleasant. Perceived control was assessed with 6 items, *I feel... like I have control over the course of my life, I have the ability to significantly alter events, like I am able to influence the actions of others, in control, like I have no control* (reverse-coded), powerful (α = .793).

Two unhealthy eating willingness scenarios were asked. The first scenario was, “Suppose that your favorite TV show is on late. You usually like to eat your favorite snacks while you watch your favorite TV show. Your fridge is full of vegetables while your pantry is full of chips and candy.” How willing would you be to eat... *all the chips and candy instead of the vegetables... all of the chips and candy until they were gone*, (r = .583). The second scenario was, “Suppose you were with your friends and one of them offered you sweets, salty snacks, or fast food. How likely would you react the following way?” *I would eat a little bit of it... I would eat a lot of it...* (r = .380).

All participants were able to accurately list two specific facts from the text. They also reported that the information was useful and that they could apply it in their daily lives. Condition effects on affect measures, mood, and perceived control were non-significant, though in every case they consistently trended in the hypothesized direction (ps > .11). There were, however, significant condition effects on both eating scenarios: Controlling for gender and dietary concern, in the TV-watching scenario, participants in the SC condition (M = 3.72) reported less unhealthy eating willingness than participants in the sleep condition (M = 4.42) $F(1, 107) = 4.78, p < .03$). Likewise, in the second, more social eating scenario, participants in the SC condition (M = 4.02) reported marginally significantly less unhealthy eating willingness than participants in the sleep condition (M = 4.47), $F(1, 107) = 3.40, p < .06$).

The null effects on proposed mediators were not hypothesized; however it is possible that the lack of effects could be due to the lack of rejection or stressor to induce mood or control effects in the first place. Perhaps a self-compassionate mindset *alone* does not have an effect on self-esteem, distress, anger, or control, because there is not a stressor to which the participant needs to respond. While the cross-sectional literature on SC indicates that inducing
SC should have an impact on affect and feelings of control, studies that have experimentally manipulated SC and found effects on affect have also induced a stressor; most notably, Leary and colleagues (2007, study 5) found that SC decreased anger, but the manipulation had the participants think about a past stressor that induced anger. Therefore, in the present study, it was hypothesized that inducing a self-compassionate mindset in the face of rejection could still have an effect on affect and perceived control and, in turn, eating-related cognitions. The fact that SC reduced unhealthy eating behavioral willingness in this brief pilot - even though a stressor was not induced - holds promise that SC could buffer against rejections’ negative effects on eating in the lab. The introduction of the essay portion of the SC manipulation in the present study was included to strengthen the manipulation, as well.

Pilot study 2: Rejection manipulation. 92 college students (64 female; 75% White; $M_{age}$ = 19.41) participated in the rejection manipulation lab pilot study. Following methods used in previous research (e.g. Burson, Crocker, & Mischkowsi, 2012; Leary et al., 1995) participants filled out two personal information sheets that asked their first name, age, gender, hometown city and state, major, favorite sports team, favorite hobby, and what kind of music they like to listen to. The rest of the protocol was identical to the protocol proposed for the present study (above), except there were only two other “participants” and the experimenter script for the non-rejection script differed slightly, indicating more acceptance. In this condition, participants were told, “...even though you were picked by other participants as a partner. In fact, trying to come up with satisfactory partners for everyone proved to be so difficult that I just conducted a lottery and your name was randomly chosen to work alone on a ‘different task.’” Following the manipulation, participants were directed to a prepared SurveyMonkey questionnaire.

The post-manipulation questionnaire assessed self-reported feelings of rejection and belongingness; self-esteem, perceived control; Williams, 2007); negative affect; healthy eating intentions (Fila & Smith, 2006); cravings for salty snacks, fast foods, high calorie drinks, refined baked goods, sweets, fruits, and vegetables (along with sample pictures of each food category); and unhealthy eating willingness (5 different scenarios).
While results were comparable in the full sample, analyses were conducted only on the women in the sample, because women are the target sample for the present study. Therefore, selecting women only \((N = 64)\), and controlling for BMI and suspicion of rejection before debriefing, GLM ANCOVAs were run to assess condition effects. Results indicated that participants in the rejection condition felt more rejected \((M = 2.00)\) than participants in the acceptance condition \((M = 1.41)\), \(F(1,62) = 5.19, p < .03\). There were no significant condition differences in healthy eating intentions or cravings for salty snacks, fast foods, high calorie drinks, refined baked goods, fruits, or vegetables, but there were in cravings for sweets: Rejected participants \((M = 2.72)\) craved sweets more than accepted participants \((M = 2.13)\), \(F(1,62) = 4.17, p < .05\). Additionally, there were significant condition effects on three of the five unhealthy eating behavioral willingness scenarios: In a scenario in which they were at a restaurant with friends (social eating scenario), rejected participants reported more unhealthy eating willingness than accepted participants \((M = 3.43)\), \(F(1,62) = 5.88, p < .02\); In a scenario where they are watching TV and snacking late (alone eating scenario), rejected participants reported marginally more unhealthy eating willingness \((M = 3.84)\) than accepted participants \((M = 3.20)\), \(F(1,62) = 3.28, p < .08\); Finally, in a scenario where they are offered “healthier” foods such as fresh fruit, salad, or wholemeal bread, rejected participants significantly reported more willingness to eat “a little” and “a lot” of those foods \((M = 5.30)\) than those who were not rejected \((M = 4.09)\), \(F(1,62) = 7.90, p < .008\).

Although there were significant condition effects on some proposed outcomes of interest and on self-report manipulation checks, notably, there were no significant condition effects on any of the mood or affect items. Although this aligns theoretically to the affective numbness hypothesis of reactions to social exclusion (Baumeister, DeWall, & Vohs, 2009), this is contrary to significant findings on affective measures from social rejection research using this manipulation (e.g. Leary, Tambor, Terdal, & Downs, 1995; Romero-Canyas et al., 2010) as well as similar manipulations, such as Cyberball (e.g. Crowley et al., 2009; Svetieva et al., 2015; Zadro et al., 2004).
One explanation for the lack of results on affect, and relatively weak results on some other outcomes, is due to experimenter error or bias. Indeed, bivariate correlations selecting for different experimenters yielded varying effects of condition on self-reported rejection and mood items. Additionally, it is possible that only being rejected by two other “confederates”, as opposed to the three confederates typical in Cyberball, simply is not strong enough to induce psychologically valid feelings associated with rejection. Finally, the rejection condition evoked clear feelings of rejection (based on an ambiguous social identity, perhaps), but the acceptance condition went beyond simply the absence of rejection to include validation from others, above and beyond getting the opportunity to talk about things they like (on the personal information sheet). It is possible that the two conditions were simply too different to be a fair comparisons of “rejection” versus “not rejection,” tapping into other cognitions such as values affirmation or belongingness. Thus, given the results of the pilot study, the manipulation was refined for the present study in four main ways: (1) More rigorous training of experimenters, in a group training session, with an emphasis on delivering the rejection vs. non-rejection manipulation with little emotion, warmth, or friendliness; (2) Increasing the number of “confederates” from two to three; (3) Removing the language in the non-rejection condition that says the participants were picked by the other students (suggesting acceptance); (4) Removing some of the items on the personal information sheets that could inspire self-affirming feelings or feelings of belongingness, such as the item asking about hobbies, and (5) Introducing the visual cue of rejection by affixing “yes” and “no” checkboxes indicating whether or not the participant is a first choice task partner.

**Measures - Covariates**

Demographic information, trait SC, trait self-esteem, BMI, past disordered eating, emotional eating, restrictive eating, and food allergies were assessed at T1. At T2, the post manipulation survey contained manipulation checks for both the SC and rejection manipulations. See Appendix B for more detail on survey items.

**Demographics (T1).** Gender and age were assessed online, and used to verify that only females over 18 were enrolled in the study.
**BMI (T1).** Height and weight were assessed in imperial units and converted to metric units prior to computing BMI. BMI was computed using the standard equation, (kilograms)/height(square meters).

**Trait SC (T1).** The Self Compassion Scale (SCS) consists of 26 items divided into 6 subscales that correspond to the six components of SC: Self-Kindness (5 items, e.g. *I try to be loving toward myself when I’m feeling emotional pain; α = .803*), Self-Judgment (5 items, e.g. *When times are really difficult, I tend to be tough on myself; α = .818*) Common Humanity (4 items, e.g. *When I’m down and out, I remind myself that there are lots of other people in the world feeling like I am; α = .745*), Isolation (4 items, e.g. *When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world; α = .806*), Mindfulness (4 items, e.g. *When something upsets me, I try to keep my emotions in balance; α = .746*), and Over-identification (e.g. *When something painful happens I tend to blow the incident out of proportion; α = .772*) (Neff, 2003a). Participants were asked to rate each item, indicating how often they behave in each manner, from 1 = *Almost never* to 5 = *Almost always.* Raes (2011) recommends the use of a single total score over the individual subscales for initial analyses, so a total SC score was computed by reversing negative subscale items and then adding all subscale scores (α = .932). In addition, ancillary analyses followed more recent trends in SC research and explored the impact of individual subscales.

**Past Disordered Eating (T1).** The Eating Attitudes Test (EAT-26) is a widely used standardized self-report measure for the assessment of “eating disorder risk” or, more generally, subclinical disturbed or disordered eating attitudes and behaviors. The items form three subscales (i.e. dieting, bulimia and food preoccupation, and oral control.) A score of 20 or above indicates a high level of concern about dieting, body weight, or problematic eating behaviors. Participants were asked how often they engage in certain behaviors or hold certain attitudes. Sample items that capture the spectrum of the behaviors and attitudes include “Am terrified about being overweight”; “Avoid eating when I am hungry”; “Find myself preoccupied with food”; “Engage in dieting behavior”; “Feel extremely guilty after eating”; and “Feel that food controls my life”. (Berland, Thompson, & Linton, 1986). Responses ranged from 1 = never to 6 = always (α = .913).
Emotional, Restrictive, and External Eating (T1). In addition to disordered eating, individual differences in emotional and restrictive eating were measured to control for trait differences in socially-responsive eating. The Dutch Eating Behavior Questionnaire (DEBQ) is a self-report scale for assessing three eating behavior domains; two were used in the present study: restrained eating (10 items; e.g. *How often do you refuse food or drink offered because you are concerned about your weight?*; $\alpha = .927$), and emotional eating (13 items; e.g. *Do you have the desire to eat when you are depressed or discouraged?*; $\alpha = .938$) (Van Strein, Frijters, Bergers, & Defares, 1986). Responses ranged from 1 = never to 5 = very often.

Food Allergies (T1). An open ended asked whether participants have any serious food allergies at the end of the questionnaire. The primary purpose of this item is to disqualify participants with relevant food allergies from the behavioral portion of the T2 experiment; 3 participants met this criterion due to chocolate and/or sugar intolerances and were exempt from the taste test.

Eating disorder history and rapid weight loss (T1). Two questions asked about history of eating disorders and recent rapid weight loss, *Have you ever been treated for an eating disorder* and *Have you lost 20 lbs or more in the last 6 months?* (Yes/No).

Measures - Dependent variables

Manipulation checks (T2). Manipulation checks were included in the post-manipulation T2 survey to confirm the effectiveness of each experimental manipulation. The manipulation check for the SC induction was collected immediately after reading the text. The rejection manipulation check was embedded into the broader mood scale, which was asked immediately following the manipulation.

Manipulation checks - SC Induction. When they were finished reading, participants answered three questions, the first two of which were used in the pilot study. The first was a knowledge content-check question about the general recommended actions: *List two specific things you can do to cope with stress that you learned from the reading passage* (open ended response). The second was a perception question pertaining to the usefulness of the
information: To what extent do you feel that you can use this information next time you need to cope with stress? (1 = Not at All to 5 = Definitely).

While there is no clear method of measuring state self-compassion, I wanted to see how the SC induction affected self-attitudes generally, when comparing participants in the SC reading condition and the sleep reading condition. Therefore, four items about general self-attitudes were also included and embedded within a broader, randomly-presented affect scale. Participants were asked the extent to which they feel: Good about myself, my self-esteem is high, liked, insecure (reverse-coded). Items were averaged for a total score for state self-attitudes (α = .825).

**Manipulation check - Rejection condition.** Using language and methods similar to past studies on rejection and exclusion, participants were asked the extent to which they feel: rejected, excluded or left out and like I belong (reverse-coded). These items are adapted from the post-manipulation questions in studies that use the Needs Threat Model (e.g. Williams, 2007), and were embedded into a broader scale on mood. All mood and rejection items were presented to participants in random order, as we have done in previous studies (Beekman, Stock, & Khurana, in prep; Beekman, Stock, & Marcus, 2015). Responses ranged from 1 = Definitely do not feel to 5 = Definitely feel (5 items, α = .882).

**Proposed Mediators (T2).** Affect and perceived control, were assessed between the manipulations and the outcome (eating) cognitions and behaviors, in order to assess the proposed causal mediation model.

**Negative affect.** Based on the results of pilot testing, and following previous research on the Needs Threat Model (e.g. Williams et al., 2002), the Brief Mood Introspection Scale, and other rejection research assessing affect (e.g. Leary et al., 2007; Masten et al., 2009), several affect items were assessed. Using the stem, “Right now, I feel...” the following items were presented in random order: Good, Bad, Friendly, Happy, Sad, Distressed, Stressed, Anxious, Irritated, Angry, Hostile, Annoyed, Mad. Response categories ranged from 1 = Strongly disagree to 5 = Strongly agree, and scores across all items were averaged for a score on self-report negative affect (13 items; α = .904). Post-hoc principle components analysis revealed negative affect

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loading on two factors: One factor loosely (though not entirely) characterized by externalized affect (irritated, angry, hostile, annoyed, mad, bad, sad), and the other by internalized affect (distressed, stressed, anxious; good, friendly, happy (reverse-coded)). Factor loadings for each item ranged from .555 to .914. However, since original hypotheses address general negative affect, and the reliability for all items was high (α = .904), both components were combined into one 13-item scale.

Perceived control. General feelings of control over one’s environment were assessed using the control subscale items from the Needs Threat Scale: I feel I have control over the course of my life; I feel I have the ability to significantly alter events, I feel like I am able to influence the action of others; I feel in control; I feel I have no control (reverse coded). Once again, response categories ranged from 1 = Strongly disagree to 5 = Strongly agree, and scores across all items were averaged for a score on self-report perceived control (4 items; α = .742).

Eating-Related Cognitions and Behavior (T2). Following manipulation checks and the assessment of mediators, cognitions and behaviors related to both unhealthy and subclinical disordered eating were assessed via self-report and a behavioral paradigm.

Macronutrient cravings. Participants were presented with several categories of food, along with sample pictures of the foods. These sample pictures were taken from a standardized inventory of food pictures (Foroni, Pergola, Argis, & Rumiati, 2013), and were piloted in the rejection paradigm pilot study. Participants were the extent to which they “really want to eat” the following: Salty snacks (e.g. a 1.5 oz. bag of chips); Fast foods (e.g. a small order of fries, hamburger); Sweetened drinks (e.g. a soda or rich coffee drink); Refined baked goods (e.g. muffins, scones); Sweets (e.g. candy bar, jelly beans); Fruits; Vegetables. Responses ranged from 1 = not at all to 5 = very much (5 items; α = .600). Post-hoc principal components analyses supported a two-component model of cravings, such that cravings for salty snacks and fast foods loaded on one component (cravings Group A; r = .331), while cravings for sweets, refined baked goods, and sweetened drinks loaded on a second component (cravings Group B; α = .596).

Unhealthy eating willingness. Two risk-conducive scenarios were presented to participants. These scenarios were adapted from similar measures commonly used to assess other
health-risk cognitions (e.g., Gerrard et al., 2008). The first scenario was reported in previous research (Beekman, Ferrer, Klein, & Persky, 2016); the second scenario was created for the pilot study (above), and adapted from other recent research (Dohnke, Steinilber, & Fuchs, 2015). These scenarios were chosen because they reflected significant (or marginal) effects of rejection during piloting. They also reflect two distinct scenarios that may be risk-conducive: a social scenario and an alone scenario.

The first (social) scenario is: Suppose that you are at a restaurant with friends. You have eaten already and are feeling pretty full, and you are getting ready to ask for the check. Your friend suggests that you order a very delicious, but very unhealthy dish to share while you sit and talk a little longer. They then responded with how willing they would be to eat a few bites, continue to eat, or eat until uncomfortably full (3 items; $\alpha = .749$). The second (alone) scenario is: Suppose that your favorite TV show is on late. You usually like to eat your favorite snacks while you watch your favorite TV show. Your fridge is full of vegetables while your pantry is full of your favorite chips and candy. Participants then responded with how willing they would be to eat the chips and candy instead of the vegetables, and eat the chips and candy until they are gone (2 items; $r = .425$).

**Restrictive eating intentions.** Following previous research assessing anticipated disordered eating in an experimental setting (Brienes et al., 2013), participants were asked to predict how often they would behave in several ways in the coming week. Sample items include, *Avoid eating when you are hungry* and *try to control your weight by eating little or no food*. Responses ranged from 1 = never to 5 = always (6 items; $\alpha = .826$).

**Exercise intentions.** Intentions to exercise in the following week were measured with the single item, *This week, I will engage in physical activity that makes me breathe hard or feel tired during my leisure time this week*. (1 = definitely false to 5 = definitely true).

**Behavioral outcome.** A bogus taste test was used as a behavioral measure of unhealthy eating, following methods used in previous research (e.g. Herman & Polivy, 1975; Salvy et al., 2011; Sproesser, Schupp, & Renner, 2014; Ward & Mann, 2000). To mask the hypothesis, the experimenter told the participant: “The last part of the study is designed to test the effects of
preferred foods on cognitive performance. We would like you to complete a word search task while taste-testing a sample of a food. In your case, the food today is M&Ms” (adapted from Ward & Mann, 2000; Salvy et al., 2011). The word search is identical to a filler task used in one of our previous studies (Beekman, Stock, & Lieberman, 2015), and includes neutral words unrelated to rejection or food.

The experimenter then poured 100 (pre-counted) M&Ms onto a plate in front of the participant, and presented it along with a pencil-and-paper taste-rating sheet and the word search task. As the experimenter left the room, she stated in passing, “you are the last student today and we’ll just throw out the leftover food. Please feel free to help yourself to as much as you’d like.” (Stroud, Tanofsky-Kraff, Wilfley, & Salovey, 2000). The experimenter returned exactly 5 minutes later to collect the word search, rating sheet, and remaining M&Ms and to debrief the participant. After debrief the M&Ms were counted and recorded to determine how much was consumed. Number of M&Ms consumed (100 - remaining M&Ms) was the dependent variable for candy intake.
Chapter 5. Results

Data Analytic Plan

**Preliminary analyses.** Descriptive statistics and frequency checks were run on all T1 and T2 survey items. Factor analyses, reliabilities, and correlations were conducted to form indices of study constructs, in order to measure relationships between constructs. To normalize the scores for the behavioral outcome, so that M&M intake is a comparable metric to all other scaled study constructs, a logarithmic transformation was executed by calculating the natural log (base $e$) of all M&M intake scores. Due to multiple comparisons being made between constructs in correlation matrices, a criterion was set ($p = .01$) to determine statistical significance of all Pearson ($r$) correlations.

**Experimental effects on manipulation checks, eating cognitions, and candy intake.** A series of 2 (Rejection Condition: Rejection vs. Acceptance) X 2 (Reading Condition: Self-Compassion vs. Sleep/Neutral) GLM ANCOVAs was conducted to test the hypothesized main effects and interactions of the rejection and self-compassion induction conditions. These analyses were run first on manipulation checks for the rejection condition; qualitative content analysis of the reading condition comprehension checks served as manipulation checks for the self-compassion induction condition. Looking at each reading condition separately, I read each response to the “strategy” fill-in-the-blank to confirm that participants wrote two relevant strategies. Next, GLM ANCOVAs were run on all T2 eating cognitions and candy intake. GLM ANCOVAs controlled for BMI, three indices of existing eating cognitions and behavior (EAT, EBQ-R and EBQ-E), and suspicion of the rejection condition and taste test, where relevant. ANOVAs also checked for failures of randomization between all four conditions. In the case of significant two-way interactions, pairwise comparisons were also examined, and significant pairwise comparisons are reported herein. The criterion for statistical significance was set at $p = .05$ for tests of main effects and two-way interactions. GLM ANCOVAs indicate whether results are significant at this level, even after Bonferroni adjustments for multiple comparisons. Where this criterion is not sufficient, a different criterion will be indicated.
Marginally significant results are reported as well, when $p < .07$, to indicate patterns in the data.

**Mediation analysis.** Where there were significant effects of the rejection condition on eating cognitions and behaviors, mediation analyses were run. These analyses tested whether the effects of rejection are mediated by loss of perceived control and/or increased negative affect. Where rejection by SC condition effects are significant, tests for mediated moderation were planned to test whether this mediation pathway is present in participants who were in the sleep reading condition, but not the SC induction condition. Mediation and mediated moderation were conducted using bootstrapping methods in SPSS, specifically the PROCESS Macro, Models, 4, 5, and 15 (Hayes, 2013).

**Trait self-compassion as a moderator.** Based on results from the preliminary daily diary study, which indicated the moderating role of trait (baseline) self-compassion in the face of rejection, ancillary analyses were conducted to determine whether trait-level self-compassion moderated the effects of rejection condition on affect, eating cognitions, and food intake, controlling for self-compassion induction reading condition and other study controls. Multiple regression analyses were employed to test for interaction effects of both global self-compassion (all items in the SCS; Neff, 2003b), as well as the six individual subscales of self-compassion. BMI, EAT, EBQ-R, EBQ-E, suspicion, reading condition, and self-esteem were entered into the first step of the regression as covariates, followed by rejection condition and self-compassion (global or component) in the second step, and finally the rejection*self-compassion interaction in the third step. Outlier analyses were conducted to determine whether any individual participants’ regression results lie outside of 3 SD from the group mean.

**Mediated moderation.** In instances where affect or control significantly mediated the impact of rejection on eating outcomes, and trait SC or SC subscales moderated the effects of rejection on affect, control, or eating outcomes, I tested for mediated moderation using PROCESS Macro models 5 and 15 (methods similar to Beekman, Stock, & Howe, under review). By running two models, one can decipher exactly where in the mediation pathway SC moderates effects – either by moderating the relationship between rejection and
affect/control, or the relationship between (pathways specified in hypothesized study model, Figure 5).

Participants

One hundred fifty-three college women aged 18-24 ($M_{\text{age}} = 19.23$) participated in the study. 68.6% of participants self-identified as White/Caucasian, while the second largest group was Asian/Pacific Islander (20.9%). Other race/ethnicities represented in the sample were African American/Black (7.2%), Hispanic or Latino/a (6.5%), American Indian / Alaskan Native (0.7%) and other races or ethnicities (4.6%). Additionally, 8.5% of the sample reported more than one race/ethnicity. Self-reported body weight in the sample ranged from underweight ($\text{BMI} = 14.98$) to obese ($\text{BMI} = 40.33$), with an average of normal weight ($M_{\text{BMI}} = 22.98$). 8 women reported having ever been treated for an eating disorder, while 7 reported having lost 20 pounds or more in the last 6 months.

Descriptive Statistics and Correlations

Bivariate correlations, means, and standard deviations for BMI, T1 eating cognitions and behaviors, perceived rejection, T2 affect and perceived control, T2 eating cognitions, and T2 candy intake are presented in Table 1. Only exercise intentions were associated, positively, with BMI ($p < .001$); none of the eating cognitions nor candy intake correlated with BMI. Also, suspicion of rejection did not correlate with any study variables ($ps > .16$).
Table 1.
Correlations, means, and standard deviations for all covariates, T2 affect and perceived control, T2 eating cognitions, and food intake

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
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<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<th>12</th>
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<tbody>
<tr>
<td>1.</td>
<td>BMI</td>
<td>--</td>
<td>.18</td>
<td>.15</td>
<td>.14</td>
<td>.14</td>
<td>.06</td>
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<td>-.07</td>
<td>.15</td>
<td>.16</td>
<td>.04</td>
<td>.28**</td>
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<td>2.</td>
<td>EAT</td>
<td>--</td>
<td>.79**</td>
<td>.50**</td>
<td>-.06</td>
<td>.25*</td>
<td>.29**</td>
<td>-.18</td>
<td>-.18</td>
<td>-.10</td>
<td>-.04</td>
<td>.02</td>
<td>.16</td>
<td>.69**</td>
<td>-.01</td>
</tr>
<tr>
<td>3.</td>
<td>Restrictive Eating</td>
<td>--</td>
<td>.44**</td>
<td>-.02</td>
<td>.15</td>
<td>.25*</td>
<td>-.12</td>
<td>-.26*</td>
<td>-.06</td>
<td>-.03</td>
<td>-.03</td>
<td>.12</td>
<td>.70**</td>
<td>-.09</td>
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<tr>
<td>4.</td>
<td>Emotional Eating</td>
<td>--</td>
<td>-.10</td>
<td>.31**</td>
<td>.32**</td>
<td>-.15</td>
<td>.13</td>
<td>.11</td>
<td>.21*</td>
<td>.21</td>
<td>.10</td>
<td>.41**</td>
<td>.09</td>
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<tr>
<td>5.</td>
<td>Suspicion of rejection</td>
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<td>-.07</td>
<td>.04</td>
<td>-.11</td>
<td>-.09</td>
<td>-.15</td>
<td>.01</td>
<td>.05</td>
<td>-.08</td>
<td>-.05</td>
<td>-.14</td>
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<td>6.</td>
<td>Perceived rejection</td>
<td>--</td>
<td>.70**</td>
<td>-.47**</td>
<td>-.07</td>
<td>.11</td>
<td>.12</td>
<td>.25</td>
<td>.01</td>
<td>.29**</td>
<td>-.05</td>
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<td>7.</td>
<td>Negative affect</td>
<td>--</td>
<td>-.64***</td>
<td>.21</td>
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<td>.05</td>
<td>.11</td>
<td>.07</td>
<td>.34**</td>
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<td>8.</td>
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<td>.02</td>
<td>.09</td>
<td>.03</td>
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<td>.26*</td>
<td>.21*</td>
<td>.31</td>
<td>-.08</td>
<td>-.18</td>
<td>.26*</td>
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<td>-.07</td>
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<td>.44**</td>
<td>.09</td>
<td>.08</td>
<td>.09</td>
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<td>.08</td>
<td>.07</td>
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<td>Exercise Intention</td>
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<td>15.</td>
<td>Food Intake (log)</td>
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<table>
<thead>
<tr>
<th></th>
<th>M</th>
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<td></td>
<td>22.9</td>
<td>3.84</td>
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<tr>
<td></td>
<td>2.41</td>
<td>0.72</td>
<td>1.1 - 5.5</td>
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<td>2.48</td>
<td>0.90</td>
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<td></td>
<td>2.56</td>
<td>0.87</td>
<td>0 - 1</td>
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<tr>
<td></td>
<td>0.11</td>
<td>0.32</td>
<td>1 - 4.6</td>
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<tr>
<td></td>
<td>2.02</td>
<td>0.91</td>
<td>1 - 3.9</td>
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<td></td>
<td>2.03</td>
<td>0.64</td>
<td>1.3 - 5</td>
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<tr>
<td></td>
<td>3.20</td>
<td>0.79</td>
<td>1 - 5</td>
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<td>1.31</td>
<td>0 - 4.3</td>
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<td>2.26</td>
<td>0.79</td>
<td>0 - 4.3</td>
</tr>
<tr>
<td></td>
<td>2.33</td>
<td>1.19</td>
<td>0 - 4.3</td>
</tr>
</tbody>
</table>

Note. “Perceived rejection” is the composite rejection manipulation check; “Group A” = Salty foods and fast food; “Group B” = Baked goods, high calorie drinks, and sweets; “BW” = Unhealthy eating behavioral willingness; *p < .01, **p < .001
Most of the baseline eating cognitions and behaviors were unrelated to post-manipulation eating cognitions, except that restrictive eating was negatively correlated with cravings for salty foods and fast foods ($p < .01$) and emotional eating was positively associated with the social unhealthy eating behavioral willingness scenario ($p < .01$). Several significant correlations did emerge among eating cognitions. Participants who reported higher disordered eating behaviors (high score on the EAT) also reported more restrictive eating ($p < .001$) and more emotional eating ($p < .001$). Emotional and restrictive eating were positively correlated with each other as well ($p < .001$). Participants high in disordered eating behaviors at T1 also perceived more rejection, regardless of condition ($p < .01$) and reported higher negative affect at T2 ($p < .001$).

Negative affect was only associated with feelings of rejection ($p < .001$) and, curiously, positively associated with exercise intentions ($p < .001$). Also positively associated with exercise intentions were: EAT, EBQR, EBQE, and perceived rejection ($ps < .001$). Restrictive eating intentions, on the other hand, were not associated with any other study variables at the bivariate level using the $p < .01$ criterion.

Cravings for foods in both group A and group B correlated with other eating cognitions, in addition to being positively related to each other ($p < .01$): participants who craved salty foods and fast foods were more willing to eat unhealthy foods in the social willingness scenario (scenario 1; $p < .01$). Candy intake also seemed to reflect cravings for foods: participants who ate more M&Ms also craved more of both salty foods and fast foods ($p < .01$) and sweets, baked goods, and high calorie drinks ($p < .001$); no other study variable was associated with intake ($ps > .18$).

**Preliminary Analyses: Effects of Experimental Conditions**

GLM ANCOVAs verified that there were no randomization errors. They were also run to test the effectiveness of the rejection condition, and examine the impact of rejection and reading conditions on negative affect, perceived control, eating and exercise cognitions, and candy intake.
Randomization checks. ANOVAs without covariates were run on BMI and past eating cognitions and behaviors (EAT, EBQ-R, and EBQ-E) and individual differences in trait self-compassion. There were no significant condition effects between any of the four experimental groups (ps > .21), indicating no failures of randomization.

Manipulation checks.

Rejection condition manipulation check. A one-way ANOVA, with no controls, revealed that rejected participants reported feeling more rejected than participants in the acceptance condition ($F = 10.79, p < .002; M_{acc} = 1.80, M_{rej} = 2.25$). GLM ANCOVAs including both rejection condition and reading condition, and their interaction, confirm this effect across both reading conditions: Table 2 shows estimated marginal means and standard errors for the rejection manipulation check across all four conditions. The two-way interaction between condition failed significance ($p = .97$), but pairwise comparisons examining rejection condition effects within each reading condition held that in both reading conditions, rejected participants felt more rejected ($ps < .03$).

<table>
<thead>
<tr>
<th>Rejection Condition</th>
<th>SC Condition (overall mean &amp; SE)</th>
<th>Accepted $M = 1.81$ (0.10)</th>
<th>Rejected $M = 2.24$ (0.10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neutral Reading</td>
<td>$M = 2.00$ (0.11)</td>
<td>1.79$^a$ (0.14)</td>
<td>2.24$^b$ (0.14)</td>
</tr>
<tr>
<td>Self-Compassion Reading</td>
<td>$M = 2.06$ (0.10)</td>
<td>1.81$^a$ (0.14)</td>
<td>2.27$^b$ (0.14)</td>
</tr>
</tbody>
</table>

Note. Means that do not share subscripts are significantly different ($p < .05$), reflecting pairwise comparisons. DV range: 1 = definitely do not feel to 5 = definitely feel

Self-compassion condition manipulation checks. A one-way ANOVA revealed no significant difference in state self-attitudes between reading conditions ($F = 0.343, p = .56$). GLM ANCOVAs including both rejection condition and reading condition, and their interaction, also found no significant effect of reading condition on state self-attitudes ($F = .006, p = .94$).
Reading comprehension check and strategy word count. All participants reported two strategies that accurately reflected the information in the reading materials. There was no significant difference in usefulness of information ($F = 0.071$, $p = .791$; $M_{\text{neutral}} = 4.00$; $M_{\text{sc}} = 3.96$). Further content coding analysis was conducted to assess how much participants wrote when asked to recall strategies from the reading. Participants wrote between 2 and 61 words across conditions ($M = 10.55$, $SD = 8.34$), however ANOVAs revealed that participants generally wrote more when writing about sleep strategies than SC strategies ($F = 5.81$, $p < .02$; $M_{\text{neutral}} = 12.28$, $M_{\text{sc}} = 8.97$). Table 3 shows estimated marginal means of strategy word count across all four conditions. A significant two-way interaction ($F = 7.17$, $p < .007$) showed that there was only a significant effect of reading condition on word count in the accepted condition ($p < .003$).

<table>
<thead>
<tr>
<th></th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Neutral Reading</strong></td>
<td>$M = 12.32$ (1.00)</td>
<td>$M = 11.39$ (9.40)</td>
</tr>
<tr>
<td></td>
<td>$14.66_a$ (1.31)</td>
<td>$9.77_b$ (1.35)</td>
</tr>
<tr>
<td><strong>Self-Compassion Reading</strong></td>
<td>$M = 8.81$ (0.87)</td>
<td>$7.93_b$ (1.30)</td>
</tr>
<tr>
<td></td>
<td>$10.11_b$ (1.33)</td>
<td></td>
</tr>
</tbody>
</table>

Note. Means that do not share subscripts are significantly different ($p < .05$), reflecting pairwise comparisons.

Affect, eating cognitions, and candy intake. GLM ANCOVAs tested the hypothesized impact of the experimental manipulations on feelings of control and negative affect. Covariates in the models were: past disordered eating behaviors and attitudes (EAT, EBWR, EBQE) and BMI.

Feelings of control. Estimated marginal means and standard errors of feelings of control are presented in Table 4. GLM ANCOVAs revealed a significant main effect of the rejection condition ($F = 9.26$, $p > 0.003$), such that rejected participants ($M = 3.01$) felt less in
control than accepted participants \((M = 3.38)\). There was no significant effect of reading condition on feelings of control \((p = .89)\), nor was the interaction between rejection and reading condition significant \((p = .84)\). Pairwise comparisons revealed that the significant effect of rejection condition on feelings of control was significant in both the neutral reading group \((p < .03)\) and the SC reading group \((p < .05)\).

Table 4.
*Estimated marginal means and standard errors for feelings of control by condition.*

<table>
<thead>
<tr>
<th>SC Condition (overall mean &amp; SE)</th>
<th>Accepted (M = 3.38 (0.08))</th>
<th>Rejected (M = 3.01 (0.09))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neutral Reading (M = 3.17 (0.03))</td>
<td>(3.38_{a}) (0.13)</td>
<td>(2.97_{b}) (0.13)</td>
</tr>
<tr>
<td>Self-Compassion Reading (M = 3.23 (0.09))</td>
<td>(3.73_{a}) (0.13)</td>
<td>(3.01_{b}) (0.13)</td>
</tr>
</tbody>
</table>

*Note. Means that do not share subscripts are significantly different \((p < .05)\), reflecting pairwise comparisons. DV range: 1 = *definitely do not feel* to 5 = *definitely feel*.*

**Negative affect.** A similar pattern emerged for condition effects on negative affect, and estimated marginal means and standard errors are presented in Table 5. GLM ANCOVAs revealed a significant main effect of rejection condition on negative affect \((F = 7.34, p < .008)\), such that rejected participants reported higher negative affect \((M = 2.15)\) than accepted participants \((M = 1.91)\). There was no main effect of reading condition on negative affect \((p = .75)\), and the interaction between rejection and reading conditions was also not significant \((p = .80)\). Pairwise comparisons reveal that the simple effect of rejection on negative affect was significant among the self-compassion reading group \((p < .04)\), but only marginally significant in the neutral reading group \((p = .08)\).
Table 5.
*Estimated marginal means and standard errors for negative affect by condition.*

<table>
<thead>
<tr>
<th>SC Condition (overall mean &amp; SE)</th>
<th>Rejection Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accepted</td>
<td>Rejected</td>
</tr>
<tr>
<td>( M = 1.91 ) ( (0.07) )</td>
<td>( M = 2.15 ) ( (0.08) )</td>
</tr>
</tbody>
</table>

| Neutral Reading                  | Accepted \( M = 1.89 \) \( (0.07) \) | Rejected \( M = 2.14 \) \( (0.10) \) |
|----------------------------------|----------------------------------------|
| \( M = 2.02 \) \( (0.07) \)      | \( (0.10) \)                           |

| Self-Compassion Reading         | Accepted \( M = 1.19 \) \( (0.09) \) | Rejected \( M = 2.19 \) \( (0.10) \) |
|----------------------------------|----------------------------------------|
| \( M = 2.04 \) \( (0.07) \)      | \( (0.09) \)                           |

*Note. Means that do not share subscripts in the same row are significantly different (\( p < .05 \)); effects of rejection among the self-compassion reading group are only marginally significant (\( p = .08 \)). DV range: 1 = \textit{definitely do not feel} to 5 = \textit{definitely feel}*

**Unhealthy food cravings.** Estimated marginal means and standard errors of cravings across condition are shown in Tables 6 and 7. A GLM ANCOVA showed a marginally-significant main effect of rejection condition on cravings for salty foods and fast foods \( (F = 2.81, p = .09) \), such that accepted individuals craved slightly more \( (M = 2.21) \) than rejected individuals \( (M = 2.09) \). There was no significant main effect of reading condition \( (p = .76) \), nor was the interaction between the two conditions significant \( (p = .32) \). Pairwise comparisons revealed only a marginal simple effect of rejection on cravings for salty and fast foods among participants in the SC reading group \( (p = .06) \), and none in the neutral reading group \( (p = .63) \). Neither of the main effects nor the interaction were significant for cravings for sweets, baked goods, and high calorie drinks \( (ps > .25) \).
Table 6.
Estimated marginal means and standard errors for cravings for salty foods and fast food (Group A) by condition.

<table>
<thead>
<tr>
<th>Rejection Condition</th>
<th>SC Condition (overall mean &amp; SE)</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$M = 2.21 (0.12)$</td>
<td>$M = 2.09 (0.12)$</td>
</tr>
<tr>
<td>Neutral Reading</td>
<td>$M = 2.13 (0.11)$</td>
<td>2.18&lt;sub&gt;a&lt;/sub&gt; (0.15)</td>
<td>2.07&lt;sub&gt;a&lt;/sub&gt; (0.16)</td>
</tr>
<tr>
<td>Self-Compassion Reading</td>
<td>$M = 2.18 (0.11)$</td>
<td>2.38&lt;sub&gt;a&lt;/sub&gt; (0.15)</td>
<td>1.97&lt;sub&gt;a&lt;/sub&gt; (0.16)</td>
</tr>
</tbody>
</table>

Note. Means that do not share subscripts in the same row are marginally different ($p < .05$). DV range: 1 = not at all to 5 = very much.

Table 7.
Estimated marginal means and standard errors for cravings for sweets, baked goods, and high calorie drinks (Group B) by condition.

<table>
<thead>
<tr>
<th>Rejection Condition</th>
<th>SC Condition (overall mean &amp; SE)</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$M = 2.21 (0.11)$</td>
<td>$M = 2.29 (0.12)$</td>
</tr>
<tr>
<td>Neutral Reading</td>
<td>$M = 2.22 (0.11)$</td>
<td>2.27&lt;sub&gt;a&lt;/sub&gt; (0.16)</td>
<td>2.17&lt;sub&gt;b&lt;/sub&gt; (0.17)</td>
</tr>
<tr>
<td>Self-Compassion Reading</td>
<td>$M = 2.28 (0.11)$</td>
<td>2.15&lt;sub&gt;b&lt;/sub&gt; (0.17)</td>
<td>2.41&lt;sub&gt;c&lt;/sub&gt; (0.16)</td>
</tr>
</tbody>
</table>

Note. Means that do not share subscripts are significantly different ($p < .05$). DV range: 1 = not at all to 5 = very much.

Unhealthy eating behavioral willingness. Estimated marginal means and standard errors of behavioral willingness across conditions are presented in Tables 8 and 9. Table 8 represents the social eating scenario, while Table 9 represents the alone eating scenario. Neither the main effects nor the interaction of the two conditions was significant for willingness in the social eating scenario. However, a GLM ANCOVA showed a main effect of rejection condition on willingness in the alone eating scenario, ($F = 4.45, p < .04$), such that rejected participants reported lower willingness ($M = 3.28$) than accepted participants ($M = 3.56$). Pairwise comparisons revealed only a marginal simple effect of rejection condition on
willingness in the alone scenario for participants in the neutral reading group ($p = .06$), and no effect for participants in the self-compassion reading group.

Table 8.
*Estimated marginal means and standard errors for unhealthy eating behavioral willingness in the social scenario by condition*

<table>
<thead>
<tr>
<th>Rejection Condition</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SC Condition</strong></td>
<td><strong>M = 3.61 (0.14)</strong></td>
<td><strong>M = 3.19 (0.14)</strong></td>
</tr>
<tr>
<td>Neutral Reading</td>
<td>3.82&lt;sub&gt;a&lt;/sub&gt; (0.20)</td>
<td>3.28&lt;sub&gt;a&lt;/sub&gt; (0.21)</td>
</tr>
<tr>
<td>Self-Compassion Reading</td>
<td>3.41&lt;sub&gt;a&lt;/sub&gt; (0.21)</td>
<td>3.10&lt;sub&gt;a&lt;/sub&gt; (0.20)</td>
</tr>
</tbody>
</table>

*Note. Means that do not share subscripts are significantly different ($p < .05$). DV range: 1 = *not at all* willing to 7 = *very willing.*

Table 9.
*Estimated marginal means and standard errors for unhealthy eating behavioral willingness in the alone scenario by condition*

<table>
<thead>
<tr>
<th>Rejection Condition</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SC Condition</strong></td>
<td><strong>M = 3.56 (0.13)</strong></td>
<td><strong>M = 3.28 (0.13)</strong></td>
</tr>
<tr>
<td>Neutral Reading</td>
<td>3.82&lt;sub&gt;a&lt;/sub&gt; (0.20)</td>
<td>3.28&lt;sub&gt;a&lt;/sub&gt; (0.21)</td>
</tr>
<tr>
<td>Self-Compassion Reading</td>
<td>3.41&lt;sub&gt;a&lt;/sub&gt; (0.21)</td>
<td>3.10&lt;sub&gt;a&lt;/sub&gt; (0.20)</td>
</tr>
</tbody>
</table>

*Note. Means that do not share subscripts in the same row are significantly different ($p < .05$). DV range: 1 = *not at all* willing to 7 = *very willing.*

Restrictive eating intentions. A GLM ANCOVA revealed a significant main effect of rejection condition on restrictive eating intentions ($F = 3.95$, $p < .05$), such that rejected individuals reported higher intentions to restrict ($M = 2.32$) than their accepted counterparts ($M = 2.15$). There was no main effect of reading condition on restrictive eating intentions ($p = .77$), nor was the interaction between rejection and SC reading condition significant ($p = .50$; Table 10). Simple effects analysis revealed that the effect of rejection on restrictive eating
intentions was only marginally present in the SC reading group \((p = .06)\), and not present in the neutral reading group \((p = .36)\).

Table 10.
*Estimated marginal means and standard errors for restrictive eating intentions by condition*

<table>
<thead>
<tr>
<th>Rejection Condition</th>
<th>SC Condition (overall mean &amp; SE)</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(M = 2.15 (0.08))</td>
<td>(M = 2.32 (0.09))</td>
</tr>
<tr>
<td>Neutral Reading</td>
<td>(M = 2.30 (0.09))</td>
<td>2.18(_a) (0.08)</td>
<td>2.31(_a) (0.08)</td>
</tr>
<tr>
<td>Self-Compassion Reading</td>
<td>(M = 2.21 (0.09))</td>
<td>2.12(_a) (0.08)</td>
<td>2.34(_a) (0.08)</td>
</tr>
</tbody>
</table>

*Note. Means that do not share subscripts in the same row are significantly different \((p < .05)\). DV range: 1 = *never* to 5 = *always.**

Exercise intentions. For intentions to exercise, condition main effects, simple effects, and the interaction between conditions were non-significant \((ps > .13; \text{Table 11})\).

Table 11.
*Estimated marginal means and standard errors for exercise intentions by condition*

<table>
<thead>
<tr>
<th>Rejection Condition</th>
<th>SC Condition (overall mean &amp; SE)</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(M = 3.51 (0.16))</td>
<td>(M = 3.70 (0.14))</td>
</tr>
<tr>
<td>Neutral Reading</td>
<td>(M = 3.79 (0.16))</td>
<td>3.59(_a) (0.22)</td>
<td>3.97(_a) (0.23)</td>
</tr>
<tr>
<td>Self-Compassion Reading</td>
<td>(M = 3.42 (0.15))</td>
<td>3.29(_a) (0.22)</td>
<td>3.57(_a) (0.23)</td>
</tr>
</tbody>
</table>

*Note. Means that do not share subscripts are significantly different \((p < .05)\). DV range: 1 = *definitely false* willing to 5 = *definitely true.**

Candy intake. GLM ANCOVAs revealed a marginal main effect of rejection condition on intake \((F = 3.54, p = .06)\), such that participants who were rejected ate more than participants who were accepted \((M = 2.52 \text{ and } M = 2.18, \text{ respectively})\). Main effects of self-compassion condition, simple effects, and interaction effects were all non-significant \((ps > .09)\).
Table 12. 
*Estimated marginal means and standard errors for candy intake*

<table>
<thead>
<tr>
<th>Rejection Condition</th>
<th>SC Condition (overall mean &amp; SE)</th>
<th>Accepted</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$M = 2.18$ $(0.15)$</td>
<td>$M = 2.52$ $(0.12)$</td>
</tr>
<tr>
<td>Neutral Reading</td>
<td>$M = 2.46 (0.15)$</td>
<td>$2.26_a$ (0.20)</td>
<td>$2.77_a$ (0.21)</td>
</tr>
<tr>
<td>Self-Compassion Reading</td>
<td>$M = 2.26 (0.14)$</td>
<td>$2.08_a$ (0.20)</td>
<td>$3.32_a$ (0.23)</td>
</tr>
</tbody>
</table>

*Note. Means that do not share subscripts are significantly different ($p < .05$). A logarithmic transformation (log base e) was used for candy intake.*

**Mediation**

**Feelings of control as mediator.** Bootstrap mediation analyses using PROCESS Macro model 4 (Hayes, 2013) revealed no mediating effect of perceived control on cravings, behavioral willingness, restrictive eating intentions, or candy intake (all CIs for indirect effect of X on Y contained 0.)

**Negative affect as mediator.** Negative affect did not emerge as a significant mediator for cravings for sweets, baked goods, and high-calorie beverages, behavioral willingness, or candy intake (all CIs for indirect effects contained 0). However, negative affect did mediate (explain) the relationship between rejection condition and the following outcomes:

**Cravings for salty foods and fast foods (Group A).** Bootstrap mediation analyses revealed a significant effect of negative affect ($\mu = -.36, t = -2.77, p < .007$ [LLCI: -.61, ULCI: -.10]), such that higher negative affect was associated with lower cravings. Additionally, there was an indirect effect of rejection on cravings, through negative affect ($\mu = -.10, [LLCI: -.23, ULCI: -.02]$), confirming that rejection leads to increased negative affect, which in turn leads to decreased cravings for salty foods and fast foods.

**Restrictive eating intentions.** A similar pattern of negative affect mediation emerged on intentions to restrict. Bootstrap mediation analyses revealed a significant positive effect of negative affect on restrictive eating intentions ($\mu = .16, t = 2.26, p = .03$, [LLCI: .02, ULCI: .31]). Higher negative affect was associated with greater restrictive eating intentions, which
helps explain the effects of rejection: There was an indirect effect of rejection on restrictive eating intentions, through negative affect ($\mu = .05$, [LLCI: .01, ULCI: .13]. Rejection leads to increased negative affect, which in turn leads to increased intentions to restrict food intake.

Mediated moderation was not conducted, since there were no significant interactions of rejection condition and SC reading condition on any outcome variables.

Ancillary Analyses: Trait Self-Compassion as a Moderator

To account for the finding that the self-compassion manipulation failed to have an effect on any of the study outcome variables - potentially suggesting failure to induce self-compassion - trait self-compassion was explored as a potential moderator of the effects of experimental rejection condition. Additionally, because the six subscales of self-compassion loaded on six different components in principal components analyses in the present study (supporting a six-factor model), and following recent trends in exploration of self-compassion subscales individually and independently (Brooks, Kay-Lambkin, Bowman, & Childs, 2012; Iskender, 2009; Petrocci, Ottaviana, & Couyoumdjian, 2014; Williams, Dalgleish, Karl, & Kuyken, 2014), regressions were run on each of the six individual subscales as moderators of rejection condition.

Prior to analyses, bivariate correlations between self-compassion subscales were examined. While it was expected that correlations between subscales within dimensions of SC would be high and negative (e.g. common humanity and isolation negatively correlated; self-kindness and self-judgment negatively correlated; and mindfulness and over-identification negatively correlated), an unexpected finding arose: Over-identification was positively correlated with mindfulness, and both of the other two positive (vs. self-critical) subscales (Table 15). To maintain fidelity with the original SCS (Neff, 2003b), the global SC scale was calculated with all subscales; however, over-identification was omitted from analyses on individual subscales, due to this unexpected, spurious finding.
Table 13.
Bivariate correlations between self-compassion subscales

<table>
<thead>
<tr>
<th></th>
<th>Common Humanity vs.</th>
<th>Self-Kindness vs. Self-Judgment</th>
<th>Mindfulness vs. Overidentification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SC</td>
<td>1a</td>
<td>1b</td>
</tr>
<tr>
<td>Self-Compassion (full scale)</td>
<td>--</td>
<td>1a</td>
<td>1b</td>
</tr>
<tr>
<td>1a. Common Humanity</td>
<td>.67**</td>
<td>--</td>
<td>1b</td>
</tr>
<tr>
<td>1b. Isolation</td>
<td>-.82**</td>
<td>-.44**</td>
<td>--</td>
</tr>
<tr>
<td>2a. Self-kindness</td>
<td>.84**</td>
<td>.55**</td>
<td>-.53**</td>
</tr>
<tr>
<td>2b. Self-judgment</td>
<td>-.83**</td>
<td>-.32**</td>
<td>.71**</td>
</tr>
<tr>
<td>3a. Mindfulness</td>
<td>.76**</td>
<td>.61**</td>
<td>-.50**</td>
</tr>
<tr>
<td>3b. Overidentification</td>
<td>.85**</td>
<td>.41**</td>
<td>-.70**</td>
</tr>
</tbody>
</table>

M 2.79 3.01 3.30 2.80 3.38 3.12 2.59
SD .68 .81 .93 .78 .87 .77 .91

Note: **p < .001

Table 14 reports bivariate correlations representing relationships between self-compassion globally and each subscale - covariates, and outcome variables. Hierarchical multiple regression analyses were run due to the continuous nature of the trait self-compassion measure. The rejection condition was entered into the regression as a dichotomous variable (0 = acceptance, 1 = rejection), and self-compassion globally and all individual subscales were centered prior to analyses (West, Aiken, & Krull, 1996). The model included, stepwise: (1) all centered covariates used in the GLM ANCOVAs, plus centered trait self-esteem, to demonstrate that SC is independent of self-esteem (Neff, 2011) (2) main effects of rejection condition and trait self-compassion, and (3) the two-way interaction among experimental condition and self-compassion. Simple effects of SC within each rejection condition were analyzed by regressing SC on the dependent variable, selecting only for the rejection condition. Simple slopes representing high vs. low SC were calculated using +/- 1 SD from the mean of SC (Aiken & West, 1991).
<table>
<thead>
<tr>
<th></th>
<th>Full SC Scale</th>
<th>Common Humanity</th>
<th>Isolation</th>
<th>Self-Kindness</th>
<th>Self-Judgment</th>
<th>Mindfulness</th>
<th>Over-Indentification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-esteem</td>
<td>.67***</td>
<td>.44***</td>
<td>-.62***</td>
<td>.50***</td>
<td>.62***</td>
<td>.48***</td>
<td>.50***</td>
</tr>
<tr>
<td>BMI</td>
<td>.02</td>
<td>.06</td>
<td>-.01</td>
<td>-.02</td>
<td>.02</td>
<td>.06</td>
<td>.01</td>
</tr>
<tr>
<td>Eating Attitudes Test</td>
<td>-.30***</td>
<td>-.19*</td>
<td>.19*</td>
<td>-.28***</td>
<td>.34***</td>
<td>-.22**</td>
<td>-.21**</td>
</tr>
<tr>
<td>Restrictive Eating</td>
<td>-.21**</td>
<td>-.05</td>
<td>.12</td>
<td>-.24**</td>
<td>.31***</td>
<td>-.08</td>
<td>-.16</td>
</tr>
<tr>
<td>Emotional Eating</td>
<td>-.37***</td>
<td>-.18*</td>
<td>.27**</td>
<td>-.31***</td>
<td>.36***</td>
<td>-.30***</td>
<td>-.32***</td>
</tr>
<tr>
<td>Susicion of rejection</td>
<td>-.05</td>
<td>.04</td>
<td>.07</td>
<td>-.08</td>
<td>.04</td>
<td>.03</td>
<td>-.08</td>
</tr>
<tr>
<td>Perceived rejection</td>
<td>-.46***</td>
<td>-.27**</td>
<td>.41***</td>
<td>-.38***</td>
<td>.40***</td>
<td>-.36***</td>
<td>-.39***</td>
</tr>
<tr>
<td>Negative affect</td>
<td>-.48***</td>
<td>-.39***</td>
<td>.35***</td>
<td>-.42***</td>
<td>.38***</td>
<td>-.35***</td>
<td>-.41***</td>
</tr>
<tr>
<td>Perceived Control</td>
<td>.48***</td>
<td>.38***</td>
<td>-.39***</td>
<td>.41***</td>
<td>-.33***</td>
<td>.42***</td>
<td>.38***</td>
</tr>
<tr>
<td>Cravings - Group A</td>
<td>.08</td>
<td>.06</td>
<td>-.01</td>
<td>.09</td>
<td>-.09</td>
<td>.05</td>
<td>.05</td>
</tr>
<tr>
<td>Cravings - Group B</td>
<td>-.11</td>
<td>-.06</td>
<td>.16*</td>
<td>-.07</td>
<td>.08</td>
<td>-.03</td>
<td>-.13</td>
</tr>
<tr>
<td>BW: Social Scenario</td>
<td>-.10</td>
<td>-.03</td>
<td>.10</td>
<td>-.05</td>
<td>.19*</td>
<td>.03</td>
<td>-.11</td>
</tr>
<tr>
<td>BW: Alone Scenario</td>
<td>-.19*</td>
<td>-.07</td>
<td>.24**</td>
<td>-.15</td>
<td>.20*</td>
<td>-.03</td>
<td>-.16*</td>
</tr>
<tr>
<td>Rest. Eating Intention</td>
<td>-.25**</td>
<td>-.13</td>
<td>.16*</td>
<td>-.26***</td>
<td>.34***</td>
<td>-.06</td>
<td>-.18*</td>
</tr>
<tr>
<td>Exercise Intention</td>
<td>-.03</td>
<td>-.04</td>
<td>-.05</td>
<td>-.07</td>
<td>.02</td>
<td>-.03</td>
<td>-.03</td>
</tr>
<tr>
<td>Food Intake (log)</td>
<td>-.03</td>
<td>-.08</td>
<td>.07</td>
<td>.01</td>
<td>-.02</td>
<td>-.04</td>
<td>.01</td>
</tr>
<tr>
<td>M</td>
<td>2.80</td>
<td>3.01</td>
<td>3.30</td>
<td>2.80</td>
<td>3.38</td>
<td>3.12</td>
<td>2.56</td>
</tr>
<tr>
<td>SD</td>
<td>.68</td>
<td>.81</td>
<td>.93</td>
<td>.78</td>
<td>.87</td>
<td>.77</td>
<td>.91</td>
</tr>
<tr>
<td>Range</td>
<td>1.19 - 4.65</td>
<td>1.00 - 5.00</td>
<td>1.00 - 5.00</td>
<td>1.00 - 5.00</td>
<td>1.00 - 5.00</td>
<td>1.00 - 4.75</td>
<td>1.00 - 5.00</td>
</tr>
</tbody>
</table>

Note. “Perceived rejection” is the composite rejection manipulation check; “Group A” = Salty foods and fast food; “Group B” = Baked goods, high calorie drinks, and sweets; “BW” = Unhealthy eating behavioral willingness; *p < .05, **p < .01, ***p < .001
Moderation of global trait self-compassion. There were no significant main effects of trait SC, nor rejection condition by SC interactions, on either of the cravings constructs, either of the willingness scenarios, exercise intentions, or candy intake ($ps > .22$). However, the following main effects and interactions emerged:

Feelings of control. A positive main effect of trait SC was found on feelings of control, ($B = .514$, $t = 3.727$, $p < .001$), such that the higher individuals were in SC, the more in control they felt. The interaction between SC and rejection approached significance but was non-significant ($p = .07$).

Negative affect. A negative main effect of trait SC was found on negative affect, ($B = -.44$, $t = -4.60$, $p < .001$). The interaction between rejection condition and SC was non-significant ($p = .64$).

Figure 6. Rejection condition X trait SC interaction on restrictive eating intentions.

Restrictive eating intentions. Regressions revealed a significant interaction between global SC and rejection condition on restrictive eating intentions ($B = -.24$, $t = -2.00$, $p < .05$; Figure 6). There was no main effect of SC on restrictive eating intentions ($p = .63$), however simple slopes analyses revealed a significant effect of rejection on restrictive eating intentions only for participants low in SC ($p < .007$), and not for participants high in SC ($p = .99$). Simple effects analyses within rejection conditions revealed that the relationship between SC and
restrictive eating intentions was non-significant in both the acceptance group and the rejection group ($ps > .16$).

**Moderation of common humanity (CH).** Common humanity alone showed several patterns of moderation. CH did not moderate rejection’s effects on feelings of control, negative affect or cravings, but did have the following moderating effects:

*Behavioral willingness.* CH interacted with rejection condition to predict unhealthy eating willingness in the social scenario ($B = -.496$, $t = -2.08$, $p < .04$; Figure 7). Though there was no significant main effect of CH on unhealthy eating willingness ($p = .18$), simple slopes revealed different effects of rejection on willingness for low vs. high CH individuals: This relationship was significant for those high in CH, such that rejected individuals were less willing to eat unhealthy foods ($p < .04$), but this effect was not present for those low in CH ($p = .44$). Simple effects within each rejection condition revealed a significant negative relationship between CH and unhealthy eating willingness only among those rejected: Low CH rejected individuals reported higher willingness than high CH rejected individuals ($B = -.37$, $t = -2.21$, $p < .04$). There were no significant main effects or interactions on the alone unhealthy eating behavioral willingness scenario ($ps > .22$).

Figure 7.
*Common humanity X rejection condition interact to predict behavioral willingness in the social scenario.*

![Graph showing the interaction between common humanity (CH) and rejection on behavioral willingness](image)

*Restrictive eating intentions.* CH showed a similar buffering pattern on restrictive eating intentions as the global SC scale: An interaction emerged between CH and rejection ($B =
There was again no main effect of SC on restrictive eating ($p = .76$). Simple slopes analyses revealed a significant effect of rejection on restrictive eating intentions only for participants low in CH ($p < .002$), and not for participants high in CH ($p = .97$). Simple effects analyses within rejection conditions revealed that the relationship between SC and restrictive eating intentions was non-significant in both the rejection and acceptance groups ($ps > .14$).

Figure 8. 
*Common humanity X rejection condition interact to predict restrictive eating intentions.*

**Candy intake.** Out of all the subscales of SC, CH was the only significant buffer of the effect of rejection on candy intake: A significant interaction effect emerged between CH and rejection ($B = -.52$, $t = -2.06$, $p < .05$; Figure 9). Simple slopes analyses confirmed a significant effect of rejection on intake for those low in CH ($p < .007$), such that those rejected consumed more M&Ms. This effect was not present for those high in CH ($p = .81$). Simple effects analyses also confirmed an effect of CH on candy intake among those rejected - low CH rejected participants ate more than high CH rejected participants ($B = -.40$, $t = -2.34$, $p < .03$). There was no effect of CH on candy intake among accepted participants ($p = .32$).
Common humanity X rejection condition interact to predict candy intake

Moderation of isolation (IS). IS did not significantly buffer against rejection on affect, perceived control, cravings, willingness, or candy intake. It did, however, show a significant buffering effect on restrictive eating intentions ($B = .18, t = 2.05, p < .05$; Figure 10). Only for those high in isolation did rejection have an effect on restrictive eating intentions. Simple slopes analysis confirm that rejection had a positive effect on restrictive eating for those high in isolation ($p < .006$), but not low ($p = .97$). Simple effects, however, revealed no significant effect of IS on restrictive eating within either the rejection or acceptance condition ($ps > .20$).
Moderation of self-kindness (SK). Analyses revealed no significant SK x rejection interactions (ps > .05).

Moderation of self-judgment (SJ). None of the SJ x rejection condition interactions reached significance (ps > .10).

Moderation of Mindfulness (MI). MI did not significantly buffer against rejection on affect, perceived control, cravings, willingness, or candy intake. However, mindfulness showed the same buffering pattern as isolation and the global SC scale: a buffering effect on restrictive eating intentions that approached significance ($B = -.21$, $t = -1.95$, $p = .05$; Figure 11). Only for those low in mindfulness did rejection have an effect on restrictive eating intentions. Simple slopes analysis confirm that rejection had a positive effect on restrictive eating for those low in mindfulness ($p < .006$), but not high ($p = .93$). Simple effects revealed no significant effect of MI on restrictive eating within either the rejection or acceptance condition (ps > .05).

Figure 11. Mindfulness x Rejection condition interactions on restrictive eating intentions

Mediated Moderation

To test whether the rejection $\rightarrow$ negative affect $\rightarrow$ restrictive eating intentions mediation pathways differed depending on level of self-compassion, and where along the pathway self-compassion had a buffering effect, five models of mediated moderation were run
(see Appendix C). Because global SC, common humanity, isolation, and mindfulness were the only measures of SC that buffered the effects of rejection on restrictive eating, these four versions of SC were entered into the five mediated moderation model as (moderators).

Figure 12.
Mediated moderation models fitting the data: SC moderates the rejection → affect → restrictive eating mediation pathway

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**Global self-compassion.** Global self-compassion marginally moderated the pathway between rejection and restrictive eating intentions (interaction $p = .07$), while the pathways between rejection and affect and rejection and restrictive eating intentions remained constant, supporting a conditional indirect effect in PROCESS Model 5 ($\mu = .05$, [LLCI: .01, ULCI: .13]). Conditional direct effects of X on Y at various values of the SC revealed that only for participants low in self-compassion (-1 SD from the mean) did the rejection → affect → intentions mediation hold [LLCI: .01, ULCI: .50]. Additionally, global self-compassion marginally moderated both the pathway between rejection and intentions, and the pathway between affect and intentions (interaction $ps < .08$), while the pathway between rejection and affect remained constant, supporting a conditional indirect effect in PROCESS Model 15 ($\mu = .01$, [LLCI: .02, ULCI: .06]). Conditional effects of X on Y at various values of SC revealed that mediation through negative affect was only present for participants low in self-compassion (-1 SD). Models 7, 8, and 14 did not fit the data$^{vii}$. In summary, when mediated moderation was
examined, global SC only moderates the direct effect of rejection on restrictive eating intentions, as well as the effect of negative affect on intentions; it does not moderate the relationship between rejection and negative affect (Figure 12).

*Common Humanity & Isolation.* Indices of mediated moderation failed to reach thresholds of significance when common humanity alone and isolation alone were entered into the models as moderators of the rejection → negative affect → restrictive eating intentions pathway.

*Mindfulness.* Mindfulness significantly moderated the pathway between rejection and restrictive eating intentions (interaction *p* < .04), while the other pathways remained constant, supporting a conditional indirect effect in PROCESS Model 5 (*µ* = .05, [LLCI: .01, ULCI = .14]). Conditional direct effects of X (rejection) on Y (restrictive eating) at different levels of MI reveal that the rejection → affect → intentions pathway was only present at low levels of MI (-1 SD). Additionally, Mindfulness (MI) significantly moderated the pathway between rejection and restrictive eating intentions and the pathway between negative affect and restrictive eating intentions (interaction *p* < .04), while the pathway between rejection and negative affect remained constant, supporting a conditional indirect effect in PROCESS Model 15 (*µ* = .02, [LLCI: -.09, ULCI: -.03]). Conditional direct effects of X on Y at different values of MI confirm once again that only for participants low in MI did the rejection → affect → intentions mediation hold [LLCI: .04, ULCI: .52]. In short, mindfulness moderates the effect of rejection on restrictive eating intentions, and the effect of negative affect on intentions, but not the relationship between rejection and affect (Figure 12).
Chapter 6: Discussion

The present study tested whether a self-compassionate perspective - both induced and trait-level - buffers the impact of experimentally-manipulated social rejection on unhealthy eating cognitions and behaviors. This was the first study to attempt an induction of self-compassion in the face of rejection, and was the first to test whether holding a self-compassionate perspective may buffer the effects of rejection on unhealthy eating and related cognitions.

It was hypothesized that rejection would lead to higher cravings for unhealthy foods, higher willingness to eat unhealthy foods, higher restrictive eating intentions, and increased candy intake. Results illustrated a different constellation of effects, all supporting restrictive intentional eating cognitions, yet unrestrained eating behaviors, controlling for past food-related attitudes and behaviors. It was also hypothesized that negative affect and perceived control would mediate the relationship between rejection and eating cognitions; Results showed that only negative affect explained some relations. In addition, it was hypothesized that inducing SC would buffer against this effect - that the harmful impacts of rejection on unhealthy eating outcomes would be reduced or eliminated for participants with a self-compassionate mindset. However, the impact of the moderating role of SC induction condition was not supported, possibly because the manipulation may have failed to induce a self-compassionate mindset. Therefore, ancillary analyses substituting trait-level SC for induced SC supported original hypotheses that self-compassion buffers against the harm of rejection.

Controlling for self-esteem: global SC, common humanity, isolation, and mindfulness moderated the impact of rejection on restrictive eating intentions; only for those low in self compassion (low in global, common humanity, and mindfulness; high in isolation) did rejection positively impact restrictive eating intentions. Additionally, common humanity buffered rejection’s effects on unhealthy eating willingness and candy intake.

Findings in Support of Hypotheses
Social rejection impacts affect and perceived control. A summary of all findings related to hypothesized condition effects is presented in Table 15. Consistent with prior research on the impact of rejection on affect and feelings of control (Blackhart et al., 2009; Williams, 2007; Zadro et al., 2004), there was a main effect of rejection condition such that rejected participants reported higher negative affect and less perceived control. Despite relatively low reports of rejected feelings on the manipulation check compared with our other studies on rejection in similar samples (e.g. Beekman, Stock, & Marcus, 2015), the impact that this particular rejecting experience on these feelings was relatively robust. However, these main effects only partially translated to more downstream hypothesized effects on unhealthy eating cognitions and behaviors.

Social rejection and unhealthy eating behaviors and cognitions. Several hypotheses were supported related to rejection’s effects on unhealthy eating cognitions and behaviors, though other hypotheses were supported in the direction opposite of what was predicted. Consistent with research that has used a bogus taste test as a laboratory measure of self-regulation and unhealthy eating (Baumeister et al., 2005; Burson et al., 2012; Salvy et al., 2011), participants who were rejected ate marginally more M&Ms than participants who were not rejected. This indicates that the intention measure reflects a behavior that is quite different from the eating response (candy intake) measure. Other research has concluded that increased unhealthy food intake during a taste test is a proxy measure for self-regulation (e.g. Baumeister et al., 2005). Given those conclusions, we could speculate that increased M&M intake here represents a loss of self-regulation; perhaps part of a dual-process response with both controlled and non-controlled components. However, given no mediation of feelings of control, and lack of other measures of self-regulatory behavior herein, it could not be definitively concluded that this increased candy intake represents a lack of self-regulation.

Another reason increased candy intake may have more to do with (lost) control than specifically food-related cravings, willingness, and intentions is because effects on cognitions that would seem to predict this increased candy intake behavior were inconsistent with eating more. In fact, they were associated with a desire to eat less, or not at all. As hypothesized,
controlling for past attitudes and behaviors regarding food, rejected individuals reported greater intentions to restrict their eating over the course of the next week. When we conceptualize rejection as a stressor, this finding is consistent with what we would expect from stress hypophagics - or the roughly 30% of Americans for whom stress leads to restriction (Epel et al., 2004). However, this held for the entire sample, controlling for past attitudes toward food and stress-eating/stress-restricting behaviors. While there is no known data available comparing this data collection site (GWU) to other universities or other environments on the dimension of “health consciousness” or a culture of food restriction, it is possible that there is something unique about the culture at GWU that makes healthy eating, or restrictive eating, normative. While speculative, it is possible that individuals want to regain the belongingness that is threatened by rejection by acting (or desiring to or intending to act) in a way that is consistent with dieting norms or restrained eating norms. Future research should explore this empirically by examining how healthy eating norms moderate rejection’s effects on restrictive - versus uncontrolled or increased - eating.

A particularly interesting - if not unexpected - finding was that two other cognitions aligned with these restrictive eating intentions in ways that were opposite of what was hypothesized; yet, they support a restrictive or restrained eating cognitions in response to rejection: Rejected participants reported marginally lower cravings for salty foods and fast foods than accepted participants, and also lower willingness to eat unhealthy foods in the “alone” scenario. Cravings and willingness were initially included as dependent variables because they, presumably, were different ways of measuring unhealthy desires to eat more food; a type of proxy or cognitive precursor to unrestrained eating in the taste test. However, if we instead consider low cravings and low willingness as congruent cognitions to restrictive eating intentions do, indeed, fill out a more consistent story. The use of behavioral willingness measures and unhealthy food cravings are relatively new way of measuring unhealthy cognitions, and perhaps capture a fuller spectrum beyond simply overeating to capture maladaptive restrictive eating as well. While it may be tempting to use these scales as another way to measure restrictive cognitions, future researchers should use caution before using “low
willingness” to eat unhealthy foods as a substitute measure for restrictive eating willingness; unlike other studies that find willingness and intentions to correlate in different domains (e.g. substance use, smoking, alcohol use, risky sex; Todd, Kothe, Mullan, & Monds, 2014), unhealthy eating willingness was uncorrelated with restrictive eating intentions in the present study. Thus, they are affected by rejection in similar ways, though they do not correlate at a bivariate level.

In short, rejection impacted unhealthy eating, but in some unexpected ways. Rejected participants ate marginally more during a bogus taste test, but when asked to self-report cravings, willingness, and intentions, rejected participants wished to be more restrictive with their eating. This collection of results is consistent with a contradictory pattern of restrictive intentions, yet indulgent behavior.

Mediation of negative affect. An affective reaction to rejection, in part, explains this assortment of effects on cognitions consistent with restriction. Negative affect mediated the effect of rejection on both cravings for salty foods and restrictive eating cognitions, such that rejection increased negative affect, which in turn decreased cravings and increased restrictive eating intentions. This is consistent with existing literature supporting the mediating role of affect following rejection in other domains of maladaptive behavior, such as substance use cognitions (Stock, Gibbons, & Beekman, 2015; Stock, Gibbons, Walsh, & Gerrard, 2011), antisocial behavior (Svetieva et al., 2015) and hostile behavior (Twenge, Baumesiter, Tice, & Stucke, 2001).

Though affect did not mediate the behavioral outcome in this study, likely because rejection only had a marginal effect on behavior, it’s role in explaining how negative affect in the face of rejection can lead to poor eating outcomes is consistent with studies that show negative affect following a distressing experience may lead to eating fattening snacks. Particularly within samples of restrictive eaters - such as a previous study on a sample of highly restrictive eaters who reported high levels of negative affect after a pre-load of unhealthy food, which lead to more disinhibited eating (eating candy) than their less-restrained counterparts (Adams & Leary, 2007) - these results showing a rejection → negative affect →
restriction pathway confirm yet another domain in which the affective consequences of rejection are manifest.

**Findings Inconsistent with Hypotheses**

**Mediation of feelings of control.** Table 15 also summarizes hypothesis with which findings were inconsistent. While rejection significantly impacted feelings of control, this loss in perceived control did not mediate the relationship between rejection and any eating outcomes. Thus, unhealthy eating reactions to rejection were not due to a lack of feeling in control, contrary to other research that reduced perceived control following rejection is, in turn, related to inability to make good health decisions (Gibbons et al., 2012; Stock et al., 2015) including healthy eating (Leganger & Kraft, 2003). While feelings of control are related inversely to the onset and maintenance of eating disorders (Dalgleish et al., 2001), such feelings do not seem to be related to the subclinical restrictive eating cognitions - nor the behavioral eating outcome - measured in the current study. Previous research on the mediating role of perceived control following rejection has primarily focused on aggressive behavior as a consequence of the rejection → control → maladaptive outcome pathway (Stock, Peterson, Molloy, & Lambert, under review; Warburton et al., 2006). Compared with eating cognitions, aggression is a more external manifestation of a threatened need. From an appraisal-tendency framework, angry or aggressive responses are traditionally related to a need to regain control (Lerner & Keltner, 2001). This link between feelings of control and anger/aggression is well-established, while the link between this form of control and sub-clinical restrictive eating is less robust. Thus, compared with negative affect, perceived control was revealed as a less robust explanatory mechanism for why rejection may lead to restrictive eating cognitions.

**SC reading condition and outcomes.** The effects of SC induction condition were inconsistent with the hypotheses. Overall, there were no significant differences on any study outcomes between participants in the sleep reading condition and participants in the SC reading condition. Overall, data did not support the hypothesis that induced SC leads to changes in unhealthy eating cognitions and behaviors. This may not necessarily be because SC as a construct is not protective; the null effects may be because the manipulation itself failed
to have a salient effect on changing one’s sense of self-compassion, just as it had no effect on self-attitudes more broadly. Another possible explanation is that the neutral reading condition was not truly neutral; writing about sleep could produce positive feelings (e.g. about serenity, being calm, or a partner), and induced positive feelings that were similar to any positive feelings gained from the self-compassion reading exercise.

Post hoc exploratory analysis on participants’ responses were conducted to dig deeper into why this manipulation failed to have any effect. It was possible that participants did not comprehend the information on self-compassion, since it is arguably more novel than the information on sleep. This explanation was not supported by the evidence; all participants, regardless of condition, were able to correctly recall two strategies from the materials. But, differences emerged between groups in terms of how much they wrote about these strategies. While there were no condition effects on the length of essays, word count analysis of the strategy recall item revealed a significant effect of reading condition on strategy word count. Participants who read about sleep wrote more about the strategies than participants in the SC reading condition. It is also possible that participants who read about sleep had a better, deeper understanding of the information than participants who read about sleep; fewer words, and verbatim recall, may suggest that participants were less likely to get the “gist” (and, thus, engage in shallower processing of the information) in the more novel SC condition than in the more familiar sleep condition. Future coding on “gist” versus “verbatim” coding could help elucidate whether comprehension and processing of the information had an effect on whether or not the manipulation was truly effective in inducing a self-compassionate mindset.

**SC reading condition by rejection condition interactions.** No support was found for an interaction between SC reading condition and rejection condition on any study variables, potentially due to the lack of any significant main effects of reading condition. Therefore, no confident conclusions can be drawn regarding the buffering potential of the strategy for inducing a self-compassionate mindset used in this study.
Table 15.
Summary of hypotheses and corresponding results

<table>
<thead>
<tr>
<th>Methodological hypotheses</th>
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*Manipulation checks will support validity of manipulations*

<table>
<thead>
<tr>
<th>Level of Support</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Mixed support</td>
<td>Hypothesis supported for:</td>
</tr>
<tr>
<td></td>
<td>• Rejection condition on feelings of rejection</td>
</tr>
<tr>
<td></td>
<td>• Comprehension of readings</td>
</tr>
<tr>
<td></td>
<td>Hypothesis not supported for:</td>
</tr>
<tr>
<td></td>
<td>• Reading condition on self-attitudes</td>
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<tr>
<th>Hypothesis 1: Main effect of rejection condition</th>
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*Participants will report lower perceived control and greater negative affect, cravings for unhealthy foods, unhealthy eating willingness, anticipated disordered eating, and candy intake*

<table>
<thead>
<tr>
<th>Moderate support</th>
<th>Hypothesis supported for:</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>• Feelings of control</td>
</tr>
<tr>
<td></td>
<td>• Negative affect</td>
</tr>
<tr>
<td></td>
<td>• Restrictive eating intentions</td>
</tr>
<tr>
<td></td>
<td>• Candy intake (marginal)</td>
</tr>
<tr>
<td></td>
<td>Hypothesis supported in opposite direction for:</td>
</tr>
<tr>
<td></td>
<td>• Cravings for salty and fast foods (marginal)</td>
</tr>
<tr>
<td></td>
<td>• Unhealthy eating willingness - alone scenario</td>
</tr>
<tr>
<td></td>
<td>Hypothesis not supported for:</td>
</tr>
<tr>
<td></td>
<td>• Cravings for sweets/baked goods/drinks</td>
</tr>
<tr>
<td></td>
<td>• Unhealthy eating willingness - social scenario</td>
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<th>Hypothesis 2: Main effect of SC reading condition</th>
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*Participants in the SC induction condition would report lower unhealthy eating willingness and less anticipated disordered eating; Exploratory analysis on effects on perceived control*

| No support | Hypothesis not supported for any cognitions |

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<tr>
<th>Hypothesis 3: Rejection condition X SC Reading condition Interaction</th>
</tr>
</thead>
</table>

*Rejected individuals who were primed to be self-compassionate would have similar (or better/healthier) outcomes than non-rejected (control) individuals in the sleep condition*

| No support | Hypothesis not supported for any cognitions |

<table>
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<tr>
<th>Hypothesis 4: Mediation</th>
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*Impact of rejection would be mediated by perceived control and negative affect*

<table>
<thead>
<tr>
<th>Mixed support</th>
<th>Hypothesis supported for:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Mediation of negative affect on cravings for salty foods</td>
</tr>
<tr>
<td></td>
<td>• Mediation of negative affect on restrictive eating cognitions</td>
</tr>
<tr>
<td></td>
<td>Hypothesis not supported for:</td>
</tr>
<tr>
<td></td>
<td>• Mediation of negative affect on all other cognitions and behavior</td>
</tr>
<tr>
<td></td>
<td>• Mediation of feelings of control</td>
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</table>
**Trait Self-Compassion as a Moderator**

State self-compassion was not successfully induced in the present study. However, when *trait* self-compassion was explored as a moderator of the rejection experience, the buffering potential of self-compassion emerged. The present study found similar buffering effects of trait self-compassion as previous research (Beekman, Stock, & Howe, under review; Breines, Toole, Tu, & Chen, 2013), showing that these buffering effects hold *in the face of* experimentally-manipulated rejection. Table 16 summarizes results of SC moderation, as well as significant mediated moderation results.

**Table 16.** Summary of significant results for moderation and mediated moderation

<table>
<thead>
<tr>
<th>SC Measure</th>
<th>SC x Rejection Moderation</th>
<th>Mediated Moderation: negative affect as mediator</th>
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<tbody>
<tr>
<td>Global SC</td>
<td>Restrictive eating intentions</td>
<td>Restrictive eating intentions</td>
</tr>
<tr>
<td>Common Humanity</td>
<td>Willingness (social scenario) Restrictive eating intentions Candy intake</td>
<td>Restrictive eating intentions</td>
</tr>
<tr>
<td>Isolation</td>
<td>Restrictive eating intentions</td>
<td>--</td>
</tr>
<tr>
<td>Self-Kindness</td>
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<td>--</td>
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<tr>
<td>Self-Judgment</td>
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</tr>
<tr>
<td>Mindfulness</td>
<td>Restrictive eating intentions</td>
<td>--</td>
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<tr>
<td>Over-identification</td>
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*Global self-compassion.* Before breaking down the self-compassion scale (Neff, 2003b) into its six components, to maintain fidelity with existing research on SC, moderation analyses were conducted on the full, or “global,” SC scale. Initial Time 1-only patterns offered preliminary evidence of the protective nature of self-compassion, as SC was strongly negatively associated with past restrictive eating on the DEBQ (results reported elsewhere; Butler, Goonewardena, Beekman, & Stock, 2016). This supports the idea that being compassionate toward oneself is compatible with a healthy relationship with food (Schoenfeld & Webb, 2013). Indeed, global self-compassion buffered against rejection’s effects on restrictive eating.
intentions; only for those low in self-compassion, did rejection have a negative impact on restrictive eating intentions. This suggests that there is something about being highly self-compassionate that “overrides” the stressful experience of exclusion. Echoing research supporting the health benefits of self-compassion more broadly (Terry & Leary, 2011), we know that inducing a self-compassionate mindset daily has a positive effect on disordered eating behaviors over time (Brienes et al., 2013). The current research extends that finding to show that entering into an experience of social rejection with a trait self-compassionate mindset also has a positive effect on restrained eating intentions. Future research would be needed to see if these restrictive intentions extend to behavior, as intentions and behaviors did not correlate in the present study.

As expected, global SC did not moderate the effects of rejection on negative affect or perceived control. Contrary to some other self-attitudes, including self-esteem, SC does not depend on improved mood or positive affect toward oneself. While self-compassionate people practice self-kindness and avoid self-judgment, which necessitate warm and positive feelings about ourselves even while recognizing inadequacies or failures, the mindfulness component necessitates one to fully recognize and address negative feelings - and taking a “meta-perspective” on one’s own negative feelings so they are not swept away by them (Neff, 2011). Thus, we would not expect SC to be related to reduced negative affect; rather, we would see more adaptive ways of coping with or managing that negative affect downstream (elucidated further, below, in the discussion of mediated moderation). Nonetheless, it makes sense to see a main effect of trait SC on negative affect and perceived control - given that SC positively predicts positive affect and life satisfaction, and negatively predicts perceived stress and negative affect (Bluth & Blanton, 2014) - just not that SC would buffer against affective responses in the face of rejection.

Global self-compassion was not protective against any of the other unhealthy eating-related outcomes measured in the present study. However, when examining individual subscales of self-compassion on their own - still controlling for self-esteem - further buffering effects emerged.
**Individual SC components.** Controlling for self-esteem, both the common humanity component and the isolation component were protective against rejection’s effects on restrictive eating intentions. Consistent with the findings in the preliminary daily diary study, this dimension of SC once again was the most robust in terms of its protective role. Having a high sense of common humanity and low feelings of isolation seemed to “override” the effects of rejection on intentions to restrict, mirroring the daily diary findings that having high common humanity/low isolation reduced daily rejection’s effects on actual restrictive eating behavior (Beekman, Stock, & Howe, under review).

Furthermore, thinking about one’s common humanity was also protective against another proxy for restrictive eating—low willingness to eat unhealthy food in the social scenario—as well as increased candy intake in the bogus taste test. Unlike any other component of SC, common humanity protects against the dual-processes of deliberate thought about future restriction (low willingness to eat and restrictive eating intentions), as well as subsequent increased candy intake following rejection. This finding supports the very reason why SC may be particularly helpful in the face of rejection—and one which sets it apart from other positive self-attitudes: As stated earlier, the converse of common humanity is isolation (Neff, 2003a), so it follows that when one reframes rejection as a universal and common experience, they feel less isolated and thus experience greater feelings of belonging. No other self-attitude emphasizes this feeling of comradery in suffering, and since isolation is a key component of rejection, SC as coping with rejection offers unique buffering potential across a variety of downstream consequences—from deliberate to automatic.

**Self-kindness versus self-judgment.** Neither self-kindness nor self-judgment buffered against any of rejection’s effects, suggesting that it is other components of SC, not these, that drive its protective effects in the face of rejection. Of all of the SC components, self-kindness and lack of self-judgment are, at least on their face, closely related to self-esteem; in turn, self-esteem is less protective than self-compassion in the face of rejection, both in my own work (Beekman, Stock, & Howe, under review; Butler, Goonewardena, Beekman, & Stock, 2016) and in several other studies demonstrating the relative strength of SC versus self-esteem.
in terms of its protective nature (e.g., Neff, 2011). Indeed, in the present research, these two subscales were most highly correlated with self-esteem, compared with the other subscales. A close examination of individual items between the Rosenberg self-esteem scale and the SCS reveal some semantic similarities, e.g., *I am (in)tolerant of my own flaws and inadequacies* (SC-self-kindness) versus *I feel that I have a number of good qualities* (self-esteem); and *I tend to be tough on myself* (SC-self-judgment) versus *I am inclined to feel that I am a failure* (self-esteem). Unfortunately, no known published studies break down the components of self-compassion in terms of their relative correspondence to self-esteem; as research on SC moves in the direction of examining self-compassions components separately, rather than as a single higher-order factor, researchers will be better-able to determine whether self-kindness and self-judgment are actually different ways of measuring self-esteem, and whether this accounts for their relative lack of buffering effects in the face of rejection.

**Mindfulness and the over-identification paradox.** Trait mindfulness was protective against rejection’s effects on restrictive eating intentions, which is less consistent with the null buffering effects of mindfulness found in the preliminary diary study. The protective role of mindfulness, however, is found in other studies on restrictive eating. In one cross-sectional survey of women, a different measure of mindfulness predicted disordered eating, and this was mediated by the full self-reported self-compassion scale (Stuart, 2009). Other research on individual subscales of the SC scale used here has found mindfulness to be predictive of managing life stressors (Hall, Row, Weunsch, & Godley, 2013), potentially due to mindfulness’ power as a coping strategy: Mindfulness-as-coping explicitly involves not running away from one’s negative emotions, but rather aiming to understand reactions to stress (rejection) with levelheadedness - a mindset that is diametrically opposed to an escape-avoidant coping strategy (Adams & Leary, 2010). As such, to the extent to which restricting one’s eating is an escape-avoidant response to social rejection - it does nothing to actually address the rejection or gain inclusion, rather it is highly emotional and non-practical response - having high trait mindfulness would reduce the need for such a maladaptive coping strategy.
It is surprising, however, that mindfulness didn't similarly buffer against rejections' effects on other consonant eating cognitions, such as willingness or cravings, or eating behavior. Perhaps, since mindfulness by definition is characterized by deliberate, effortful thought about one's emotions, it wouldn't not affect less thoughtful reactions to rejection, such as eating during a taste test. Future research could attempt to manipulate mindfulness alone - and compare it directly to the manipulation of other components - to confirm whether mindfulness buffers against cognitive and behavioral responses to rejection.

The most vexing finding came when examining correlations between all six subscales of SC at a bivariate level: over-identification correlated positively with mindfulness and the other “positive” SC components, and negatively with the “negative” SC components of isolation and self-judgment. One recent confirmatory factor analysis of the SC scale used in the present research supported a two-factor model of SC - a self-compassionate attitude versus a self-critical attitude - with good internal consistencies, external validity, and construct validity, such that over-identification loaded on the same principal component as isolation and self-judgment (Costa, Marôco, Pinto-Gouveia, Ferreira, & Castilho, 2015). That was not found in the present study. A closer examination of Costa and colleagues’ factor structure does suggest that factor loadings are some of the weakest for the four over-identification items, particularly the last two (when something upsets me I get carried away with my feelings and when something painful happens I tend to blow the incident out of proportion). But, relatively weak factor loadings would not suggest that the over-identification scale would behave in exactly the opposite way than expected, and load on the self-compassionate (vs. self-critical) component.

To my knowledge, this unexpected finding has not been reported anywhere else, but does suggest that researchers use caution when using a higher-order single-factor structure of SC, or even a three-factor structure where mindfulness and over-identification are combined. Several other researchers have, indeed, failed to confirm these higher-order structures (Garcia-Campayo et al., 2014; Petrocchi et al., 2013; Phillips & Ferguson, 2012). Future research should take care to include hypotheses about individual SC subscales, and report findings for the components individually as well.
Mediated moderation elucidates buffering mechanism. Once it was clear that negative affect mediated, or explained, the relation between rejection and restrictive eating intentions, and that both the common humanity component and the global SC scale as a whole buffered the rejection→restrictive eating pathway, I ran several models of mediated moderation to determine how, exactly, negative affect enters into the buffering process. SC moderates not just directly, on the rejection → restrictive path, but also on the “back” of the model - regardless of how self-compassionate the women were (on this one dimension of self-compassion as well as globally), they were similarly affectively affected; however, only the less self-compassionate women indicated that this negative affect lead to restrictive eating. In other words, self-compassion buffers against the effects of rejection on eating because it buffers against the effects of inevitable negative feelings in the face of rejection.

This dovetails well with the very concept that sets self-compassion apart from self-esteem and similar self-enhancing attitudes: Self-compassion requires facing negative emotions head-on; confronting negative affect, recognizing it, and coping with it in a more adaptive way (Neff, 2003a). So it follows that self-compassion moderates the links between rejection, affect, and restrictive eating because of how affect effects eating intentions; not how rejection affects affect. Self-compassionate people simply deal with subsequent consequences of negative feelings more productively - or healthfully - than less self-compassionate people, but not because they experience these emotions in the face of rejection any less intensely. Rejection hurts, but being self-compassionate can result in a healthier response to the affective consequences of it.

Limitations and Future Research

The present findings should be interpreted within the context of several study limitations, which should be addressed in future research. While self-compassion appears to have some protective potential in the face of social rejection for this sample of women, by addressing limitations of the present study, future studies will better be able to draw causal conclusions about the impact of social rejection on unhealthy eating and the buffering effect of self-compassion.
Sample. An important limitation of the present research is the small sample size and the relative homogeneity in the sample. While enough participants were recruited to detect a moderate effect size (Cohen, 1988), there were several women in the sample who reported experiences with eating disorders or rapid recent weight loss, and excluding them from analyses (as I planned to do) would have resulted in an underpowered study. By controlling for past eating attitudes and behaviors, I was able to hold constant some of these extreme individual differences; however, a larger sample would have allowed us to slice the data more. Additionally, the present study consisted exclusively of college-age women at an affluent, (anecdotally) health-conscious mid-Atlantic University. Given the influence of social norms on both post-rejection cognitions and eating cognitions, it is unlikely that these results could generalize to other settings with different social norms regarding diet and nutrition.

Experimental stimuli. The stimuli in this study were administered in a single lab session. While the rejection manipulation had notable effects on the cognitions and behaviors of the sample, the self-compassion induction failed to have any effect. Inducing a self-attitude as complex as self-compassion is one of the challenges inherent in studying this construct causally. Self-compassion – particularly mindfulness – is a mindset that takes practice and can take a lifetime to truly master, and few studies have made attempts to effect changes in “state” self-compassion. Indeed, most experimental research on self-compassion has involved weeks-long trainings in being self-compassionate, and even several of those studies have struggled to affect lasting, demonstrable change. Future research should aim to bridge this gap to develop ways to effectively induce a self-compassionate mindset in a relatively short amount of time.

Additionally, the rejection manipulation had relatively weaker effects (in terms of mean self-report feelings of rejection following the experience) than other manipulations of rejection in similar samples. The discrepancy in methodologies limits conclusions that we may draw regarding how much the present study contradicts (or fails to support) other research regarding the causal effects of rejection on negative affect, perceived control, and eating cognitions and behaviors.
Measurement. A final limitation of the present research regards issues of the measurement of eating-related attitudes. First, some constructs were measured with a small number of items, potentially missing some complexity and nuance within a construct as complex and multidimensional as eating behavior. Self-report cravings and willingness are subject to socially-desirable responding, even if participants completed the surveys in private, so there is the potential for the answers to be skewed and thus not detect true effects. Additionally, when examining outcomes related to diet and nutrition, intentions and cravings measured in the lab can be imperfect predictors of actual behavior (Sheeran, 2002; Webb & Sheeran, 2006), including eating behavior (Cartright & Stritzke, 2008), a finding that was evidenced in the (albeit limited) behavioral measure in the present study, as well. It is also important to acknowledge that other measures of maladaptive eating in the face of rejection should be explored. While rejection had a marginally-significant effect on eating behavior, measured as candy intake in a taste test, other behavioral outcomes could be explored, such as eating in the absence of hunger (e.g. after a pre-load of food), or consumption of food in a more realistic environment, complete with both healthy and unhealthy choices. This may make it easier to glean a consonant behavioral outcome to support the present effects on self-report restrictive eating intentions, and the intentions-behavior link may be more robust with a more complete, realistic behavioral outcome.

Conclusion

The present research examined the influence of social rejection and self-compassion (both state and trait) on college women’s unhealthy eating cognitions and candy intake. Results provided support for the effects of rejection on eating that reflect a collection of responses to rejection characterized by increased intentional desires to restrict unhealthy candy intake (cognitions), while increasing unhealthy candy intake (behavior). Mediation results revealed that negative affect mediates (explains) some unhealthy eating outcomes following rejection, whereas feelings of control do not. Findings also provide support for the protective effects of trait self-compassion - particularly the common-humanity, isolation, and mindfulness components - in the face of social rejection, though there was no support for the
efficacy of experimentally-manipulated self-compassion. Additional studies in this area would benefit from an improved induction of self-compassion, if possible, as well as additional measures of maladaptive eating cognitions and behaviors - across more diverse settings - and more critically examine the individual components of self-compassion and how they may be protective in the face of social rejection.


This is functionally equivalent to calculating regressions at the within-person level, and using those coefficients as dependent measures at the between-person level (Nezlek, 2008).

The recruitment advertisement specified that females 18-29 could enroll in the study, but MTurk offered no other way to screen out individuals based on these criteria. Since the purpose of the pilot study was to assess the impact of the manipulation on proposed mediators and outcomes, and it is possible that these effects could differ based on age and gender, these variables were included in analyses as covariates.

While self-esteem and self-compassion are distinct constructs, it is recognized that they are often highly correlated. Therefore, I included a self-esteem item within a more general self-attitudes manipulation check.

Excluding these women from analyses did not have an effect on results, potentially because controlling for past eating behaviors and attitudes captured these behaviors and experiences as well. Furthermore, excluding these participants reduced the N so much that many analyses would be under-powered. Therefore, they remained in the analyses.

Including trait SC as a covariate did not significantly change any GLM ANCOVA or regression analyses of condition effects, nor did it have a strong effect on model fit; to reduce the number of covariates in the model, and to avoid multicollinearity between covariates, trait SC was not included as a control variable in subsequent analyses.

This is the only mediation pathway that was tested in mediated moderation analyses, because it is the only pathway that meets the a priori criteria that (a) mediation was present, and (b) outcomes were significantly moderated by self-compassion.

These models were not a good fit for any moderator, so they are not subsequently reported.
Appendix A

Self-Compassion Induction: Reading Materials

Coping with Life Stress
The Power of Self-Compassion

Exciting new research touts the benefits of a new way of relating to oneself: Compassionately.

In her talk at the 2014 American Psychological Association's Annual Convention in Washington, DC., Dr. Judith Siper presented compelling evidence that people who practice self-compassion tend to be healthier and are better able to "deal with" life's obstacles. Self-compassion includes three components:

1. **Self-kindness.** Self-compassionate people recognize that being imperfect, failing, and experiencing life difficulties is inevitable, so they are gentle with themselves when confronted with painful experiences rather than getting angry.

2. **Common humanity.** The very definition of being "human" means that one is mortal, vulnerable and imperfect. Self-compassionate people recognize that suffering is part of the shared human experience – something that we all go through.

3. **Mindfulness.** Mindfulness is a state of mind in which one observes thoughts and feelings as they are, without trying to suppress or deny them. Mindfulness requires that we not be "over-identified" with thoughts and feelings, so that we are not caught up and swept away by them.

Try it!
Express understanding, kindness, and concern toward yourself in the same way that you might express concern to a friend who had undergone the experience.

Think of all of the ways in which other people also experience similar events.

Describe your feelings about the event in an objective and unemotional fashion.

Information Adapated from www.selfcompassion.org
Coping with Life Stress

The Power of a Good Night’s Sleep

Exciting new research touts just how important sleep is for our health – especially in the face of stress.

In her talk at the 2014 American Psychological Association’s Annual Convention in Washington, DC, Dr. Judith Sperir presented compelling data on the benefits of a good night’s sleep for coping with stress. People who have good sleep hygiene tend to be healthier, happier, and are simply better able to “deal with” life’s obstacles. There are 3 components to getting a good night’s sleep to deal with stress:

1. Establish a regular bedtime ritual to take a break from stress. Around the same time every night, engage in the same simple rituals to prepare for bed (e.g., washing your face, brushing your teeth). Allow these rituals to distract you from stressors.

2. Time activity appropriately to maximize quality sleep. Different forms of physical activity are not only important physiologically, but also vital for staying mentally healthy and socially active. However, vigorous exercise should be taken earlier in the day, while more relaxing activity can be done in the evening.

3. Make a pleasant and relaxing sleep environment. A relaxing environment allows you to let your thoughts and feelings from the day make way for sleep. Make sure that your bed and room are comfortable.

Try it!

To the extent that it is possible, avoid emotionally upsetting conversations or dwelling on what is stressful.

Schedule vigorous exercise during the day and light walking or stretching in the evening.

Ensure that your room is not too hot or too cold, too bright, or too noisy. If this is not possible, try using a sleep mask or ear plugs when you sleep.

Information Adapted from www.sleepfoundation.org
Appendix B

Measures

Control Variables (T1)

Eating Attitudes Test

This is a screening measure to help you determine whether you might have an eating disorder that needs professional attention. This screening measure is not designed to make a diagnosis of an eating disorder or take the place of a professional consultation. Please fill out the form below as accurately, honestly and completely as possible. There are no right or wrong answers. (1 = never - 6 = always)

1. I am terrified about being overweight.
2. I avoid eating when I am hungry.
3. I find myself preoccupied with food.
4. I have gone on eating binges where I feel that I may not be able to stop.
5. I cut my food into small pieces.
6. I aware of the calorie content of foods that I eat.
7. I particularly avoid food with a high carbohydrate content (i.e. bread, rice, potatoes, etc.)
8. I feel that others would prefer if I ate more.
9. I vomit after I have eaten.
10. I feel extremely guilty after eating.
11. I am occupied with a desire to be thinner.
12. I think about burning up calories when I exercise.
13. I other people think that I am too thin.
14. I am preoccupied with the thought of having fat on my body.
15. I take longer than others to eat my meals.
16. I avoid foods with sugar in them.
17. I eat diet foods.
18. I feel that food controls my life.
19. I display self-control around food.
20. I feel that others pressure me to eat.
21. I give too much time and thought to food.
22. I feel uncomfortable after eating sweets.
23. I engage in dieting behavior.
24. I like my stomach to be empty.
25. I have the impulse to vomit after meals.
26. I enjoy trying new rich foods

In the past 6 months, have you: (1 = never - 6 = once a day or more)

1. Gone on eating binges where you feel that you may not be able to stop?
2. Ever made yourself sick (vomited) to control your weight or shape?
3. Ever used laxatives, diet pills or diuretics (water pills) to control your weight or shape?
4. Exercised more than 60 minutes a day to lose or to control your weight?

Have you lost 20 pounds or more in the past 6 months? YES/NO
Have you ever been treated for an eating disorder? YES/NO
Dutch Eating Behavior Questionnaire (T1)

1 = never - 5 = very often

1. If you have put on weight, do you eat less than you usually do?
2. Do you try to eat less at mealtimes than you would like to eat?
3. How often do you refuse food or drink offered because you are concerned about your weight?
4. Do you watch exactly what you eat?
5. Do you deliberately eat foods that are slimming?
6. When you have eaten too much, do you eat less than usual the following days?
7. Do you deliberately eat less in order not to become heavier?
8. How often do you try not to eat between meals because you are watching your weight?
9. How often in the evening do you try not to eat because you are watching your weight?
10. Do you take into account your weight with what you eat?
11. Do you have the desire to eat when you are irritated?
12. Do you have a desire to eat when you have nothing else to do?
13. Do you have a desire to eat when you are depressed or discouraged?
14. Do you have a desire to eat when you are feeling lonely?
15. Do you have a desire to eat when somebody lets you down?
16. Do you have a desire to eat when you are cross?
17. Do you have a desire to eat when you are approaching something unpleasant to happen?
18. Do you get the desire to eat when you are anxious, worried, or tense?
19. Do you have a desire to eat when things are going against you or when things have gone wrong?
20. Do you have a desire to eat when you are frightened?
21. Do you have a desire to eat when you are disappointed?
22. Do you have a desire to eat when you are emotionally upset?
23. Do you have a desire to eat when you are bored or restless?

Self-Esteem (T1)

1 = not at all like me - 5 = very much like me

1. I feel that I am a person of worth, at least on an equal plane with others.
2. I feel that I have a number of good qualities.
3. All in all, I am inclined to feel that I am a failure.
4. I am able to do things as well as most other people.
5. I feel I do not have much to be proud of.
6. I take a positive attitude toward myself.
7. On the whole, I am satisfied with myself.
8. I wish I could have more respect for myself.
9. I certainly feel useless at times.
10. At times I think I am no good at all.

Demographics (T1)

1. What is your age and gender?
2. What is your height/weight?
3. Do you have any major food allergies? Explain:
**Moderator - Self-Compassion (T1)**

The following questions address how you typically act toward yourself in difficult times. Please read each statement carefully before answering. Please indicate how often you behave in the stated manner (1 = almost never - 5 = almost always)

**Self-Kindness Subscale**
1. I try to be loving toward myself when I’m feeling emotional pain.
2. When I’m going through a very hard time, I give myself the caring and tenderness I need.
3. I’m kind to myself when I’m experiencing suffering.
4. I’m intolerant of my own flaws and inadequacies. (R)
5. I try to be understanding and patient toward those aspects of my personality I don’t like.

**Self-Judgment Subscale**
1. I’m disapproving and judgmental about my own flaws and inadequacies. (R)
2. When times are really difficult, I tend to be tough on myself. (R)
3. I’m intolerant and impatient toward those aspects of my personality I don’t like. (R)
4. When I see aspects of myself that I don’t like, I get down on myself. (R)
5. I can be a bit cold-hearted toward myself when I’m experiencing suffering. (R)

**Common Humanity Subscale**
1. When things are going badly for me, I see the difficulties as part of life that everyone goes through.
2. When I’m down, I remind myself that there are lots of other people in the world feeling like I am.
3. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.
4. I try to see my failings as part of the human condition.

**Isolation Subscale**
1. When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world. (R)
2. When I’m feeling down, I tend to feel like most other people are probably happier than I am. (R)
3. When I’m really struggling, I tend to feel like other people must be having an easier time of it. (R)
4. When I fail at something that’s important to me, I tend to feel alone in my failure. (R)

**Mindfulness Subscale**
1. When something upsets me, I try to keep my emotions in balance.
2. When something painful happens, I try to take a balanced view of the situation.
3. When I fail at something important to me I try to keep things in perspective.
4. When I’m feeling down I try to approach my feelings with curiosity and openness.

**Over-Identification Subscale**
1. When I’m feeling down I tend to obsess and fixate on everything that’s wrong. (R)
2. When I fail at something important to me I become consumed by feelings of inadequacy. (R)
3. When something upsets me I get carried away with my feelings. (R)
4. When something painful happens I tend to blow the incident out of proportion. (R)

**SC Reading Condition Manipulation Checks (T2)**
1. List two specific things you can do to cope with stress that you learned from the reading passage
2. To what extent do you feel that you can use this information next time you need to cope with stress? (1 = not at all - 5 = definitely feel)
State Self-Attitudes (T2)

Select the response on the scale provided that indicates how well each adjective of phrase describes your present mood. (1 = definitely do not feel - 5 = definitely feel)

1. I feel good about myself.
2. My self-esteem is high.
3. I feel liked.
4. I feel insecure. (R)

Rejection Condition Manipulation Check (T2)

1 = definitely do not feel - 5 = definitely feel

1. I feel rejected.
2. I feel excluded.
3. I feel disconnected.
4. I feel like an outsider.
5. I feel like I don’t belong.

Mediators (T2)

1 = definitely do not feel - 5 = definitely feel

Feelings of Control (T2)

1. I feel I am able to influence others.
2. I feel in control.
3. I feel like I have no control.
4. I feel powerful.

Negative Affect (T2)

1. I feel good
2. I feel bad
3. I feel friendly
4. I feel happy
5. I feel sad
6. I feel distressed
7. I feel stressed
8. I feel anxious
9. I feel irritated
10. I feel angry
11. I feel hostile
12. I feel annoyed
13. I feel mad
**Outcome - Cravings (T2)**

*Right now, I really want to eat* (1 = not at all - 5 = very much)

Group A
1. Salty snacks (e.g. a small bag of chips)
2. Fast foods (e.g. a small order of French fries, hamburger)

Group B
3. High calorie drinks (e.g. a soda or rich coffee drink)
4. Refined baked goods (e.g. muffins, scones)
5. Sweets (e.g. candy bar, jelly beans)

**Outcome - Unhealthy Eating Willingness (T2)**

1 = not at all willing - 7 = very willing

**Social Scenario**

*Suppose that you are at a restaurant with friends. You have eaten already and are feeling pretty full, and you are getting ready to ask for the check. Your friend suggests that you order a very delicious, but very unhealthy dish to share while you sit and talk a little longer. How willing would you be to...*

1a) Eat a few bites
1b) Continue to eat
1c) Eat until you feel uncomfortably full.

**Alone Scenario**

*Suppose that your favorite TV show is on late. You usually like to eat your favorite snacks while you watch your favorite TV show. Your fridge is full of vegetables while your pantry is full of your favorite chips and candy. How willing would you be to...*

2a) eat the chips and candy instead of the vegetables
2b) eat the chips and candy until they are gone

**Outcome - Restricted Eating Intentions (T2)**

*Please predict how much you will behave in each of the following ways in the coming week* (1 = never - 5 = always)

1. avoid eating when you were hungry
2. diet
3. feel preoccupied with your weight and/or body shape, or about gaining weight
4. try to control your weight by eating little or no food
5. feel aware of the calorie content of foods you ate
6. use laxatives, diuretics [water pills], and/or other suppositories to help control your weight and to lose weight
Appendix C

PROCESS Models of Mediated Moderation

Conceptual Model 5
- SC moderates Rejection $\rightarrow$ Restrictive Eating Intentions pathway
- Rejection $\rightarrow$ Negative Affect pathway is constant
- Negative Affect $\rightarrow$ Restrictive Eating Intentions pathway is constant

![Diagram of Conceptual Model 5]

Conceptual Model 7
- SC moderates Rejection $\rightarrow$ Negative Affect pathway
- Rejection $\rightarrow$ Restrictive Eating Intentions pathway is constant
- Negative Affect $\rightarrow$ Restrictive Eating pathway is constant

![Diagram of Conceptual Model 7]
Conceptual Model 8
- SC moderates Rejection → Negative Affect pathway
- SC moderates Rejection → Restrictive Eating Intentions pathway
- Negative Affect → Restrictive Eating pathway is constant

Conceptual Model 14
- Rejection → Negative Affect pathway is constant
- Rejection → Restrictive Eating Intentions pathway is constant
- SC moderates Negative Affect → Restrictive Eating pathway

Conceptual Model 15
- Rejection → Negative Affect pathway is constant
- SC moderates Rejection → Restrictive Eating Intentions pathway
- SC moderates Negative Affect → Restrictive Eating pathway