The Impact of Varieties of Shame on Disordered Eating: Exploring the Influence of Emotion Regulation and Self-Compassion

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THE IMPACT OF VARIETIES OF SHAME ON DISORDERED EATING:
EXPLORING THE INFLUENCE OF EMOTION REGULATION
AND SELF-COMPASSION

by

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ABSTRACT
THE IMPACT OF VARIETIES OF SHAME ON DISORDERED EATING:
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The current study examined the impact of specific forms of shame on severity of specific disordered eating behaviors among women who engaged in restricting, binge-eating, purging/compensatory behaviors, or binge eating and purging in combination, after controlling for depression and guilt. Additionally, the study examined whether self-compassion and emotion regulation mediated the relation between various forms of shame and disordered eating severity. Finally, the study piloted an internet-based method of self-compassion induction. Participants (N = 518) were a convenience sample of women recruited from websites associated with eating disorders, who reported engagement in at least one disordered eating behavior in the prior month. Results suggested that in women who engaged in only binge-eating (n = 109), binge eating severity was predicted by depression and eating-related shame. Among women who engaged in only purging/compensatory behaviors (n = 68), guilt, externalized shame, and internalized bodily shame were predictive of purging severity at the trend level. Among women who engaged in a combination of binge-eating and purging (n = 304), binge-eating/purging severity was predicted by both guilt and eating-related shame, although the relationship with guilt was no longer significant after accounting for eating-related shame. Regression analyses were too underpowered to detect statistical effects among
women who engaged in caloric restriction alone ($n = 37$); however, correlational data suggested moderate relationships between restriction severity and internalized bodily, eating-related, externalized general, and externalized bodily shame. Emotion regulation partially mediated the relation between eating-related shame and binge-eating/purging severity; however, no other significant relationships between specific types of shame and disordered eating severity were mediated by either emotion regulation or self-compassion. Finally, the internet-based self-compassion induction administered at the end of the study resulted in significantly decreased levels of all five forms of shame, compared to levels of shame at baseline and following a shame prime.
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DEDICATION

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<thead>
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<th>Description</th>
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<tbody>
<tr>
<td>USM</td>
<td>The University of Southern Mississippi</td>
</tr>
<tr>
<td>APA</td>
<td>The American Psychiatric Association</td>
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<tr>
<td>AN</td>
<td>Anorexia nervosa</td>
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<tr>
<td>BN</td>
<td>Bulimia nervosa</td>
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<td>BED</td>
<td>Binge eating disorder</td>
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<tr>
<td>DSM-5</td>
<td>Diagnostic and Statistical Manual, 5th Ed.</td>
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<tr>
<td>ED</td>
<td>Eating disorder</td>
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<td>RES</td>
<td>Restricting</td>
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<tr>
<td>BE</td>
<td>Binge-eating</td>
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<tr>
<td>PUR</td>
<td>Purging/Compensatory behaviors</td>
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<tr>
<td>BE+P</td>
<td>Binge–eating &amp; purging</td>
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CHAPTER I - INTRODUCTION

The current study explores the role of distinct forms of shame across the spectrum of disordered eating behaviors. The background for the current study will be established first by reviewing the difficulties associated with eating disorders and shame, individually, then by establishing the interplay of these two constructs, and finally by exploring potential mechanisms through which the constructs may be associated. Additionally, the current study addresses a void in the literature by extending the literature regarding specific attentional processing systems of shame (i.e., internal and external) on to bodily shame, which is believed to be relevant to the development, maintenance, and relapse of eating disorders. Furthermore, the current study will highlight the role of emotion regulation and self-compassion in the relation between specific forms of shame and disordered eating, which may contribute to the improved treatment of shame and eating disorders.

The American Psychiatric Association (APA, 2013) details three primary eating disorders and several eating disorders of atypical presentation. Anorexia nervosa (AN) is characterized by caloric restriction, significantly low body weight, and intense fear and avoidance of weight gain. Furthermore, diagnosis of AN requires distorted perceptions of shape and weight, excessive weight and shape-based self-evaluation, or absence of insight into the degree to which the individual is underweight (APA, 2013, pp. 338-339). AN is additionally divided into a restricting type, in which the predominant presentation includes dieting, fasting, or exercise, and a binge-eating/purging type, in which the clinical presentation includes restricting, binge-eating, and compensatory behaviors. Bulimia nervosa (BN) is characterized by frequent and repeated binge-eating, use of
compensatory behaviors (e.g., vomiting, laxatives), and overreliance on weight- and shape as basis of self-evaluation (APA, 2013, p. 345). Although ANbp and BN are diagnostically distinct, there is substantial evidence in the literature which suggests that binge-eating and purging, while categorically distinct from normative eating and other eating disorders, is dimensional in nature (Gleaves, Lowe, Green, Cororve, & Williams, 2000; Olatunji et al., 2012; Williamson, Gleaves, & Stewart, 2005).

APA (2013) describes binge eating disorder (BED) as the presence of recurrent binge-eating and associated features, such as rapidity of consumption, uncomfortable fullness, eating beyond satiety, and eating associated with negative emotions (p. 350). Several other specified eating disorders are delineated, including eating disturbance that is of shorter duration or lower frequency than required for a primary diagnosis, eating disturbance without “significant” weight loss (i.e., atypical AN), purging behaviors without binge-eating (i.e., purging disorder), and binge-eating at nighttime alone (i.e., night eating syndrome). Evidence regarding purging disorder as distinct from other types of disordered eating is preliminary and somewhat mixed; although, several latent class analyses indicate that purging disorder forms a latent class apart from other eating disorders (Keel & Striegel-Moore, 2009).

Prevalence rates for eating disorders vary by diagnosis and gender. The APA (2013) indicates that in women, AN has an estimated prevalence rate of 0.4%, BN has an estimated prevalence of 1.0% to 1.5%, and BED has an estimated prevalence of 1.6%; no prevalence rates are offered in the Diagnostic and Statistical Manual, 5th ed. (DSM-5; APA, 2013) for any of the other specified eating disorders. Stice, Marti, and Rohde (2013) investigated the prevalence rates of DSM-5 eating disorders in a community
sample of women. They reported the following lifetime prevalence rates: 0.8% for AN, 2.6% for BN, 3.0% for BED, 2.8% for atypical AN, 4.4% for subthreshold BN, 3.6% for subthreshold BED, and 3.4% for purging disorder. Furthermore, results suggested a combined prevalence rating of 13.1%, indicating that eating disorders represent a substantial problem when considered together. With regard to gender, the APA (2013) estimates that approximately 10% of individuals diagnosed with an eating disorder are men.

Course and outcomes associated with eating disorders vary by diagnosis. In a review of the literature, Keel and Brown (2010) indicated that for individuals diagnosed with AN, remission rates varied by years to follow-up, with 29% (2.5 year follow-up), 68% (8 year follow-up), and 84% (16 years) of individuals achieving remission across studies. The study noted that individuals who did not achieve remission were likely to cross over to a BN or EDNOS diagnosis. Among individuals diagnosed with BN, remission rates ranged from 27% (1 year follow-up) to 70% (10 years). They further reported that individuals who had not achieved remission by 5 years were likely to demonstrate a particularly chronic course, as remission rates did not vary between 5 and 20 year follow-up. Although the number of studies examining remission rates in BED was limited, early estimates suggest remission rates ranging from 25% to 80% at 1 year follow-up, with one study reporting a remission rate of 82% at 4-year follow-up. Given the recent addition of other eating disorders to the DSM-5, there is limited research into the course of these disorders. However, Stice et al. (2013) indicated that over 8 years, individuals diagnosed with other specified eating disorders in a community sample achieved the following remission rates: 71% of atypical AN, 100% of subthreshold BN
and BED, and 94% of purging disorder; however, the sample size was limited for this study. Poorer prognosis was associated with immature coping styles and higher baseline psychological distress (Hay et al., 2010), as well as earlier age of onset for some of the disorders (i.e., AN, BN, BED, subthreshold BED) (Stice et al., 2013). Given these findings, eating disorders are associated with a relatively long duration of illness and are particularly chronic and unremitting in a substantial portion of individuals, particularly those with AN and BN.

Eating disorders are associated with severe and sometimes irreversible medical problems (Greenfield, Gordon, Cohen, & Trucco, 2010; Harrop & Marlatt, 2010; Sansone & Sansone, 1994), diminished quality of life even after successful treatment (Hay & Mond, 2005), and substantial economic burden (Mitchell et al., 2009; Simon, Schmidt, & Piling, 2005). Further, they are associated with a wide range of comorbid psychopathology, including depression, anxiety disorders, substance abuse, suicide attempts, and certain personality disorders (see reviews: Holderness, Brooks-Gunn, & Warren, 1994; O’Brien & Vincent, 2003; Pearlstein, 2002). Of gravest concern is the heightened mortality rates associated with all eating disorders. In a meta-analysis, Arcelus, Mitchell, and Wales (2011) reported standardized mortality ratios (i.e., observed deaths/expected deaths) of 5.86 for AN, 1.93 for BN, and 1.92 for eating disorder not otherwise specified (EDNOS); they further indicated that in AN, 20% of deaths resulted from suicide. Crow et al. (2009) focused solely on suicide among women with various eating disorders and reported standardized suicide mortality ratios of 4.68 for AN, 6.51 for BN, and 3.91 for EDNOS. Together, these findings suggest that eating disorders affect a substantial portion of the population when considered together, are associated

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with long duration and chronicity, and represent substantial risks to life, physical and mental health, and quality of life.

Shame and the Self-Conscious Emotions

Shame is an emotion implicated in many forms of psychopathology, including eating disorders (e.g., Frank, 1991; Goss & Allan, 2009; Gupta, Rosenthal, Mancini, Cheavens, & Lynch, 2008; Hayaki, Friedman, & Brownell, 2002; Murray, Waller, & Legg, 2000), depression (e.g., Andrews, Qian, & Valentine, 2002; Cheung, Gilbert, & Irons, 2004; Gilbert & Irons, 2004), social anxiety (e.g., Gilbert, 2000), body dysmorphic disorder (Veale, 2002), posttraumatic stress disorder (Andrews, Brewin, Rose, & Kirk, 2002; Leskela, Dieperink, & Thuras, 2002), several personality disorders (e.g., Schoenleber & Berenbaum, 2012), and self-harming behaviors (e.g., Gilbert et al., 2010; Schoenleber, Berenbaum, & Motl, 2014). Shame is variously referred to as a social emotion, a moral emotion, and is one of several emotions referred to as the ‘self-conscious’ emotions, including guilt, embarrassment, and pride (Lewis, 1971). Tracey and Robins (2004) theorize that self-conscious emotions require self-evaluation and occur only when individuals become cognizant of reaching, or failing to live up to, actual or ideal self-representations.

Goss and Allan (2009) define shame as “a multifaceted self-conscious emotion that involves affective, social, cognitive, behavioral, and physiological components” (p. 303). Research implicates a blending of several emotions in the experience of shame, including anger, anxiety, disgust, and sadness (Goss & Allan, 2009; Troop, 2001). Additionally, the experience of shame is often linked to social comparison and social ranking, such that shame is positively associated with unfavorable social comparison and
social-rank vigilance (Cardi, Di Matteo, Gilbert, & Treasure, 2014; Troop, 2001). Further, shame involves cognitive self-appraisal of being deficient, contemptible, or fundamentally flawed in a global manner (Candea & Szentagotai, 2013; Goss & Allan, 2009). Although global attributions are necessary for the experience of shame, shame can relate to numerous foci, including specific behaviors and moral beliefs. With regard to eating disorders, research has highlighted shame related to character, physical appearance, and to a lesser extent, eating (Goss & Allan, 2009). The experience of shame may lead to a number of different behaviors, including isolation, submission, and efforts to avoid rejection; if the shame has a specific focus, behaviors may be elicited which minimize the effects of the focus (e.g., restricting calories for bodily shame) (Troop, 2001).

Several authors propose two primary types of shame with regard to attentional processing systems (Crozier, 1998; Gilbert, 1998, 2002; Goss & Allan, 2009; Troop, Allan, Serpell, & Treasure, 2008; Troop, 2001). The first of these, internalized shame, involves personal evaluations regarding the extent to which an individual believes that they have met their own internal standards (Gilbert, 1998; 2002). The second of these, externalized shame, involves how an individual believes that they are being appraised by others, irrespective of their own values and beliefs about themselves (Gilbert, 1998; 2002); it requires the individual to take an observer’s perspective and assume knowledge of the observer’s beliefs and emotions. Despite preliminary research demonstrating that these types of shame are differentially associated with various behaviors and forms of psychopathology (Crozier, 1998; Kim, Thibodeau, & Jorgensen, 2011; Troop, Allan,
Serpell, & Treasure, 2008), there is a general paucity of research regarding internalized and externalized shame.

The difference between shame and associated emotions, such as guilt, are subtle but substantial. Guilt and shame were first differentiated by Lewis (1971), who interpreted shame as being associated with global attributions about the self, whereas guilt was associated with specific behavioral attributions. Findings of a recent study also indicated that shame, but not guilt, is associated with rumination, which in turn is associated with depression and other psychological problems (Orth, Berking, & Burkhardt, 2006). Shame is often strongly associated with psychopathology, whereas guilt typically evidences a weak or nonexistent association (Burney & Irwin, 2000; review: Troop, 2001). Shame is also highly associated with depression, with both shame and depression exhibiting a relationship with eating disorders (e.g., Frank, 1991; Hayaki et al., 2002) In a recent meta-analysis, Kim et al. (2011) demonstrated that shame had a moderate positive correlation (r = .43) with depression, whereas depression and guilt had a weaker relationship (r = .28). Both internalized and externalized shame evidenced moderate correlations with depression, although the relation was stronger for external shame (r = .56) than for internal shame (r = .42).

Shame in the Development, Maintenance, and Relapse of Disordered Eating

Shame is implicated in the development, maintenance, and relapse of eating disorders. With regard to the development of eating disordered behaviors, several pathways are identified between early childhood experiences (e.g., sexual abuse, bullying, exposure to specific parenting styles) and eating disordered pathology, with shame serving as a mediator between the two (review: Goss & Allan, 2009). In women
diagnosed with BN, bodily shame partially mediated the relation between childhood sexual abuse and BN in a community sample (Andrews, 1997). Similarly, Murray and Waller (2002) found that shame fully mediated interfamilial sexual abuse and bulimic attitudes; shame was also a partial mediator between general sexual abuse and bulimic attitudes. In an underpowered study examining the relation between core beliefs (as measured by the Young Schema Questionnaire), childhood sexual abuse, and bulimic symptomatology, shame/defectiveness beliefs partially mediated the relation between childhood sexual abuse and vomiting (Waller et al., 2001).

Additionally, shame stemming from certain parenting styles may play a role in the development of eating disorders. In one study, low maternal and paternal care, as well as maternal and paternal overprotection, were predictive of shame and defectiveness beliefs in women with anorexia, but not bulimia (Leung, Thomas, & Waller, 2000). Conversely, Murray et al. (2000) found that internalized shame fully mediated the relation between recalled parental overprotection and bulimic attitudes. Finally, shame fully mediated the relation between childhood teasing/bullying and body dissatisfaction (Sweetingham & Waller, 2008). As such, although the evidence base remains small, shame appears to play an integral role in the shift from specific adverse childhood experiences to eating disordered psychopathology.

Shame also contributes to the maintenance of eating disordered symptomatology. Women with eating disorders may experience emotions more intensely, or may be more intolerant of emotional experiences, than healthy controls (Fairburn, Cooper, & Shafran, 2003). Numerous studies and theoretical models suggest that individuals diagnosed with eating disorders use their disordered eating behaviors to manipulate their emotional
experiences, including the experience of shame (Fairburn et al., 2003; Overton, Selway, Strongman, & Houston, 2005). For example, Espeset, Gulliksen, Nordbø, Skårderud, and Holte (2012) noted that caloric restriction and purging was utilized by women with AN to manage sadness and fear, as well as avoid anger. Further, they reported that in AN, self-harm and exercise were utilized to cope with anger, whereas fear was managed through body checking.

Several authors noted shame as both an antecedent and a consequence to bingeing and purging (e.g., Fairburn, 1981; Lingswiler, Crowther, & Stephens, 1989), resulting in a cycle of eating disordered behaviors. In a comparison of BED, obese, and average weight controls, Zeeck, Stelzer, Linster, Joos, and Hartmann (2011) reported that BED participants had higher levels of daily negative emotions and were significantly more likely to engage in emotional eating than obese or average weight controls. The authors noted that feelings of anger, loneliness, exhaustion, and shame were the most likely emotions to result in a binge. In a study investigating the cognitions and emotions preceding vomiting in women diagnosed with BN, women identified cognitions associated with defectiveness/shame, failure, and social isolation, as well as the accompanying emotions of shame and anxiety as triggers for purging (Hinrichsen, Morrison, Waller, & Schmidt, 2007). Even among nonclinical populations, Chao, Yang, and Chiou (2012) reported that participants who were induced to experience shame had higher levels of caloric consumption than those who were not. Furthermore, women diagnosed with bulimia reported high levels of secrecy regarding their bingeing and purging behaviors due to feelings of shame, thus preventing them from gaining social support and contributing to eating disorder maintenance (Weiss, Katzman, & Wolchik,
Characterological and eating-related shame were associated with non-disclosure during treatment for EDs (Swan & Andrews, 2003), suggesting that shame may maintain EDs by interfering with intervention implementation.

Finally, shame may contribute to relapse among women diagnosed with eating disorders. Swan and Andrews (2003) found that women in recovery from an eating disorder maintained significantly elevated levels of bodily, characterological, behavioral, and eating-related shame compared to normative controls. Additionally, level of bodily shame did not deviate between currently symptomatic and recovered women, although characterological and eating-related shame were substantially decreased in the recovered group. In a meta-analysis exploring the association between expressed emotion and relapse of various psychological disorders, Butzlaff and Hooley (1998) reported that expressed emotion was associated with eating disorder relapse (r = .51) at higher rates than any other psychological disorder, including schizophrenia and mood disorders. Given the etiological importance of parenting styles to eating disorders, as well as the strong link between familial expressed emotion and personal shame (e.g., Wasserman, de Mamani, & Suro, 2012), results are suggestive of a role for shame in relapse.

General and Specific Forms of Shame in Disordered Eating

Irrespective of etiology, maintenance, and relapse, a substantial research base exists linking various forms of shame to eating disorders and their symptomatology. Keith, Gillanders, and Simpson (2009) reported that women with eating disorders endorse shame in a number of domains, with highest endorsement of shame regarding their eating and body, followed by their behavior and character. A few studies indicated that shame is associated with ED symptomatology independent of depressive symptoms.
(Gee & Troop, 2003) and independent of and above that of general negative affectivity (Gupta et al., 2008). However, another study noted that shame was predictive of bulimic symptom severity, but that this relationship disappeared when accounting for depression and guilt (Hayaki et al., 2002). Given the mixed findings in the literature, it will be important to control for both depression and guilt in future studies.

In a sample of college students screened for eating disorders and depression, eating-related shame and guilt were significantly higher among women with a diagnosable eating disorder (ED) than among women with depression, and both groups had significantly higher levels of guilt and shame relative to normative controls (Frank, 1991). Although general shame and guilt were correlated with both depression and eating disturbance, eating-related shame and guilt were uniquely correlated with eating disorders in normative ($r = .63$) and clinical ($r = .56$) samples (Frank, 1991). However, the measure which Frank developed and used to assess shame and guilt combined the emotions into a single index, failing to recognize any potential distinctions between the emotions. In a community sample of Australian women, Burney and Irwin (2000) found that eating-related shame was the strongest predictor of eating disordered symptomatology (unique $r^2 = .093$) relative to bodily shame (unique $r^2 = .018$) and eating-related guilt (unique $r^2 = .023$). Doran and Lewis (2012) examined characterological, behavioral, and bodily shame in clinical patients and a mixed community and university sample. Findings suggested that both bodily and characterological shame were predictive of eating disturbance in female nonclinical samples ($R^2 = .30$); however, within female clinical samples, only bodily shame was predictive of eating disturbance ($R^2 = .15$). This finding highlights the importance of differentiating between clinical and nonclinical
populations as they may manifest different patterns of associations. Results suggest that eating disorders are associated with several foci of shame; however, no study to date has examined their relative contributions simultaneously in clinical samples, or teased apart differences which may exist among different types of disordered eating.

**Internalized and Externalized Shame and Disordered Eating**

Thus far, only one study has investigated the role of internalized and externalized shame in specific eating disorder diagnoses. Troop et al. (2008) reported that after controlling for depression, internalized shame was uniquely predictive of severity of bulimic symptoms ($R^2 = .249$), whereas externalized shame was uniquely predictive of severity of anorexic symptoms ($R^2 = .263$). Subsequent regression analyses of internalized and externalized shame onto specific symptoms associated with AN and BN indicated that internalized shame was most strongly related to BN via concern about body weight and shape, whereas externalized shame was primarily related to AN via degree of underweight. When examining the role of shame by specific symptoms, BN symptoms remained associated only with internalized shame. However, the relation between specific AN symptoms and types of shame was mixed, as internalized shame was strongly negatively predictive of degree of underweight and slightly positively predictive of fear of fat; however, externalized shame was only predictive of degree of underweight. Results suggest that specific types of shame may be differentially associated with specific behaviors and symptom patterns in the eating disorders, which may have implications in treatment.

Pinto-Gouveia, Ferreira, and Duarte (2014) investigated the role of ‘social ranking,’ comprised of external shame, social comparison, and insecure striving, on
bodily dissatisfaction and drive for thinness. They reported that external shame and social comparison directly predicted body dissatisfaction and indirectly predicted drive for thinness through decreased self-compassion and increased self-criticism. Bodily dissatisfaction directly and indirectly, through decreased self-compassion and increased self-criticism, predicted drive for thinness. The authors did not investigate the role of internalized shame in this study. In a separate study investigating the relation between self-criticism and disordered eating, shame emerged as the only significant mediator in a four-part simultaneous mediation model which tested shame, negative and positive affect, and depressive symptoms as potential mediators (Kelly & Carter, 2013).

**Bodily Shame and Disordered Eating**

As noted above, bodily shame is particularly resistant to treatment among women diagnosed with EDs and does not appear to differ between currently symptomatic and recovered women (Swan & Andrews, 2003). Just as there are many facets to shame (e.g., internal, external, bodily), there appear to be unique pathways in the development of differing types of shame. Markham, Thompson, and Bowling (2005) evaluated the involvement of a number of possible determinants of bodily shame, including internalization of the thin ideal, appearance-related teasing, appearance-related comparisons, global self-worth, body-image esteem, general teasing history, parental care, and parental overprotection. Unlike global shame, parental practices and teasing/bullying did not directly or indirectly predict bodily shame. However, appearance-related comparisons directly predicted bodily shame and this relation was mediated by internalization of the thin-ideal. Additionally, negative body-image esteem
mediated the relation between global self-worth and bodily shame. Collectively, these paths accounted for 62% of the variance in bodily-shame.

Objectification theory offers another possible role for bodily shame in the eating disorders. Objectification theory posits that in western societies, the bodies of women and girls are considered to be objects that exist for the use of others, and as such, are routinely scrutinized and evaluated on the basis of their appearance (Tiggemann, 2013). Tiggeman (2013) describes “the central tenet is that, through the pervasiveness of and repeated experience of objectification, women and girls are gradually socialized to internalize an observer’s perspective of their own bodies… termed self-objectification” (p. 37). Although further research is needed to determine possible associations between self-objectification and externalized shame, the proposed theoretical processes through which individuals develop externalized shame (Gilbert, 1998; 2002) and self-objectification (Tiggeman, 2013) are remarkably similar.

Self-objectification is linked to numerous behavioral and experiential consequences (Frederickson & Roberts, 1997), including self-objectification and body shame (e.g., Moradi, Dirks, & Matteson, 2005; Tiggemann & Kuring, 2004; Tylka & Hill, 2004), as well as self-objectification and body dissatisfaction (e.g., Fitzsimmons-Craft & Bardone-Cone, 2012; Frederick, Forbes, Grigorian & Jarcho, 2007), and self-objectification and disordered eating (e.g., Daubenmier, 2005; Moradi et al., 2005; Peat & Muehlenkamp, 2011). Further, Augustus-Horvath and Tylka (2009) explored the objectification theory model in different age groups and found that the relation between bodily shame and disordered eating was substantially stronger in older individuals compared to younger individuals, adding further evidence of recurrent difficulties with
bodily shame across the lifetime of those with eating disorders. In an expanded model combining objectification and social comparison theory, Tylka and Sabik (2010) reported that bodily shame was predicted by body surveillance, body comparison, and low self-esteem; the highest levels of disordered eating were present among women with high levels of both body-surveillance and body-comparison.

In a longitudinal study, Troop and Redshaw (2012) examined the role of internalized and externalized shame, as well as current and anticipated bodily shame, in anorexic and bulimic symptoms. Consistent with Troop et al. (2008), the relation between severity of bulimic symptoms and internal shame ($r = .44$) was stronger than the relation between severity of bulimic symptoms with external shame ($r = .36$); the reverse was true for severity of anorexic symptoms ($r = .49$ for external, .27 for internal). Furthermore, at the second time point (2.5 years), the only types of shame still associated with severity of bulimic symptoms were current ($r = .38$) and anticipated ($r = .34$) bodily shame, albeit at slightly lower levels than baseline ($r = .50$ for current & .53 for anticipated). However, all forms of shame were still associated with severity of anorexic symptoms at the second time point, although the strongest associations were for current bodily shame ($r = .55$) and externalized shame ($r = .41$). After controlling for depression and including bodily shame into a regression analysis, they found that only baseline anorectic severity and current bodily shame were uniquely predictive of anorectic severity scores at follow-up ($R^2 = .48$); whereas only baseline bulimic severity and depression scores were predictive of severity of bulimic symptoms at follow-up ($R^2 = .30$).

These findings, while an interesting first step in exploring the relationship among different types of shame longitudinally, are preliminary at best. Their sample included
individuals in various stages of illness and recovery; only 11 participants reported symptoms which were suggestive of current or historical bulimic pathology. Furthermore, although the longitudinal associations between these variables are important in understanding the course of eating disorder symptomatology, it is unclear to what extent they may have been affected by outside variables, such as treatment. Finally, the use of only zero-order correlations to determine baseline associations limits the interpretability of the results, as the unique variance and predictive value of different forms of shame is unclear.

There is some evidence that bodily shame may be particularly linked to eating restraint, which in turn may lead to other disordered eating behaviors. Noll and Frederickson (1998) experimentally manipulated state self-objectification by having participants evaluate themselves in a dressing room while trying on either a swimsuit or a sweater. They found that self-objectification resulted in increased bodily shame, which in turn led to restrained eating. The authors hypothesized that women have cultural beliefs about their abilities to control their weight and shape through dieting; therefore, dieting may be a mechanism through which individuals may alleviate or avoid body shame.

Similarly, Calogero and Pina (2011) reported that bodily shame and bodily guilt fully mediated the relation between self-surveillance, which they described as a form of compulsive body checking and eating restraint. Noll and Frederickson (1998) hypothesize that bodily shame may lead to binge eating indirectly, through restricting, or directly due to emotional eating brought on by shame and other negative emotions.

These lines of literature substantiate a strong relationship for shame in the etiology, maintenance, and relapse of eating disorders. Among women with eating
disorders, shame may take several foci, including eating-related, characterological, and bodily; shame may also be experienced through two primary attentional processing systems, those of internalized and externalized shame. Of these, preliminary evidence suggests that internalized shame evidences the strongest association to BN, whereas externalized shame evidences the strongest association with AN. Both eating-related and bodily shame appear to play a relatively stronger role in disordered eating than general measures of shame proneness, regardless of the attentional focus of the shame. Finally, bodily shame is a particularly important construct in disordered eating, evidencing the greatest longevity and least responsiveness to treatment. Despite this body of findings, research has yet to comprehensively examine the relative contributions of various forms of shame in specific disordered eating behaviors. Given the deleterious outcomes associated with bodily shame, further investigation and refinement of the construct is warranted. Specifically, information regarding the attentional processing systems associated with bodily shame and various forms of disordered eating may have implications for treatment.

Explaining the Relation between Shame and Disordered Eating

Emotion Regulation

Given the substantial relation between shame and disordered eating, several authors have proposed possible mechanisms explaining the link, with a focus on difficulties with emotion regulation and low levels of self-compassion. Emotion regulation is a multifaceted construct, involving emotional awareness, acceptance, and modulation, as well as the ability to engage in goal-oriented behavior while experiencing negative emotions (Gratz & Roemer, 2004). Emotion regulation can take numerous
forms, including but not limited to situational modification, cognitive reappraisal, attentional redirection (e.g., mindfulness), and response modulation (Gross & Thompsonon, 2007; Gross, 2013). There are several maladaptive forms of emotion regulation strategies commonly found among individuals with eating disorders, including deliberate self-harm, substance use, and, of course, the disordered eating behaviors themselves (Fairburn et al., 2003).

The association between eating disorders and emotion dysregulation is well-established in the literature (e.g., Danner, Sternheim, & Evers, 2014; Gianini, White, & Masheb, 2013; Lafrance Robinson, Kosmerly, Mansfield-Green, & Lafrance, 2014; Overton et al., 2005; Racine & Wildes, 2013), and emotion dysregulation is argued to be a transdiagnostic phenomenon across eating disorder types (Brockmeyer et al., 2014; Fairburn et al., 2003; Treasure, Corfield, & Cardi, 2012). When examining emotion regulation difficulties and strategies across types and subtypes of eating disorders, findings are mixed. A few studies linked specific types of emotion regulation difficulties with particular disordered eating behaviors. For example, in a sample of women diagnosed with AN, impulse control difficulties were uniquely predictive of binge eating (odds ratio = 1.14) and purging (odds ratio = 1.09), whereas lack of emotional awareness was uniquely predictive of eating disordered cognitions after controlling for a number of associated constructs ($R^2 = .35$) (Racine & Wildes, 2013).

In a sample of women with full or subthreshold BN, Lavender et al. (2014) reported that global eating disorder symptoms were associated with global difficulties with emotion regulation, as well as specific difficulties with nonacceptance of emotional states, low impulse control, and low access to adaptive emotion regulation strategies.
Furthermore, purging and driven exercise were associated with difficulty engaging in goal-directed behavior when experiencing emotional distress. Women diagnosed with BED generally were found to have significantly more difficulties with emotion regulation than healthy controls, but comparatively fewer difficulties than women diagnosed with other eating disorders (Brockmeyer et al., 2014; Danner et al., 2014). Other authors reported large differences in emotion regulation difficulties when comparing individuals with eating disorders to healthy controls, but only minimal differences when comparing types of eating disorders to each other (Harrison, Sullivan, Tchanturia, & Treasure, 2010).

In the only study to date examining the association between shame-proneness, emotion regulation, and disordered eating, Gupta et al. (2008) reported that emotion dysregulation partially mediated the relation between shame and disordered eating, explaining an additional 10% of variance. Conversely, in a reverse mediation model, they reported that disordered eating did not mediate the relation between shame and emotional regulation, suggesting causal direction was from shame to disordered eating though emotion regulation. However, the general dearth of research in this area requires further study before the link between shame, emotional regulation, and disordered eating can be established with confidence. An important component in further solidifying this association will be to investigate if there is a consistent pattern between specific forms of shame, emotion regulation, and disordered eating, or if the relation is dependent on the type of shame and disordered eating experienced.
Self-Compassion

A secondary line of research focuses on the role of self-compassion in shame and disordered eating. Self-compassion is a construct rooted in Buddhist philosophy, which conceptualizes self-compassion as indistinct from compassion, which in turn is defined by being open to and affected by the suffering of the self or others, such that an individual is inspired to alleviate the suffering (Neff, 2003). Self-compassion, as described by Neff (2003), involves three essential elements, which are bipolar in nature. First, self-compassion involves “extending kindness and understanding… rather than harsh self-criticism and judgment” (p. 224). Second, self-compassion requires that experiences be viewed as part of an over-arching or universal experience, rather than viewing them as disconnecting or isolating. Finally, self-compassion involves “holding one’s painful thoughts and feelings in balanced awareness rather than over-identifying with them” (p. 224) or avoiding them.

In a review of the self-compassion literature, Barnard and Curry (2011) indicate that self-compassion is consistently positively related to positive affect, well-being, life-satisfaction, social connection, happiness, and accurate performance assessment. Furthermore, they reported that self-compassion was negatively related to negative affect, depression, anxiety, rumination, maladaptive perfectionism, procrastination, thought suppression, and avoidance strategies. Woods and Proeve (2014) indicated that self-compassion negatively predicted shame-proneness but not guilt-proneness, indicating a unique relationship with shame. Further, they indicated that global shame was strongly negatively correlated with all three aspects of self-compassion. Several authors posit that self-compassion may be associated with mood and affect through emotional awareness.
and regulation (Barnard & Curry, 2011; Neff, 2003), as the components of self-compassion may be conceptualized as emotion regulation strategies, such as cognitive reappraisal and mindfulness.

Ferreira et al. (2013) examined the relations between external shame, self-compassion, and drive for thinness in clinical and nonclinical samples. In the clinical sample, self-compassion fully mediated the relation between external shame and drive for thinness, accounting for 19.8% of the variance, whereas self-compassion partially mediated the relation in the nonclinical sample. Likewise, Pinto-Gouveia et al. (2014) found that the relation between external shame and drive for thinness was also partially mediated by lowered self-compassion and increased self-criticism. Finally, Kelly, Carter, and Borairi (2014) reported that in a mixed inpatient and day program treatment sample, low levels of self-compassion and high levels of fear of self-compassion were associated with higher levels of shame and disordered eating symptomatology. Further, they reported that the self-compassion and fear of self-compassion interacted, such that patients with low self-compassion and high fear of self-compassion had the poorest treatment outcomes and evidenced no improvement at the conclusion of treatment.

In addition to these studies directly examining the mechanism through which a specific type of shame may relate to disordered eating, numerous other authors have stressed the importance of developing self-compassion to overcome shame and psychopathology (e.g., Gilbert, 2005). Preliminary studies investigated self-compassion induction to ascertain if self-compassion could be enhanced and if such improvements would result in reductions in shame and distress. In a university sample of women with highly rigid and restrained eating patterns, Adams and Leary (2007) reported that
inducing self-compassion after a break in dieting behaviors resulted in significantly increased positive affect, no increase in negative affect, and food intake consistent with non-dieters; further, they reported decreased rumination and increased ability to maintain goal-oriented thinking. Conversely, dieters who did not receive the self-compassion induction evidenced significantly greater caloric consumption, increased negative affect, and decreased positive affect. In a separate study, Leary, Tate, Adams, Batts Allen, and Hancock (2007) required participants to recall a shameful or humiliating experience and then they were placed into one of four conditions: a self-compassion condition, self-esteem condition, writing-control condition, a no writing control condition. Results indicated that completing the self-compassion exercise resulted in significantly lower levels of negative affect than all other conditions as well as increased levels of personal responsibility and increased perceptions of being similar to others.

Most recently, Johnson and O’Brien (2013) randomized shame-prone individuals into three conditions, including a condition in which participants wrote about a shameful experience in a self-compassionate manner, another condition in which the participants wrote about a shameful experience expressively (as a pure exposure condition), and a no writing control condition. They reported that participants in the self-compassion condition demonstrated significantly greater reductions in shame and negative affectivity than those in the expressive writing condition. Despite the preliminary evidence suggesting benefit from self-compassion induction, it remains unclear if responsiveness to such exercises differs based on the type and attentional focus of the shame being experienced.
Logically, the next step in the application of self-compassion was the development of a treatment utilizing strategies and techniques associated with self-compassion. Therefore, compassion-focused therapy (CFT) was developed both as a transdiagnostic treatment (Kelly et al., 2014) and adjunctive treatment to cognitive behavioral therapy for eating disorders (CBT-E; Fairburn, 2008) (Goss & Allan, 2014). The primary goals of CFT are to diminish feelings of shame and increase self-compassion, which in turn are proposed to ameliorate eating disordered symptomatology and general psychopathology (Goss & Allan, 2014). To date, CFT is the only treatment known to this author which specifically targets shame as a major goal in the alleviation of disordered eating.

Holtom-Viesel, Allan, and Goss (2014) investigated a version of adjunctive CFT in which the CFT-component was introduced only after the completion of psychoeducation and CBT modules. The authors reported that at the conclusion of the psychoeducational and CBT components, levels of shame and self-criticism significantly increased from baseline; however, after the inclusion of CFT elements, there were significant reductions in shame and self-criticism as well as initial reductions in eating disorder symptoms.

Utilizing CFT, Kelly et al. (2014) found early shame reduction (i.e., within the first four weeks of treatment) was associated with more rapid eating disorder symptom reduction over 12 weeks. Furthermore, they reported that even when controlling for early reduction in ED symptoms, greater early increases in self-compassion were associated with the fastest shame reduction. As an adjunctive treatment to CBT-E, Gale, Gilbert, Read, and Goss (2014) reported that the inclusion of CFT resulted in significant
improvements on all outcome measures, although rates of clinically significant improvements varied by diagnosis. Specifically, recovery rates were as follows: 73% of women with BN, 21% of women AN, and 30% of women with atypical eating disorders; another 37% of women with AN and 30% of women with atypical AN were considered to have clinically significant improvements that did not meet the threshold for recovery. Treatment responsiveness is almost always substantially lower for AN than for BN (e.g., review: Bulik, Berkman, Brownley, Sedway, & Lohr, 2007). However, the attenuated treatment affects observed in AN by Gale et al. (2014) may be due, in part, to differential responsiveness to CFT by the specific forms of shame associated with AN. As noted above, the literature has not evaluated the association between specific forms of shame and responsiveness to CFT techniques. Although research on the application of CFT to eating disorders is limited, results are promising and highlight the association between shame, self-compassion, and eating disordered symptomatology.

These secondary lines of research offer preliminary support for emotion regulation and self-compassion as mediators of the relation between shame and disordered eating. Although both emotion regulation difficulties and low levels of self-compassion are posited to be transdiagnostic phenomena, no studies have explored the association between these constructs and specific forms of shame and disordered eating. Additionally, although shame reduction via self-compassion enhancement is a target of eating disorder treatment, the literature has not addressed whether various forms of shame respond equally to self-compassion induction and treatment.
The Current Study

Previous research indicates that various forms of shame (i.e., internalized, externalized, bodily, & eating) predict disordered eating, mediated by emotion regulation and self-compassion. However, there are a number of limitations to the current literature. To date, no study has simultaneously accounted for all of the specific types of shame relevant to eating disorders, or ascertained if patterns of relationships are consistent across diagnostic groups. Furthermore, a substantial portion of the aforementioned studies utilized community and university samples without requirements for clinically relevant symptoms of disordered eating, thus limiting the generalizability of their results to clinical application. Although an extensive literature base highlights the importance of attentional processes in the experience of shame as well as the long-lasting impact of bodily shame to disordered eating, research has yet to determine if specific attentional processes play a role in bodily shame and whether the focus is consistent across diagnoses. Similarly, research has yet to address whether emotion regulation and self-compassion, which mediate the relations between shame and disordered eating, remain consistent across specific types of disordered eating and shame. Finally, enhancement of self-compassion is indicated as a treatment for global shame and disordered eating, however, the literature has yet to examine the responsiveness of specific forms of shame to self-compassion induction.

The current study examined the relative contributions of specific types of shame relevant to eating disorders onto particular disordered eating behaviors after controlling for associated constructs. Further, the current study sought to extend the foci of bodily shame to include both internalized and externalized bodily shame, for evaluating specific
relations between these types of shame on disordered eating and to determine incremental validity of including such assessments into the evaluation of eating disorders. Additionally, the study investigated whether global measures of emotion regulation and self-compassion differentially mediate the relation between different forms of shame and specific disordered eating behaviors. Finally, the current study tested a new method of self-compassion induction over the internet, with the secondary goal of ascertaining if different forms of shame are associated with decreased responsiveness to self-compassion, as such information would have implication for the treatment of eating disorders.

Based on the literature, the following hypotheses were developed:

1. **Aim 1: Exploring the Impact of Shame on Disordered Eating.** Eating-related shame will predict restricting (RES) severity, binge-eating (BE) severity, and binge-eating and purging/compensatory severity (BE+P). Internalized general and bodily shame will predict BE+P severity, and externalized general and bodily shame will predict RES severity. Internalized general shame will predict BE severity but bodily shame (in either form) will have minimal or no impact on BE severity. As literature has yet to explore the relationships between these constructs and purging alone, all analyses associated with the severity of purging (PUR) will be exploratory in nature.

2. **Aim 2: Explaining the Relation between Shame and Disordered Eating.** Emotion regulation will partially mediate the relationship between RES, BE, and BE+P severity and forms of shame which emerge as significant predictors of each disordered eating severity composite, although emotion regulation will have the
largest effect on BE+P severity. The literature has yet to examine the role of emotion regulation in explaining the relation between shame and PUR severity; therefore, these analyses will be exploratory. Self-compassion will partially mediate the relation between types of shame and both BE+P and RES severity, although it will have a larger effect on BE+P severity. To date, literature has not addressed the role of self-compassion in explaining the relation between shame and either PUR or BE severity; therefore these analyses will be exploratory in nature.

3. **Aim 3: Determining the Response of Shame to Self-Compassion among Individuals with Disordered Eating.** Eating-related and internalized-global shame will evidence a substantial reduction in shame after the self-compassion induction; internalized bodily shame will have a small but significant reduction; and externalized global and bodily shame will not evidence significant reduction to the compassion induction.
CHAPTER II - METHODS

Participants

Participants were a convenience sample (N = 518) of women recruited from websites associated with eating disorders (e.g., charity websites, Reddit, and Facebook pages of local, regional, and national associations for eating disorders) in exchange for feedback of results on measures, as well as from a university setting in exchange for research participation credit. To be included in the study, participants had to identify as women and endorse engagement in any eating disordered behavior (i.e., caloric restriction, binge eating, and purging or compensatory behaviors) within the previous month. As such, women were in different stages of illness, treatment, and recovery. Given the problems with quality control inherent in collecting online data (Tuten, Urban, & Bosnjak, 2000), participants were excluded if they failed to meet three of five quality control questions designed to measure attentive responding (e.g., “As a quality control measure, please click on the number 2.”). Permission was obtained by an Institutional Review Board (Appendix A) before obtaining data from any participants, and informed consent was gathered before administration of any measures.

Given the generally moderate effect sizes observed in the literature, power analysis indicated that approximately 138 participants were needed to detect effects among each of four subgroups of individuals engaging in disordered eating behaviors (i.e., restricting alone, binge-eating & compensatory behaviors, binge-eating alone, and purging alone), for a total of 552 needed participants. Of the 937 participants who originally signed up for the study, 267 did not meet the inclusionary criteria of engaging in at least one disordered eating behavior in the prior month (n = 222) or identifying as
female (n = 45). An additional 56 participants chose not to proceed with the study after the screening items and 96 participants did not meet quality control criteria, for a total of 518 participants. Within the prior month, 304 participants endorsed a combination of binge eating and purging, 109 endorsed only binge eating, 68 endorsed only purging, and 37 endorsed only restriction. As such, analyses involving every group of participants other than those who engaged in a combination of binge eating and purging were significantly underpowered to detect effects.

Participants ranged in age from 17 to 69 (M = 24.09, SD = 8.89). With regard to racial and ethnic backgrounds, 371 of participants identified as White (71.6%), 105 as Black (20.3%), 15 as Hispanic (2.9%), 8 as Asian (1.5%), 2 as Native American (0.4%), and 17 as Other (3.3%). With regard to sexual orientation, 435 participants identified as heterosexual (84.0%), 51 as bisexual (9.6%), 20 as lesbian (3.8%), and 12 as other (2.3%). With regard to ED history, 125 participants (24.1%) reported a history of ED diagnosis, 59 participants (11.4%) reported a history of ED treatment without current treatment, and 41 participants (7.9%) reported that they were currently engaged in treatment (N = 41). Of those currently in treatment, the majority (N = 40) reported that they were engaged in outpatient therapy and one participant reported engagement in an intensive outpatient/partial hospitalization program.

Measures

*Eating Disorder Examination Questionnaire 6.0*

The Eating Disorders Examination-Questionnaire (EDE-Q; Fairburn & Beglin, 2008) is a 33-item self-report measure which was adapted from the Eating Disorder Examination (Fairburn & Cooper, 1993), a semi-structured interview which is generally
deemed the gold standard in the assessment of eating disorders. Items are measured in both Likert-format, according to the frequency of the experience or behavior, and in open-response format, to indicate total number of episodes of a behavior. Berg, Peterson, Frazier, & Crow (2012) reported that the EDE-Q is comprised of a global score and four subscales (i.e., Restraint, Eating Concern, Shape Concern, and Weight Concern). Additionally, the EDE-Q contains behaviorally based items (i.e., Objective and Subjective Binge Episodes, Vomiting, Laxative Misuse, Diuretic Misuse, & Excessive Exercise), which are not included on any global or subscale (Mond, Hay, Rodgers, Owen, & Beumont, 2004). The EDE-Q exhibits acceptable to good internal consistency (α = .70 - .93) and acceptable temporal stability (rs = .71 to .94) (Berg et al., 2012). Cronbach’s alpha was 0.95 for the total EDE-Q in the present sample. Although research is somewhat limited regarding the convergent and discriminant abilities of the EDE-Q, one study indicated that the EDE-Q was highly accurate in discriminating between individuals with and without eating disorders, using ROC analysis (AUC = .96; 95% CI = .95 - .97) (Aardoom, Dingemans, Slof Op’t Landt, & Van Furth, 2012).

For the purposes of the current study, composite variables were created for behavioral items, in the areas of caloric restriction, purging, binge-eating, and binge-eating plus purging/compensatory behaviors. For the purposes of binge eating only (BE) severity, an open response item on the EDE-Q which asks about frequency of over-eating with accompanying loss of control (i.e., an objective binge episode) was used in place of a composite. To capture restriction only severity, two Likert-items designed to capture deliberate caloric restriction were added together to form a RES severity composite. To capture purging only (PO) severity, open-response items measuring vomiting, laxative,
and diuretic use frequency were summed to form a PUR severity composite. Finally, to capture binge-eating and purging/compensatory (BE+P) severity, the objective binge item and purging items were summed to create a BE+P severity composite. The addition of a BE+P severity composite is necessary to differentiate between individuals who exhibit pure bingeing (i.e., BED), pure purging (i.e., Purging Disorder), and true bulimic symptomatology. A restriction/binge/purge composite was not included due to literature results suggesting that AN binge-purge type occurs on a continuum with BN (Gleaves et al., 2000; Olatunji et al., 2012; Williamson et al., 2005).

Self-Compassion Scale

The Self-Compassion Scale (SCS; Neff, 2003) is a 26-item scale designed to capture the poles of the three facets of self-compassion, including self-kindness versus judgment, common humanity versus isolation, and mindfulness versus over-identification with emotional experiences. Neff (2003) indicated that the scale evidenced one higher-order factor of self-compassion with a marginal fit (NNFI = .88; CFI = .90), as well as six general factors with adequate to good fit. Internal consistency reliability ranged from acceptable to good for the six subscales and a global self-compassion scale, including alphas of .78 for Self-Kindness, .77 for Self-Judgment, .80 for Common Humanity, .79 for Isolation, .75 for Mindfulness, .81 for Over-identification, and .92 for total Self-Compassion. Further, the SCS has some evidence of construct validity, after controlling for self-criticism, given the negative correlations to inventories of depression (\( r = -.51 \)), anxiety (\( r = -.65 \)), maladaptive perfectionism (\( r = -.57 \)) and positive correlation with life satisfaction (\( r = .45 \)). To date, studies have not examined the temporal stability of the
SCS. For the purposes of the current study, only the global (total) scale was used. Cronbach’s alpha for the SCS in the current sample was 0.91.

*Other as Shamer Scale*

The Other as Shamer Scale (OAS; Goss, Gilbert, & Allan, 1994) is a 18-item self-report measure designed to measure shame in accordance with self-perception associated with a real or imagined audience or critic. Goss et al. (1994) indicated that the measure is comprised of three factors, those of Emptiness, Inferiority, and ‘How others behave when they see me make mistakes.’ The authors indicated that internal consistency of the total OAS was strong ($\alpha = .92$), and reported evidence of construct validity due to high positive correlations with measures of internalized shame ($r = .81$) (Goss et al., 1994), depression ($r = .48$), general health as associated with anxiety, social dysfunction, and severe depression ($r = .33$ to $0.47$) (Allan, Gilbert, & Goss, 1994). Cronbach’s alpha for the OAS in the current was 0.97.

*Internalized Bodily Shame Scale*

The Internalized Bodily Shame Scale (IBSS) is a 21-item, Likert format scale adapted from the Internalized Shame Scale (Cook, 1987) and Other as Shamer Scale (Goss et al., 1994), with the inclusion of several items associated with bodily shame in the literature. It is intended to capture the construct of bodily shame as it relates to an internal lens, that is, shame which is associated with falling short of personal standards and ideals related to bodily shape and size, rather than shame perceived to be imposed by a real or imagined critic. The scale was pilot tested in a university sample (Hopkins, Daniels, Zawilinski, & Green, 2015), with evidence of strong internal consistency ($\alpha =$
.98) and a two factor structure, although the total score is used in the current study. Cronbach’s alpha for the present sample was 0.97.

**Externalized Bodily Shame Scale**

The Externalized Bodily Shame Scale (EBSS) is a 24-item, Likert format scale which was adapted from the Other as Shamer scale (Goss et al., 1994), along with several items associated with bodily shame in the literature which appeared to include internalization of others’ criticisms. It is intended to capture the construct of bodily shame as it relates to an external lens; that is, shame which is associated with the perception of a real or imaged external audience criticizing bodily shape and size. The scale underwent pilot testing in a university sample (Hopkins, Daniels, Zawilinski & Green, 2015), with evidence of strong internal consistency (α = .97) and a two factor structure, although the total score is used in the current study. Cronbach’s alpha for the EBSS in the current sample was .97.

**Eating-Related Shame Adaptation to the Experience of Shame Scale**

To date, a measure of eating-related shame, in which shame is measured independently of guilt, has not been developed. Therefore, Swan and Andrews (2003) adapted the format of the Experience of Shame Scale (Andrews et al., 2002) to develop a brief three-item scale of eating-related shame, capturing an experiential, behavioral, and cognitive component of shame. Although no formal psychometrics of this scale have been published, the authors indicated significant differences on this scale between healthy controls, individuals in recovery, and individuals with a current eating disorder. No indications of internal consistency or temporal stability are noted in the literature. Cronbach’s alpha for the ES-ESS in the current study was 0.93.
**Depression Anxiety Stress Scales**

The Depression Anxiety Stress Scales (DASS; Loviband, 1993) are a 42-item measure comprised of three 14-item scales measuring depression, anxiety, and stress, although only the Depression (DASS-D) scale was used in the current study. The DASS evidences strong internal consistency in clinical, $\alpha = .89 - .96$ (Brown, Chorpita, Korotitsch, & Barlow, 1997), and nonclinical populations, $\alpha = .89 - .91$ (Lovibond & Lovibond, 1995). Additionally, the DASS demonstrated acceptable temporal stability over a two week time span, $rs = .71$ to $.81$ (Brown et al., 1997). The DASS evidences strong discriminant validity and is able to differentiate between individuals diagnosed with primary anxiety and depressive disorders (Brown et al., 1997). Finally, the factorial structure of the instrument is consistent across clinical (Brown et al., 1997) and nonclinical populations, as well as across several different cultural and racial groups (Norton, 2007). Cronbach’s alpha for the DASS-D was 0.96 in the current study.

**Harder Personal Feelings Questionnaire, 2nd Edition**

The Harder Personal Feelings Questionnaire, 2nd Edition (PFQ-2; Harder & Zalma, 1990) is a 16-item measure of shame and guilt-proneness. Harder and Zalma (1990) reported that both the Guilt (HPFQ-G) and Shame (HPFQ-S) subscales demonstrate acceptable internal consistency ($\alpha = .72$ & $\alpha = .78$) and test-retest reliability ($rs = .85$ & .91). As the subscales solely focus on internal experiences of emotions, several authors have used the Shame subscale as a measure of internalized shame (e.g., Troop et al., 2008). Within the current sample, Cronbach’s alpha was 0.88 for the Shame subscale and 0.85 for the Guilt subscale in the current study.

**Demographic Form**
Participants were asked to complete several demographic items about themselves and their history of disordered eating. Information requested included a range of descriptive characteristics of the participant, such as age, ethnicity, and treatment history.

Procedure

Surveys were administered online, utilizing Qualtrics survey software. After obtaining informed consent, each participant was administered three screening questions to ascertain if they exhibited any eating disordered behaviors within the past months; if participants did not endorse any symptoms, then they were exempt from participation. Subsequently, participants were administered five questions to determine their baseline levels of eating-related, internalized, externalized, internalized body, and externalized body shame; these questions were administered at three time points throughout the study. Each of these constructs was distilled into a single item, rather than re-administering the questionnaires in totality, in order to minimally impact the intended shame and self-compassion inductions (see below).

In order to test the hypothesis that various forms of shame may respond differently to a self-compassion induction, participants were asked to remember a time in which they experienced intense shame, particularly as it relates to their eating, body shape, or weight. Participants then completed the five shame questions indicated above, as a manipulation check. Subsequently, participants were asked to write about the shameful experience in a self-compassionate manner, drawing on the methods and instructions used by Leary et al. (2007) and Johnson and O’Brien (2013). Specifically, all participants were provided with the following instructions, aimed to enhance the acceptance of a common humanity, self-kindness, and mindful awareness, “Bearing in
mind the experience you just described, please provide a written response to each of the following three instructions. It is important for you to really make an effort with your responses and to write down everything that is relevant.” In three separate blocks, the participants were asked the following, “List as many ways as you can think of in which other people also experience similar events to the one you just described;” “Write a paragraph expressing understanding, kindness, and concern to yourself the way you might express concern to a friend who had undergone the experience;” and “Describe your feelings about the experience in an objective and unemotional fashion” (Leary et al., 2007, p. 899). Immediately after completing the compassion-focused exercise, participants were administered the five shame questions once more.

At the completion of the study, participants were provided with feedback regarding their results through Qualtrics; university-based participants were also rewarded research credit. Furthermore, participants were provided with a number of resources regarding treatment options, as well as immediate helplines that they could call in the event of extreme distress (e.g., the Suicide Hotline), and were entered in a drawing for one of five $50 gift cards. All data was de-identified and stored on a password protected device.

Statistical Plan

Participants were selected into four groups (i.e., RES, BE, PUR & BE+P groups) on the basis of their patterns of endorsement and denial of different disordered eating behaviors. Exploratory data analyses (e.g., examination of z-scores, histograms, p-plots) were performed within each of the four groups to assess for normality of data and for the presence of outliers. As homogeneity of variance was an assumption across statistical
tests, all independent variables were grouped into low, medium, and high ranges and Levene’s test was run for each of the four dependent variables (i.e., BE, PUR RES, & BE+P severity composites). Prior to running additional analyses, analyses of variance (ANOVAs) were conducted to ensure that participants who endorsed that they were currently in treatment, had a history of treatment, and had no treatment history did not differ significantly in their disordered eating behavior.

Subsequently, all predictor variables were mean centered to aid interpretability. In order to guard against Type 1 error, a Bonferroni correction ($p < .017$) was employed for regression and mediation analyses. For each dependent variable, two sets of regressions were conducted. First, all shame predictors were entered simultaneously, after controlling for the covariates of guilt and depression, in order to test their relative contributions to the model. In the second set of regressions, covariates were entered into the first block, eating-related, internalized, and externalized shame were entered into the second block, and internalized and externalized bodily shame were entered into the third block, in order to determine if there is incremental validity to adding bodily shame measures as predictors of disordered eating behavior.

In order to test the hypothesis that emotion regulation and self-compassion explain the relation between measures of shame and disordered eating, a series of 4 parallel mediation models were conducted using the PROCESS macro (Hayes, 2013) and the ordinary least squares path analysis approach. To test indirect effects, bias-corrected bootstrap confidence intervals based on 10,000 bootstrap samples will be analyzed. Each model tested forms of shame which previously significantly predicted a disordered eating severity composite variable, for a total of four models.
Finally, a series of five-repeated measures ANOVAs were conducted to ascertain if there were differences in any of the items measuring the five types of shame across three time points (baseline, post-shame prime, & post self-compassion induction), using a simple last a priori contrast. Participants were excluded from data analyses if they did not complete the shame induction writing prompt, if they wrote about something unrelated to shame, or if they denied ever experiencing shame. Participants were also excluded from analyses if they did not complete at least one of the three self-compassion writing prompts, but were included even if they wrote about something other than the prompted topic. Missing data was managed using listwise deletion, for a total of 370 included participants. Alpha levels were Bonferroni corrected ($p \leq .01$) to protect for family-wise error. Sphericity was assessed for all five repeated-measures ANOVAs using Mauchly’s test, and the Greenhouse-Geisser correction was utilized when there were violations in sphericity, as it is the most conservative estimate per Field (2006).
CHAPTER III - RESULTS

Exploratory and Preliminary Analyses

Initially, z-scores were developed for each participant’s scores for independent and dependent variables. Across measures, all participants’ z-scores were within 3 standard deviations, with the exception of 8 outliers in the PUR severity composite and 6 outliers on the BE+P severity composite. After checking for data entry errors, these outliers were windsorized by replacing values with scores equaling 3 standard deviations above the mean. Subsequently, skewness and kurtosis were assessed using z-scores, p-plots, and histograms for individual variables. All independent variables had skewness and kurtosis z-scores within 3 standard deviations from the mean, as well as generally normal histograms and p-plots, with the exception of the DASS-D scale and the EBSS. Specifically, the DASS-D demonstrated positive skew (z-score = 3.84) and a platykurtic distribution (z-score = -3.99). The EBSS also exhibited a platykurtic distribution (z-score = -3.47). All of the dependent variables demonstrated extreme positive skew, with z-scores of 4.87 for the RES severity composite, 14.02 for the BE severity composite, 27.91 for the PUR severity composite, and 16.35 for the BE+P severity composite.

Furthermore, dependent variables evidenced issues with kurtosis, with z-scores of -2.83 for the RES severity composite, 6.68 for the BE severity composite, 20.28 for the PUR severity composite, and 20.20 for the BE+P severity composite.

In order to check for homogeneity of variance, all independent variables were grouped into low, medium, and high ranges and Levene’s test was run for each of the four dependent variables (i.e., BE, PUR RES, & BE+P severity composites), after selecting for participants meeting selection criteria for each group. With the RES
severity composite, there was evidence of heteroscedasticity for the OAS, Levene’s statistic $(2, 32) = 3.47, p = .04$. With the BE severity composite, there was evidence of heteroscedasticity for the OAS, Levene’s statistic $(2, 97) = 3.39, p = .04$, and ES-ESS, Levene’s statistic $(2, 97) = 10.32, p < .001$. For the PUR severity composite, there was evidence of heteroscedasticity for the IBSS, Levene’s statistic $(2, 63) = 5.64, p = .01$.

Finally, with the BE+P severity composite, there was evidence of heteroscedasticity for the OAS, Levene’s statistic $(2, 285) = 11.09, p < .001$, DASS-D, Levene’s statistic $(2, 290) = 4.06, p = .02$, HPFQ-G, Levene’s statistic $(2, 293) = 9.77, p < .001$, HPFQ-S, Levene’s statistic $(2, 293) = 7.99, p < .001$, ES-ESS, Levene’s statistic $(2, 276) = 15.02, p < .001$, and IBSS, Levene’s statistic $(2, 280) = 8.22, p < .001$.

Given violations to normality and heteroscedasticity, Log10 transformations were conducted due to their influence on positive skew and heteroscedasticity (Field, 2006). After transformation, all independent variables exhibited significant problems with either skewness, kurtosis, or both. However, dependent variables were significantly improved, with skewness $z$-scores of -5.62 for the RES severity composite, 0.22 for the PUR severity composite, 0.19 for the BE severity composite, and -5.40 for the BE+P severity composite. Kurtosis was likewise improved, with kurtosis $z$-scores of -1.78 for the RES severity composite, -6.61 for the PUR severity composite, -5.00 for the BE severity composite, and -1.68 for the BE+P severity composite. As such, raw data was retained for the independent variables, whereas transformed data was retained for dependent variables, consistent with previous literature using count variables (e.g., Norberg, Norton, & Oliver, 2009) and recommendations regarding positively skewed outcome variables (e.g., Oliver & Norberg, 2010). Transformation of dependent variables resulted in
evidence for the assumption of heteroscedasticity being met, as all combinations of independent and dependent variables resulted in nonsignificant Levene’s tests. Table 1 features the raw means and standard deviations of each scale and composite.

Table 1

<table>
<thead>
<tr>
<th></th>
<th>Total Mean/SD (N = 518)</th>
<th>RES Mean/SD (N = 37)</th>
<th>BE Mean/SD (N = 109)</th>
<th>PUR Mean/SD (N = 68)</th>
<th>BE+P Mean/SD (N = 304)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OAS</td>
<td>47.42/18.67</td>
<td>38.29/19.79</td>
<td>45.93/19.98</td>
<td>47.35/17.97</td>
<td>49.06/17.93</td>
</tr>
<tr>
<td>DASS-D</td>
<td>16.58/11.83</td>
<td>10.76/10.50</td>
<td>15.00/11.12</td>
<td>14.81/11.22</td>
<td>18.20/12.07</td>
</tr>
<tr>
<td>SCS</td>
<td>2.61/0.64</td>
<td>2.86/0.75</td>
<td>2.59/0.59</td>
<td>2.68/0.69</td>
<td>2.58/0.63</td>
</tr>
<tr>
<td>HPFQ-G</td>
<td>11.35/5.31</td>
<td>8.64/6.00</td>
<td>11.03/5.27</td>
<td>11.31/5.16</td>
<td>11.80/5.20</td>
</tr>
<tr>
<td>DERS</td>
<td>101.88/22.78</td>
<td>90.81/23.28</td>
<td>98.80/19.08</td>
<td>97.84/24.24</td>
<td>105.40/22.98</td>
</tr>
<tr>
<td>ES-ESS</td>
<td>7.41/3.04</td>
<td>5.15/2.74</td>
<td>7.61/3.15</td>
<td>6.91/3.13</td>
<td>7.74/2.89</td>
</tr>
<tr>
<td>IBSS</td>
<td>70.48/20.90</td>
<td>54.59/23.14</td>
<td>68.33/21.35</td>
<td>71.73/18.63</td>
<td>73.05/20.02</td>
</tr>
<tr>
<td>EBSS</td>
<td>64.9225.49</td>
<td>48.21/25.13</td>
<td>66.94/28.11</td>
<td>63.43/22.53</td>
<td>66.55/24.56</td>
</tr>
<tr>
<td>BE Com.</td>
<td>6.48/7.45</td>
<td>0.00/0.00</td>
<td>8.06/7.46</td>
<td>0.00/0.00</td>
<td>8.15/7.52</td>
</tr>
<tr>
<td>PUR Com.</td>
<td>9.24/11.67</td>
<td>0.00/0.00</td>
<td>0.00/0.00</td>
<td>15.00/13.27</td>
<td>12.38/11.61</td>
</tr>
<tr>
<td>BE+P Com.</td>
<td>15.66/14.77</td>
<td>0.00/0.00</td>
<td>7.67/7.50</td>
<td>15.18/13.78</td>
<td>20.53/15.27</td>
</tr>
<tr>
<td>RES Com.</td>
<td>4.75/3.21</td>
<td>2.97/2.32</td>
<td>3.45/3.15</td>
<td>5.90/3.43</td>
<td>5.17/3.06</td>
</tr>
</tbody>
</table>

Note: SD stands for standard deviation. Com. stands for composite.

Differences between Participants with Current, Historical, and No Treatment

As individuals currently in treatment, with a history of treatment, and without any treatment history participated in the current study, analyses of variance (ANOVAs) were conducted to ensure that these groups did not differ significantly from the currently symptomatic women participating in the study in their disordered eating behavior. Due to the vast differences in sample size among participants who denied a history of ED treatment (N = 431), participants who endorsed a history of ED treatment (N = 59), and participants who reported current treatment (N = 41), a randomized sampling of 59 individuals without a history of treatment was taken to ensure roughly equal cell size.
There were no significant differences between any level of ED treatment and the RES severity composite, $F(2, 156) = 0.73, p = .486$, the PUR severity composite, $F(2, 154) = 0.70, p = .50$, the BE severity composite, $F(2, 156) = 2.33, p = .10$, or the BE+P severity composite, $F(2, 154) = 2.49, p = .09$. As such, all participants were included in subsequent analyses.

Main Analyses

Restricting Severity

Although a total of 37 participants endorsed pure restriction, a total of 30 participants were included in the analyses due to listwise deletion of missing data; as such, analyses were severely underpowered. A few of the predictor variables were highly correlated (e.g., OAS and EBSS; Table 2) and the assumption of multicollinearity was not met, with VIF values above 10 (first regression: 1.99 to 17.17; second regression: 1.99 to 17.17) and tolerance values below 0.1 (first regression: .08 to .50; second regression: 0.08 to 0.50) across independent variables. There was further evidence for the assumption of heteroscedasticity being met, as evidenced by the scatterplots of standardized prediction values and standardized residual values. The assumption of errors was also met, with Durbin-Watson statistic of 1.18 in the first regression and 2.43 in the second regression, which is within the 1 to 3 range hypothesized to be acceptable by Field (2006). There was some evidence of influential cases, with Cook’s values above 1 (0 to 1.21) and Mahalonobis’ Distance values ranged from 1.07 to 18.37, which is higher than recommended given the sample size; leverage values (0.04 to 0.63) were all within three times the average value (0.23). Given the violation of the collinearity assumption, influential cases, and lack of power, results should be interpreted with extreme caution.
Table 2

Pearson Correlations, Transformed RES Severity Composite

<table>
<thead>
<tr>
<th></th>
<th>RES Com.</th>
<th>DASS-D</th>
<th>HPFQ-G</th>
<th>OAS</th>
<th>HPFQ-S</th>
<th>ES-ESS</th>
<th>IBSS</th>
<th>EBSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>RES Com.</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DASS-D</td>
<td>0.17</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPFQ-G</td>
<td>0.32*</td>
<td>0.71***</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OAS</td>
<td>0.36*</td>
<td>0.79***</td>
<td>0.69***</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPFQ-S</td>
<td>0.30</td>
<td>0.67***</td>
<td>0.73***</td>
<td>0.82***</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ES-ESS</td>
<td>0.49**</td>
<td>0.70***</td>
<td>0.62***</td>
<td>0.71***</td>
<td>0.74***</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBSS</td>
<td>0.53**</td>
<td>0.66***</td>
<td>0.71***</td>
<td>0.82***</td>
<td>0.72***</td>
<td>0.81***</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>EBSS</td>
<td>0.33*</td>
<td>0.64***</td>
<td>0.53**</td>
<td>0.93***</td>
<td>0.79***</td>
<td>0.69***</td>
<td>0.79***</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Note: Com. stands for composite. Significance levels are indicated as follows: *** significant at p < .001, **significant at p < .01, *significant at p < .05

Pearson correlations (Table 2) indicated that RES severity had moderate relationships with internalized bodily shame (IBSS), eating-related shame (ES-ESS), externalized general shame (OAS), externalized bodily shame (EBSS), and guilt (HPFQ-S) (listed from highest to lowest correlation); there was no relationship between RES severity and either depression (DASS-D) or internalized general shame (HPFQ-S). A two-stage hierarchical regression was conducted, with the transformed RES severity composite as the dependent variable. Regression statistics are reported in Table 3. The hierarchical regression revealed that at step one, Guilt (HPFQ-G) and Depression (DASS-D) did not predict the regression model, $F(2, 27) = 1.64, p = .21$, and accounted for only 4.2% of the variance. Although inclusion of the shame variables resulted in improvements to the model, $F(7, 22) = 2.34, p = .06$, and accounted for 24.5% of the variance, results did not reach significance. As such, independent predictors were not analyzed for their relative impact on the model.
Table 3

Hierarchical Regression (2 Stage), Predicting Transformed RES Severity Composite

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>Beta</th>
<th>t</th>
<th>R²</th>
<th>adj. R²</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.58</td>
<td>0.05</td>
<td></td>
<td>11.78***</td>
<td>.11</td>
<td>.04</td>
</tr>
<tr>
<td>DASS-D</td>
<td>0.00</td>
<td>0.01</td>
<td>-0.11</td>
<td>-0.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPFQ-G</td>
<td>0.02</td>
<td>0.01</td>
<td>0.40</td>
<td>1.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.62</td>
<td>0.05</td>
<td></td>
<td>12.12***</td>
<td>.25</td>
<td>.20</td>
</tr>
<tr>
<td>DASS-D</td>
<td>-0.01</td>
<td>0.01</td>
<td>-0.65</td>
<td>-2.00^</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPFQ-G</td>
<td>0.00</td>
<td>0.01</td>
<td>0.02</td>
<td>0.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OAS</td>
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<td>0.01</td>
<td>0.85</td>
<td>1.27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPFQ-S</td>
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<td>-0.20</td>
<td>-0.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ES-ESS</td>
<td>0.05</td>
<td>0.03</td>
<td>0.54</td>
<td>1.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBSS</td>
<td>-0.01</td>
<td>0.01</td>
<td>-0.61</td>
<td>-1.05</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Com. stands for composite, SE stands for standard error, and adj. stands for adjusted. Significance levels are indicated as follows: *** significant at p < .001, ** significant at p < .01, * significant at p < .05

Subsequently, a three-stage hierarchical regression was conducted with the transformed RES severity composite as the dependent variable. Regression statistics are reported in Table 4. The hierarchical regression revealed that at step one, Guilt (HPFQ-G) and Depression (DASS-D) did not significantly predict the regression model, \(F(2, 27) = 1.64, p = .21\), and accounted for only 10.8% of the variance. Inclusion of the internalized, externalized, and eating-related shame variables resulted in significant improvements to the model, \(F(5, 24) = 2.93, p = .03\), and accounted for 37.9% of the variance in the model, although it did not reach the Bonferroni correction level of significance. Inclusion of the bodily shame variables resulted in insignificant model changes, \(F(7, 22) = 2.34, p = .06\), and explained 42.7% of variance in the model.

Depression (DASS-D) was significant in the second stage and approached significance in
the third stage, and Eating-Related Shame (ES-ESS) approached significance in the second step.

Table 4

Hierarchical Regression (3 Stage), Predicting Transformed RES Severity Composite

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>Beta</th>
<th>t</th>
<th>R²</th>
<th>adj. R²</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
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<td></td>
<td>.11</td>
<td>.04</td>
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<tr>
<td>Constant</td>
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<td>0.05</td>
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<td>11.78***</td>
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<tr>
<td>DASS-D</td>
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<td>-0.11</td>
<td>-0.42</td>
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<td></td>
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<tr>
<td>HPFQ-g</td>
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<td>1.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
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<tr>
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<tr>
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<td>12.12***</td>
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<tr>
<td>DASS-D</td>
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<td>0.01</td>
<td>-0.65</td>
<td>-2.00^</td>
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</tr>
<tr>
<td>HPFQ-G</td>
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<td>0.01</td>
<td>0.02</td>
<td>0.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OAS</td>
<td>0.01</td>
<td>0.01</td>
<td>0.85</td>
<td>1.27</td>
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<tr>
<td>HPFQ-S</td>
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<td>0.01</td>
<td>-0.20</td>
<td>-0.56</td>
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<tr>
<td>ES-ESS</td>
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<td>0.03</td>
<td>0.54</td>
<td>1.62</td>
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<td></td>
</tr>
<tr>
<td>IBSS</td>
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<td>0.00</td>
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<td></td>
</tr>
<tr>
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<td>0.01</td>
<td>-0.61</td>
<td>-1.05</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Com. stands for composite, SE stands for standard error, and adj. stands for adjusted. Significance levels are indicated as follows: *** significant at p < .001, **significant at p < .01, *significant at p < .05, ^ significant at p < .10.

As the regression analyses predicting the RES severity composite was underpowered, violated multiple assumptions, and no shame variables emerged as individual significant predictors, no mediational analyses were run for this outcome.

Binge Eating Severity

Although 109 participants endorsed pure binge eating, a total of 79 participants were included in the analyses due to listwise deletion of missing data. A few of the predictor
variables were highly correlated (e.g., OAS and EBSS; Table 5). However, collinearity statistics were all within acceptable limits, with VIF values less than 10 (first regression: 1.69 to 4.40; second regression: 1.93 to 5.70) and tolerance values above 0.1 (first regression: 0.24 to .59; second regression: 0.18 to 0.65) across independent variables. There was further evidence for the assumption of heteroscedasticity, as evidenced by the scatterplots of standardized prediction values and standardized residual values. The assumption of errors was also met, with Durbin-Watson statistic of 1.21 in the first regression and 1.80 in the second regression. There was minimal evidence of outliers or influential cases, with Cook’s values below 1 (0 to 0.08) and leverage values (0.16 to 0.27) all within three times the average value (0.09); Mahalonobis’ Distance values ranged from 1.22 to 21.37, which is higher than recommended given the sample size.

Table 5

<table>
<thead>
<tr>
<th></th>
<th>BE Com.</th>
<th>DASS-D</th>
<th>HPFQ-G</th>
<th>OAS</th>
<th>HPFQ-S</th>
<th>ES-ESS</th>
<th>IBSS</th>
<th>EBSS</th>
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<td>.66***</td>
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<td>.86***</td>
<td>.61***</td>
<td>.72***</td>
<td>.80***</td>
<td>1.00</td>
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Note: Com. stands for composite. Significance levels are indicated as follows: *** significant at p < .001, ** significant at p < .01, * significant at p < .05.

Pearson correlations (Table 5) indicated moderate positive relationship between BE severity and eating-related shame (ES-ESS), externalized bodily shame (EBSS), internalized bodily shame (IBSS), internalized general shame (HPFQ-S), depression
(DASS-D), guilt (HPFQ-G), and externalized general shame (OAS) (listed from highest to lowest correlation). A two-stage hierarchical regression was conducted, with the transformed BE severity composite as the dependent variable. Regression statistics are reported in Table 6. The hierarchical regression revealed that at stage one, Guilt (HPFQ-G) and Depression (DASS-D) had significant contributions to the regression model, \( F(2, 76) = 7.54, p = .001 \), and accounted for 16.6% of the variance. Inclusion of the shame variables resulted in significant improvements to the model, \( F(7, 71) = 5.37, p < .001 \), and accounted for 34.6% of the variance in the model. Depression (DASS-D) emerged as the only significant predictor in the first stage, whereas Depression (DASS-D) and Eating-Related Shame (ES-ESS) emerged as the only significant predictors in the final model, although Externalized Shame approached significance (OAS; \( p = .06 \)).

Table 6

<p>| Hierarchical Regression (2 Stage), Predicting Transformed BE Severity Composite |
|-----------------------------------|----|----|------|------|------|</p>
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<tr>
<th></th>
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<th>SE</th>
<th>Beta</th>
<th>t</th>
<th>( R^2 )</th>
<th>( R^2 ) adj.</th>
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</thead>
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<td>.004</td>
<td>.268</td>
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<td>.28</td>
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<td>.004</td>
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<td>.01</td>
<td>-.09</td>
<td>-.54</td>
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<td>OAS</td>
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<td>.46</td>
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<td>.05</td>
<td>.27</td>
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<tr>
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<td>.003</td>
<td>.26</td>
<td>1.12</td>
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</tbody>
</table>

Note: Com. stands for composite, SE stands for standard error, and adj. stands for adjusted. Significance levels are indicated as follows: *** significant at \( p < .001 \), ** significant at \( p < .01 \), * significant at \( p < .05 \), ^ significant at \( p < .10 \).
Subsequently, a three-stage hierarchical regression was conducted, with the transformed BE severity composite as the dependent variable. Regression statistics are reported in Table 7. The hierarchical regression revealed that at stage one, Guilt (HPFQ-G) and Depression (DASS-D) had significant contributions to the regression model, $F(2, 76) = 7.54, p = .001$, and accounted for 16.6% of the variance. Inclusion of the Internalized (HPFQ-S), Externalized (OAS), and Eating-Related Shame (ES-ESS) variables resulted in significant improvements to the model, $F(5, 73) = 7.12, p < .001$, and accounted for 32.8% of the variance in the model. The addition of bodily shame...
variables did not result in significant improvements in the model, $F(7, 71) = 1.00, p = .37$, with only 34.6% of variance accounted for by the predictor variables. Depression (DASS-D) was the only significant predictor in the first stage. Depression (DASS-D) and eating-related shame (ES-ESS) were the only significant predictors in the second and third stages, although externalized shame approached significance in the third stage (OAS; $p = .06$).

Since regression analyses indicated that the Eating-Related Shame (ES-ESS) was a significant predictor of the transformed BE severity composite, these variables were entered into a model with self-compassion and emotion regulation as parallel mediators. After listwise deletion for missing variables, a total of 85 participants were included in the analysis; therefore, mediation analysis was underpowered to detect effects. As illustrated by Figure 1 and Table 15, regression coefficients for the paths between eating-related shame and both self-compassion and binge-eating severity were significant; however, no other paths were significant. Results indicated that there were no significant indirect effects of eating-related shame on binge eating severity through either self-compassion, $ab = -0.19$, bias-corrected bootstrap CI [-0.54, 0.13], or emotion regulation, $ab = -0.001$, bias-corrected bootstrap CI [-0.11, 0.19].
Figure 1. Parallel Mediation Model, Predicting Transformed BE Severity Composite.
Table 8

*Parallel Mediation Model, Predicting Transformed BE Severity Composite*

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>M1 (SCS)</th>
<th>M2 (DERS)</th>
<th>Y (Tr. BE Sev. Comp.)</th>
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<tr>
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<td>SE</td>
<td>Coeff.</td>
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<td>0.02</td>
</tr>
<tr>
<td>M1 (SCS)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
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<td>M2 (DERS)</td>
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</tr>
<tr>
<td>Constant</td>
<td>$i_{M1}$</td>
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<td>0.15</td>
</tr>
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</table>

$R^2 = 0.23$  
$F(1, 83) = 24.26, p < .001$

$R^2 = 0.47$  
$F(2, 82) = 36.35, p < .001$

$R^2 = 0.25$  
$F(3, 81) = 9.01, p < .001$

Note: Abbreviations are as follows: Coeff. stands for coefficient, SE stands for standard error, Tr. stands for transformed, Sev. stands for severity, and Comp. stands for composite.
Purging/Compensatory Behaviors Severity

Although 68 participants endorsed pure purging, a total of 53 participants were included in the analyses due to listwise deletion of missing data; as such, analyses were underpowered to detect effects. A few of the predictor variables were highly correlated (e.g., OAS and EBSS; Table 9); however, collinearity statistics were all within acceptable limits, with VIF values ranging from 1.35 to 4.25 and tolerance values ranging from 0.24 to 0.74 across independent variables. There was further evidence for the assumption of heteroscedasticity, as evidenced by the scatterplots of standardized prediction values and standardized residual values. The assumption of errors was also met, with Durbin-Watson statistics of 1.22 in the first regression and 1.90 in the second regression, which is within the 1 to 3 range hypothesized to be acceptable by Field (2006, p. 236). There was minimal evidence of outliers or influential cases, with Cook’s values below 1 (0 to 0.42) and leverage values (0 to .43) all within three times the average value (0.13);

Table 9
Pearson Correlations, Transformed PUR Severity Composite

<table>
<thead>
<tr>
<th></th>
<th>PUR Com.</th>
<th>DASS-D</th>
<th>HPFQ-G</th>
<th>OAS</th>
<th>HPFQ-S</th>
<th>ES-ESS</th>
<th>IBSS</th>
<th>EBSS</th>
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<tr>
<td>DASS-D</td>
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<td>HPFQ-G</td>
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<td>.59***</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>OAS</td>
<td>.33**</td>
<td>.66***</td>
<td>.69***</td>
<td>1.00</td>
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</tr>
<tr>
<td>HPFQ-S</td>
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<td>.60***</td>
<td>.80***</td>
<td>.73***</td>
<td>1.00</td>
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<td></td>
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<tr>
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<td>.52***</td>
<td>.40***</td>
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<td>.64***</td>
<td>.56***</td>
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<tr>
<td>IBSS</td>
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<td>.40***</td>
<td>.61***</td>
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<td>.86***</td>
<td>.61***</td>
<td>.72***</td>
<td>.80***</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Note: Com. stands for composite. Significance levels are indicated as follows: *** significant at p < .001, ** significant at p < .01, *significant at p < .05.
Mahalonobis' Distance values ranged from 1.84 to 16.91, which is slightly higher than recommended given the sample size.

Pearson correlations (Table 9) indicated moderate positive relationships between PUR severity and internalized bodily shame (IBSS), eating-related shame (ES-ESS), guilt (HPFQ-G), externalized bodily shame (EBSS), and internalized general shame (HPFQ-S) (listed from highest to lowest correlation), with no significant relationship to either depression or externalized shame (OAS). A two-stage hierarchical regression was conducted, with the transformed PUR severity composite as the dependent variable.

Regression statistics are reported in Table 10. The hierarchical regression revealed that at stage one, Guilt (HPFQ-G) and Depression (DASS-D) had significant contributions to the regression model, $F(2, 50) = 3.21, p = .049$, and accounted for 11.4% of the variance, although the model did not reach the Bonferroni level of significance. Inclusion of the

<table>
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<th></th>
<th>B</th>
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<th>Beta</th>
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<th>R²</th>
<th>Adj. R²</th>
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<td>.08</td>
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Note: Com. stands for composite, SE stands for standard error, and adj. stands for adjusted. Significance levels are indicated as follows: *** significant at $p < .001$, **significant at $p < .01$, *significant at $p < .05$, ^ significant at $p < .10$.  


shame variables resulted in significant improvements to the model, $F(7, 45) = 2.82, p = .016$, and accounted for 30.5% of the variance in the model. None of the variables significantly predicted the PUR severity composite. However, in the first stage, Guilt (HPFQ-G) approached significance ($p = .05$), whereas in the second stage, Externalized Shame (OAS; $p = .05$) and Internalized Bodily Shame (IBSS; $p = .09$) approached significance.

A three-stage hierarchical regression was conducted, with the transformed PUR severity composite as the dependent variable. Regression statistics are reported in Table 11. The hierarchical regression revealed that at stage one, Guilt (HPFQ-G) and Depression (DASS-D) had significant contributions to the regression model, $F(2, 50) = 3.21, p = .001$, and accounted for 11.4% of the variance. Inclusion of the internalized, externalized, and eating-related shame variables did not result in model improvements, $F(5, 47) = 1.97, p = .10$, and accounted for only 17.3% of the variance in the model. Inclusion of the bodily shame variables resulted in significant model improvement, $F(7, 45) = 2.82, p = .02$ and explained 30.5% of variance accounted for by the predictor variables, although it did not reach the Bonferroni correction value for significance. Although no individual predictors had a significant impact on the model, likely due to power limitations, Guilt (HPFQ-G) approached significance in the first stage ($p = .05$), eating-related shame (ES-ESS) approached significance in the second stage ($p = .09$), and externalized shame (OAS; $p = .05$) and internalized bodily shame (IBSS; $p = .09$) approached significance in the third stage of the model.

As regression analyses were underpowered for the PUR severity composite and both Externalized Shame (OAS) and Internalized Body Shame (IBSS) approached
Table 11

Hierarchical Regression (3 Stage), Predicting Transformed PUR Severity Composite

<table>
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<th>B</th>
<th>SE B</th>
<th>Beta</th>
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<td>1.76^</td>
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<td>0.26</td>
<td>1.43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBSS</td>
<td>0.01</td>
<td>0.00</td>
<td>0.35</td>
<td>1.72^</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EBSS</td>
<td>0.00</td>
<td>0.00</td>
<td>0.28</td>
<td>1.07</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Com. stands for composite, SE stands for standard error, and adj. stands for adjusted. Significance levels are indicated as follows: *** significant at p < .001, **significant at p < .01, *significant at p < .05, ^ significant at p < .10.

Significance as predictors, these variables were entered into two separate models with self-compassion (SCS) and emotion regulation (DERS) as parallel mediators. After listwise deletion for missing variables, a total of 51 participants were included and as such, analyses were underpowered to detect effects. In the first model, the regression coefficients for the paths between internalized body shame and both self-compassion and the PUR severity composite were significant (Figure 2, Table 12); however, no other paths produced significant coefficients. Results of this model indicated that there was no significant indirect effect of internalized body shame on binge eating severity through
either self-compassion, \( ab = 0.08 \), bias-corrected bootstrap CI \([-0.11, 0.17]\), or emotion regulation, \( ab = -0.0002 \), bias-corrected bootstrap CI \([-0.01, 0.01]\). In the second model, the regression coefficients for the paths between externalized shame and self-compassion were significant, as was the regression coefficient for the path between self-compassion and purging severity (Figure 3, Table 13); however, no other paths were significant. Results indicated that there was no significant indirect effect of externalized shame on PUR severity through either self-compassion, \( ab = 0.16 \), bias-corrected bootstrap CI \([-0.01, 0.40]\), or emotion regulation, \( ab = -0.01 \), bias-corrected bootstrap CI \([-0.18, 0.04]\).

**Figure 2.** Parallel Mediation Model, IBSS Predicting Transformed PUR Severity

**Figure 3.** Parallel Mediation Model, OAS Predicting Transformed PUR Severity
Table 12

**Parallel Mediation Model, Internalized Bodily Shame Predicting Transformed PUR Severity Composite**

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>M1 (SCS)</th>
<th>M2 (DERS)</th>
<th>Y (Tr. PUR Sev. Comp.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coeff.</td>
<td>SE</td>
<td>p</td>
</tr>
<tr>
<td>X (IBSS)</td>
<td>$a_1$</td>
<td>-0.02</td>
<td>0.005</td>
</tr>
<tr>
<td>M1 (SCS)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M2 (DERS)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Constant</td>
<td>$i_{M1}$</td>
<td>4.26</td>
<td>0.34</td>
</tr>
</tbody>
</table>

$R^2 = 0.32$

$R^2 = 0.56$

$R^2 = 0.18$

$F(1, 50) = 23.60, p < .001$

$F(2, 49) = 30.85, p < .001$

$F(3, 48) = 3.50, p = .02$

Note: Abbreviations are as follows: Coeff. stands for coefficient, SE stands for standard error, Tr. stands for transformed, Sev. stands for severity, and Comp. stands for composite.
Table 13

Parallel Mediation Model, Externalized Shame Predicting Transformed PUR Severity Composite

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>Coeff. (OAS)</th>
<th>SE</th>
<th>p</th>
<th>Coeff. (SCS)</th>
<th>SE</th>
<th>p</th>
<th>Coeff. (DERS)</th>
<th>SE</th>
<th>p</th>
<th>Coeff. (Tr. PUR Sev. Comp.)</th>
<th>SE</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>X (OAS)</td>
<td>a₁</td>
<td>-0.02</td>
<td>0.01</td>
<td>&lt;.001</td>
<td>a₂</td>
<td>0.09</td>
<td>0.15</td>
<td>.53</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M1 (SCS)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>b₁</td>
<td>7.56</td>
<td>3.59</td>
<td>.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M2 (DERS)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>b₂</td>
<td>-0.14</td>
<td>0.10</td>
<td>.17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>iₘ₁</td>
<td>3.70</td>
<td>0.24</td>
<td>&lt;.001</td>
<td>iₘ₂</td>
<td>159.08</td>
<td>15.53</td>
<td>&lt;.001</td>
<td>iₙ₁</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[
R^2 = 0.29 \\
F(1, 49) = 20.84, p < .001
\]

\[
R^2 = 0.56 \\
F(2, 48) = 31.62, p < .001
\]

\[
R^2 = 0.10 \\
F(3, 47) = 1.68, p = .18
\]

Note: Abbreviations are as follows: Coeff. stands for coefficient, SE stands for standard error, Tr. stands for transformed, Sev. stands for severity, and Comp. stands for composite.
Binge Eating and Purging Severity

Although 304 participants endorsed binge eating and purging, a total of 224 participants were included in the analyses due to listwise deletion of missing data. A few of the predictor variables were highly correlated (e.g., OAS and EBSS; Table 14).

Table 14

Pearson Correlations, Transformed BE+P Severity Composite

<table>
<thead>
<tr>
<th></th>
<th>BE+P Com.</th>
<th>DASS-D</th>
<th>HPFQ-G</th>
<th>OAS</th>
<th>HPFQ-S</th>
<th>ES-ESS</th>
<th>IBSS</th>
<th>EBSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE+P Com.</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DASS-D</td>
<td>.36***</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPFQ-G</td>
<td>.44***</td>
<td>.64***</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OAS</td>
<td>.38***</td>
<td>.67***</td>
<td>.68**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPFQ-S</td>
<td>.39***</td>
<td>.64***</td>
<td>.82***</td>
<td>.73***</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ES-ESS</td>
<td>.49***</td>
<td>.55***</td>
<td>.62***</td>
<td>.61***</td>
<td>.60***</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBSS</td>
<td>.44***</td>
<td>.61***</td>
<td>.69***</td>
<td>.72***</td>
<td>.73***</td>
<td>.74***</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>EBSS</td>
<td>.35***</td>
<td>.57***</td>
<td>.59***</td>
<td>.83***</td>
<td>.67***</td>
<td>.59***</td>
<td>.78***</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Note: Com. stands for composite. Significance levels are indicated as follows: *** significant at p < .001, ** significant at p < .01, * significant at p < .05.

However, VIF values ranged from 1.69 to 4.40, and tolerance values ranged from 0.24 to 0.59 across independent variables, giving evidence the assumption of multicollinearity was met. There was further evidence the assumption of heteroscedasticity was met, as evidenced by the scatterplots of standardized prediction values and standardized residual values. The assumption of independence of errors was also met, with Durbin-Watson statistic of 1.08 in the first regression and 1.91 in the second regression, which is within the 1 to 3 range hypothesized to be acceptable by Field (2006, p. 236). There was some evidence of influential cases, with Cook’s values below 1 (0 to 0.05); leverage values (0.01 to .14) were slightly above three times the average value (0.03) and Mahalonobis’
Distance values ranged from 1.11 to 32.25, which is higher than recommended given the sample size.

Pearson correlations (Table 14) indicated moderate, positive relationships between BE+P severity and eating-related shame (ES-ESS), internalized bodily shame (IBSS), guilt (HPFQ-G), internalized general shame (IBSS), depression (DASS-D), and externalized bodily shame (EBSS) (listed from highest to lowest correlation). A two-stage hierarchical regression was conducted, with the transformed BE+P severity composite as the dependent variable. Regression statistics are reported in Table 15. The Table 15

Hierarchical Regression (2 Stage), Predicting Transformed BE+P Severity Composite

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>Beta</th>
<th>t</th>
<th>R²</th>
<th>Adj. R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>1.23</td>
<td>0.01</td>
<td>0.13</td>
<td>63.84***</td>
<td>.20</td>
<td>.19</td>
</tr>
<tr>
<td>DASS-D</td>
<td>0.00</td>
<td>0.00</td>
<td>0.03</td>
<td>1.72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPFQ-G</td>
<td>0.02</td>
<td>0.01</td>
<td>0.35</td>
<td>4.51***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>1.21</td>
<td>0.02</td>
<td>0.20</td>
<td>63.01***</td>
<td>.27</td>
<td>.25</td>
</tr>
<tr>
<td>DASS-D</td>
<td>0.00</td>
<td>0.00</td>
<td>0.01</td>
<td>0.40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPFQ-G</td>
<td>0.01</td>
<td>0.00</td>
<td>0.20</td>
<td>1.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OAS</td>
<td>0.00</td>
<td>0.00</td>
<td>0.03</td>
<td>0.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPFQ-S</td>
<td>-0.00</td>
<td>0.01</td>
<td>0.04</td>
<td>-0.32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ES-ESS</td>
<td>0.04</td>
<td>0.00</td>
<td>0.32</td>
<td>3.56***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBSS</td>
<td>0.00</td>
<td>0.00</td>
<td>0.09</td>
<td>0.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EBSS</td>
<td>-0.00</td>
<td>0.00</td>
<td>-0.04</td>
<td>-0.35</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Com. stands for composite, SE stands for standard error, and adj. stands for adjusted. Significance levels are indicated as follows: *** significant at p < .001, ** significant at p < .01, * significant at p < .05, ^ significant at p < .10.

Hierarchical multiple regression revealed that at stage one, Guilt (HPFQ-G) and Depression (DASS-D) had significant contributions to the regression model, \( F(2, 222) = 28.02, p < .001 \), and accounted for 20.2% of the variance. The addition of the shame variables resulted in significant improvements to the model, \( F(7, 217) = 11.706, p < .001, \)
and accounted for 27.4% of the variance in the model. Guilt (HPFQ-G) emerged as the only significant predictor in the original model, whereas Eating-Related Shame (ES-ESS) emerged as the only significant predictor in the final model.

A three-stage hierarchical regression was then conducted, with the transformed BE+P severity composite as the dependent variable. Regression statistics are reported in Table 16. The hierarchical regression revealed that at stage one, Guilt (HPFQ-G) and Depression (DASS-D) had significant contributions to the regression model, $F(2, 222) = 28.02, p < .001$, and accounted for 20.0% of the variance. Inclusion of the Internalized (HPFQ-S), Externalized (OAS), and Eating-Related Shame (ES-ESS) variables resulted in significant improvements to the model, $F(5, 219) = 16.36, p < .001$, and accounted for 27.2% of the variance in the model. Although the third model was significant, $F(7, 217) = 11.71$, the addition of bodily shame variables did not result in significant improvements to the model, with only 27.4% of variance accounted for by the predictor variables. Guilt (HPFQ-G) was the only significant predictor in the original model, whereas Eating-Related Shame (ES-ESS) was the only significant predictor in the second and third models.

Table 16

*Hierarchical Regression (3 Stage), Predicting Transformed BE+P Severity Composite*

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>Beta</th>
<th>t</th>
<th>$R^2$</th>
<th>Adj. $R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>1.23</td>
<td>0.02</td>
<td></td>
<td>63.84***</td>
<td>.20</td>
<td>.19</td>
</tr>
<tr>
<td>DASS-D</td>
<td>0.00</td>
<td>0.00</td>
<td>0.13</td>
<td>1.72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPFQ-g</td>
<td>0.02</td>
<td>0.00</td>
<td>0.35</td>
<td>4.51***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.27</td>
<td>.26</td>
</tr>
<tr>
<td>Constant</td>
<td>1.21</td>
<td>0.02</td>
<td></td>
<td>64.68***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DASS-D</td>
<td>0.00</td>
<td>0.00</td>
<td>0.04</td>
<td>0.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPFQ-G</td>
<td>0.01</td>
<td>0.01</td>
<td>0.20</td>
<td>1.92</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 16 (continued).

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>Beta</th>
<th>t</th>
<th>R²</th>
<th>Adj. R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPFQ-S</td>
<td>0.00</td>
<td>0.00</td>
<td>-0.02</td>
<td>-0.17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ES-ESS</td>
<td>0.04</td>
<td>0.01</td>
<td>0.35</td>
<td>4.40***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td></td>
<td></td>
<td></td>
<td>.27</td>
<td>.25</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>1.21</td>
<td>0.02</td>
<td></td>
<td>63.01***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DASS-D</td>
<td>0.00</td>
<td>0.00</td>
<td>0.03</td>
<td>0.40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPFQ-G</td>
<td>0.01</td>
<td>0.01</td>
<td>0.20</td>
<td>1.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OAS</td>
<td>0.00</td>
<td>0.00</td>
<td>0.03</td>
<td>0.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPFQ-S</td>
<td>0.00</td>
<td>0.00</td>
<td>-0.04</td>
<td>-0.32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ES-ESS</td>
<td>0.03</td>
<td>0.01</td>
<td>0.32</td>
<td>3.56***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBSS</td>
<td>0.00</td>
<td>0.00</td>
<td>0.09</td>
<td>0.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EBSS</td>
<td>0.00</td>
<td>0.00</td>
<td>-0.04</td>
<td>-0.35</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Com. stands for composite, SE stands for standard error, and adj. stands for adjusted. Significance levels are indicated as follows: *** significant at p < .001, ** significant at p < .01, * significant at p < .05, ^ significant at p < .10.

Finally, only eating-related shame emerged as a significant predictor in prior regression analyses for the transformed BE+P severity composite; therefore, these variables were entered into a model with self-compassion and emotion regulation as parallel mediators. After listwise deletion, a total of 234 participants were included in the analyses. As indicated by Figure 4 and Table 17, regression coefficients for the paths between eating-related shame and self-compassion, emotion regulation, and BE+P severity were all significant. Additionally, emotion regulation significantly predicted BE+P severity; however, self-compassion did not. The bias-corrected bootstrap confidence interval for the indirect effect of self-compassion (ab = 0.07) based on 10,000 bootstrap samples included zero (-0.53, 0.64) and could account for only 2.80% of the variance in the total effect. However, the bias-corrected bootstrap confidence interval for the indirect effect of emotion regulation (0.23) based on 10,000 bootstrap samples did not include zero (0.05, 0.52) and accounted for 8.61% of the variance in the total effect.
Table 17

Parallel Mediation Model, Predicting Transformed BE+P Severity Composite

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>M1 (SCS)</th>
<th></th>
<th></th>
<th>M2 (DERS)</th>
<th></th>
<th></th>
<th>Y (Tr. BE+P Sev. Comp.)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coeff.</td>
<td>SE</td>
<td>p</td>
<td>Coeff.</td>
<td>SE</td>
<td>p</td>
<td>Coeff.</td>
<td>SE</td>
<td>p</td>
</tr>
<tr>
<td>X (ES-ESS)</td>
<td>a1</td>
<td>-0.14</td>
<td>0.09</td>
<td>&lt;.001</td>
<td>a2</td>
<td>1.74</td>
<td>0.49</td>
<td>&lt;.001</td>
<td>c’</td>
</tr>
<tr>
<td>M1 (SCS)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>b1</td>
<td>-0.51</td>
<td>.80</td>
</tr>
<tr>
<td>M2 (DERS)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>b2</td>
<td>0.13</td>
<td>.03</td>
</tr>
<tr>
<td>Constant</td>
<td>iM1</td>
<td>3.71</td>
<td>0.01</td>
<td>&lt;.001</td>
<td>iM2</td>
<td>141.06</td>
<td>8.81</td>
<td>&lt;.001</td>
<td>iy</td>
</tr>
</tbody>
</table>

R² = 0.43
F(1, 232) = 174.24, p < .001

R² = 0.49
F(2, 231) = 111.59, p < .001

R² = 0.28
F(3, 230) = 29.30, p < .001

Note: Abbreviations are as follows: Coeff. stands for coefficient, SE stands for standard error, Tr. stands for transformed, Sev. stands for severity, and Comp. stands for composite
Figure 4. Parallel Mediation Model, ES-ESS Predicting Transformed BE+P Severity Composite

Shame and Self-Compassion Inductions

Internalized Shame. Mauchly’s test indicated that the assumption of sphericity was violated, \( \chi^2(2) = 49.53, p < .001 \). Results show that level of internalized shame significantly varied by time point, \( F(1.78, 655.47) = 13.31, p < .001, \) partial \( \eta^2 = .04 \), which was further substantiated by multivariate tests, \( V = 0.96, F(2, 368) = 19.48, p < .001, \) partial \( \eta^2 = .10 \). A priori tests suggest that there was a significant difference between baseline level of shame and level of shame following the self-compassion induction, \( F(1, 369) =10.89, p = .001, \) partial \( \eta^2 = .03 \), as well as a significant difference between level of shame following shame induction and self-compassion induction, \( F(1, 369) =38.41, p < .001, \) partial \( \eta^2 = .09 \). Post-hoc tests suggest there was no significant difference between level of shame at baseline and post-shame prime time points (\( p = .62 \)). Means (Table 18) and plot of the estimated marginal means (Figure 5) suggest that shame was highest following the shame prime and lowest following the self-compassion induction.
Table 18

Means and Standard Deviations of Shame Variables at 3 Time Points

<table>
<thead>
<tr>
<th></th>
<th>Baseline Mean/SD</th>
<th>Shame Prime Mean/SD</th>
<th>Self-Compassion Induction Mean/SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Internalized Shame</strong></td>
<td>4.18/1.90</td>
<td>4.29/1.97</td>
<td>3.89/2.02</td>
</tr>
<tr>
<td>(N = 371)</td>
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<tr>
<td><strong>Externalized Shame</strong></td>
<td>4.18/1.87</td>
<td>4.01/1.98</td>
<td>3.75/2.05</td>
</tr>
<tr>
<td>(N = 370)</td>
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<tr>
<td><strong>Eating-Related Shame</strong></td>
<td>4.82/1.80</td>
<td>4.58/1.97</td>
<td>4.13/2.11</td>
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<tr>
<td>(N = 365)</td>
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<tr>
<td><strong>Internalized Body Shame</strong></td>
<td>5.19/1.69</td>
<td>4.96/1.89</td>
<td>4.41/2.03</td>
</tr>
<tr>
<td>(N = 370)</td>
<td></td>
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</tr>
<tr>
<td><strong>Externalized Body Shame</strong></td>
<td>4.94/1.89</td>
<td>4.52/1.99</td>
<td>4.13/2.08</td>
</tr>
<tr>
<td>(N = 371)</td>
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</tbody>
</table>

Note: SD stands for standard deviation.

Externalized Shame. Mauchly’s test indicated that the assumption of sphericity was violated, $\chi^2(2) = 58.96, p < .001$. Results show that level of externalized shame significantly varied by time point, $F(1.74, 642.84) = 21.94, p < .001$, partial $\eta^2 = .04$, which was further substantiated by multivariate tests, $V = 0.07, F(2, 368) = 13.15, p < .001$. 

Figure 5. Plot of Estimated Marginal Means of Internalized Shame at 3 Time Points
.001, partial $\eta^2 = .07$. A priori tests suggest that there was a significant difference between baseline level of shame and level of shame following the self-compassion induction, $F(1, 369) = 21.94, p < .001$, partial $\eta^2 = .06$, as well as a significant difference between level of shame following shame induction and self-compassion induction, $F(1, 369) = 16.77, p < .001$, partial $\eta^2 = .04$. Post-hoc tests suggest there was no significant difference between level of shame at baseline and post-shame prime time points ($p = .14$). Means (Table 18) and plot of the estimated marginal means (Figure 6) suggest that shame was highest at baseline and lowest following the self-compassion induction.

![Figure 6. Plot of Estimated Marginal Means of Externalized Shame at 3 Time Points](image)

**Eating-Related Shame.** Mauchly’s test indicated that the assumption of sphericity was violated, $\chi^2(2) = 55.90, p < .001$. Results indicate that level of externalized shame significantly varied by time point, $F(1.75, 689.22) = 47.59, p < .001$, partial $\eta^2 = .12$, which was further substantiated by multivariate tests, $V = 0.20, F(2, 363) = 45.52, p < .001$, partial $\eta^2 = .20$. A priori tests indicate that there was a significant difference between baseline level of shame and level of shame following the self-compassion induction, $F(1, 364) = 72.57, p < .001$, partial $\eta^2 = .17$, as well as a significant difference
between level of shame following shame induction and self-compassion induction, \( F(1, 364) = 60.19, p < .001, \) partial \( \eta^2 = .14. \) Post-hoc tests suggest a significant difference between level of shame at baseline and post-shame prime time points \( (p = .003). \) Means (Table 14) and plot of the estimated marginal means (Figure 7) suggest that shame was highest at baseline and lowest following the self-compassion induction.

![Figure 7. Plot of Estimated Marginal Means of Eating-Related Shame at 3 Time Points](image)

**Figure 7.** Plot of Estimated Marginal Means of Eating-Related Shame at 3 Time Points

**Internalized Body Shame.** Mauchly’s test indicated that the assumption of sphericity was violated, \( \chi^2(2) = 22.68, p < .001. \) Results indicate that level of internalized body shame significantly varied by time point, \( F(1.89, 696.37) = 66.02, p < .001, \) partial \( \eta^2 = .15, \) which was further substantiated by multivariate tests, \( V = 0.24, F(2, 368) = 59.32, p < .001, \) partial \( \eta^2 = .24. \) A priori tests indicate that there was a significant difference between baseline level of internalized body shame and level of shame following the self-compassion induction, \( F(1, 368) = 102.63, p < .001, \) partial \( \eta^2 = .22, \) as well as a significant difference between level of shame following shame induction and self-compassion induction, \( F(1, 368) = 76.92, p < .001, \) partial \( \eta^2 = .17. \) Post-hoc tests suggest a significant difference between level of shame at baseline and post-shame prime
time points \((p = .002)\). Means (Table 18) and plot of the estimated marginal means (Figure 8) suggest that shame was highest at baseline and lowest following the self-compassion induction.

![Figure 8](attachment:image.png)

*Figure 8. Plot of Estimated Marginal Means of Internalized Bodily Shame at 3 Time Points*

**Externalized Body Shame.** Mauchly’s test indicated that the assumption of sphericity was violated, \(\chi^2(2) = 67.26, \ p < .001\). Results indicate that level of externalized body shame significantly varied by time point, \(F(1.71, 634.31) = 63.75, \ p < .001\), partial \(\eta^2 = .15\), which was further substantiated by multivariate tests, \(V = 0.22, \ F(2, 369) = 51.96, \ p < .001\), partial \(\eta^2 = .22\). A priori tests indicate that there was a significant difference between baseline level of externalized body shame and level of shame following the self-compassion induction, \(F(1, 370) = 97.37, \ p < .001\), partial \(\eta^2 = .21\), as well as a significant difference between level of shame following shame induction and self-compassion induction, \(F(1, 370) = 48.48, \ p < .001\), partial \(\eta^2 = .12\). Post-hoc tests suggest a significant difference between level of shame at baseline and post-shame
prime time points \((p < .001)\). Means (Table 14) and plot of the estimated marginal means (Figure 9) suggest that shame was highest at baseline and lowest following the self-compassion induction.

*Figure 9. Plot of Estimated Marginal Means of Externalized Bodily Shame at 3 Time Points*
CHAPTER IV – DISCUSSION

An initial goal of the present study was to determine if shame was predictive of disordered eating after accounting for guilt and depression, among women who engaged in RES alone, BE alone, PUR alone, or BE+P in combination, due to variability of findings within the literature (e.g., Gee & Troop, 2003; Hayaki et al., 2002). Results of the present study indicate that various forms of shame are significantly predictive of BE, PUR, and BE+P severity, even after controlling for depression and guilt. Of note, previous research examined the relationship between depression and guilt with either global measures of disordered eating (Gee & Troop, 2003) or examined one specific type of disordered eating in isolation (e.g., bulimic symptom severity) (Hayaki, et al., 2002). The current study, while underpowered, suggested that there is substantial variability in relationships between shame and guilt with individual disordered eating behavioral severity clusters. Specifically, guilt was a significant predictor of BE+P severity and approached significance in PUR severity, but did not predict RES or BE severity. Further, depression significantly predicted BE severity, but not any other disordered eating behavioral severity cluster, consistent with previous research which suggested differences in depressive symptoms across eating disorder diagnoses (e.g., Roberto, Grilo, Masheb, & White, 2010). As such, caution should be taken in overgeneralizing relationships between guilt, depression, and specific forms of disordered eating.

The next aim of the study was to determine the relative impact of different forms of shame on RES, BE, PUR, and BE+P severity among women who engaged in RES alone, BE alone, PUR alone, or BE+P in combination. Contrary to hypotheses which anticipated that RES severity would be predicted by eating-related shame and both externalized
general and bodily shame, there were no significant predictors for the RES severity composite. Little can be generalized from these results, as analyses were severely underpowered (N = 30) and violated several assumptions. Correlational data suggested that RES severity was moderately associated with internalized bodily shame, followed by eating-related shame, externalized shame, externalized bodily shame, and guilt (from highest to lowest). Consistent with Troop et al. (2008), there was no association between RES severity and internalized shame, even at the correlational level. Although it was not hypothesized, the relative strength of the correlational relationship between RES severity and internalized bodily shame is consistent with literature which suggests that women with anorexia have a distorted view of their body dimensions (e.g., Seeger, Braus, Ruf, Goldberger, & Schmidt, 2002). As such, it is possible that women engaging in high levels of restriction may view their body in a fundamentally different manner from others, and may experience greater levels of internalized bodily shame as a result.

Consistent with hypotheses, both BE and BE+P severity were significantly predicted by eating-related shame. However, contrary to hypotheses, neither BE nor BE+P severity was significantly predicted by internalized general shame, nor was BE+P severity predicted by internalized bodily shame. Findings suggest that eating-related shame may be a predominant form of shame impacting BE and BE+P severity, consistent with findings by Burney and Irwin (2000), in which eating-related shame was the strongest predictor of disordered eating symptomatology, above bodily shame, and eating-related guilt. As only three previous studies even considered the role of eating-related shame (Burney & Irwin, 2000; Frank, 1991; Swan & Andrews, 2003) and results of the study by Swan and Andrew (2000) suggested that eating-related shame is
associated with nondisclosure during treatment, further research is needed into the construct of eating-related shame, its measurement, and its role in the maintenance of disordered eating.

Exploratory analyses of women engaging in only purging/compensatory behaviors, though underpowered, suggested a distinct pattern of association between types of shame and PUR severity. Specifically, externalized general shame and internalized bodily shame predicted PUR severity at the trend level. Unlike other disordered eating severity clusters, no other form of shame, including eating-related shame, significantly predicted PUR severity. These findings are congruent with previous research comparing purging disorder to bulimia nervosa, which indicated that eating-related concerns and hunger were significantly lower among individuals with purging disorder (Keel, Haedt, & Edler, 2005). To date, there is a paucity of research associated with purging/compensatory behaviors occurring in isolation of other disordered eating behaviors. Further research is needed to determine if there are consistent differences regarding body image, body satisfaction, and body shame experiences among individuals exhibiting purging behaviors versus other types of disordered eating.

Given the many types of shame considered within the study, the next aim was to determine if there was added benefit to including measurement of internalized and externalized bodily shame on top of eating-related shame and more global measures of shame (i.e., internalized & externalized general shame) across disordered eating groups. In examining women who engaged in BE+P, addition of bodily shame variables did not significantly improve prediction of BE+P severity. However, results of other groups were variable and underpowered, limiting generalizability. RES severity was not predicted by
any form of shame, and bodily shame variables did not improve prediction of BE severity. However, among women engaging in PUR, inclusion of bodily shame variables resulted in improvement of prediction of PUR severity at the trend level. As such, results of the present study suggest that the type of disordered eating under consideration may influence whether there is incremental validity to adding measures of bodily shame; however, further research is needed to confirm these findings.

After determining predictive relationships between distinct forms of shame and various types of disordered eating behaviors, the next aim of the study was to explore the role of self-compassion and emotion regulation in explaining significant relationships. Among women engaging in BE+P behaviors, emotion regulation difficulties partially explained the relation between eating-related shame and BE+P severity; however, the effect was small. Contrary to previous studies suggesting self-compassion as a possible explanation in the relation between shame and BN symptoms (e.g., Kelly et al., 2014), self-compassion did not mediate the relation between eating-related shame and BE+P severity in the current study. Neither self-compassion nor emotion dysregulation explained the relationship between eating-related shame and BE severity, nor the relationship between PUR severity and either externalized shame or internalized bodily shame. As noted previously, these analyses were extremely underpowered, with anticipated small to moderate effects; therefore, it is probable that there was not enough power to detect effects. However, previous studies exploring the role of self-compassion and emotion dysregulation in the relation between shame and disordered eating focused on global measures of shame (e.g., Gupta et al., 2008; Kelly et al., 2014); therefore, it is also possible that results may not be generalizable to specific forms of shame.
The final aim of the study was to investigate a possible intervention for shame, in the form of an online self-compassion induction. Participants were initially primed to remember a shameful experience; however, results indicated that the shame prime did not produce intended effects. Internalized and externalized shame exhibited no difference in shame at baseline and following the shame prime, whereas eating-related, internalized bodily, and externalized bodily shame had the highest levels of shame on baseline measurement as opposed to following the prime for shame. There are several possible explanations for this, including that the prime for shame was not powerful enough to produce effects. As baseline levels of shame were established at the start of the study, it is also possible that the act of initiating a research study on disordered eating behaviors was itself a salient prime for shame which participants habituated to over the course of the study.

Results of the self-compassion induction were promising, though limited in their generalizability. Contrary to hypotheses, which posited that neither form of externalized shame would respond to the self-compassion induction and that internalized bodily shame would have a small reduction, all forms of shame exhibited a significant decrease in shame following the self-compassion induction. In fact, both forms of bodily shame demonstrated the greatest overall effect size, followed by eating-related shame, with internalized and externalized global shame evidencing the smallest effects. As the shame prime suggested that participants consider a shameful experience associated with eating, body shape, or weight, and the focus of the study was on these same domains, it is likely that participants who completed the self-compassion induction were concentrated on these areas. Given the proximity of the shame prime to the self-compassion induction
(i.e., administered back to back at the end of the study), the self-compassion induction is the most likely explanation for the significant decrease in intensity across all shame variables. However, as there were also significant differences between baseline shame measures and following the shame prime, the possibility remains that the study itself acted as an exposure to shame, in that participants approached shameful stimuli consistently throughout the study, leading to diminished intensity of shame. Treatments involving prolonged exposure (Paul et al., 2014) and opposite-action as an emotion regulation skill (e.g., approaching shameful experiences rather than avoiding them) (Rizvi & Linehan, 2005) have been demonstrated in the literature to effect shame, even when shame is not the primary target.

Implications for Treatment

Across analyses, depression, guilt, and various forms of shame accounted for approximately 25% to 45% of the variance in disordered eating severity. As such, interventions which target shame and its associated behavioral urges will likely be beneficial to eating disorder treatment outcomes. Additionally, among women who endorse BE+P behaviors, difficulties in emotion regulation partially explained the relation between shame and BE+P severity. Therefore, interventions which specifically enhance emotion regulation may be beneficial in reducing binge eating and purging behaviors; however, emotion regulation skill development is unlikely to completely ameliorate disordered eating symptoms as difficulties with emotion regulation explained only a small portion of the relationship between shame and disordered eating. Enhancement of self-compassion is another possible intervention for both shame and disordered-eating. Results of the present study suggest that decreases in shame can be
induced at very low levels of intervention online, although the longevity of these effects are uncertain.

Limitations and Future Directions

The present study was marked by several limitations. Most importantly, groups reflecting engagement in restricting alone, purging/compensatory behaviors alone, and binge eating alone were significantly underpowered. Additionally, data was collected online, preventing the use of many gold-standard measures and interviews, as well as the ability to formally diagnose eating disorders within the sample. As such, although all participants reported engagement in at least subthreshold disordered eating, there was considerable variability in terms of their level of disordered eating, treatment history, and current engagement in treatment. Further, all four disordered eating groups evidenced substantial missing data. As it is impossible to discern what prevented certain participants from completing certain measures, it may be that there were differences between participants who completed the study in entirety and those who did not.

Future studies should attempt to replicate findings in a larger sample, particularly among women who engage in only purging behaviors, as there is a dearth of literature involving purging disorder. Eating disorder research may also benefit from development of a measure of eating-related shame, as opposed to the adaptation of the Experience of Shame scale which was used in the current study, as eating-related shame appeared to be an important component in both BE and BE+P severity. Additionally, as there was considerable overlap between internalized and externalized bodily shame across disordered eating subgroups, it would be helpful to determine if there is an interaction between the two constructs. Finally, in order to develop a fuller conceptualization of the
role of differential forms of shame in specific eating disorders, it may be helpful to explore shame in more comprehensive models of eating disorders, which include distal risk factors for eating disorder development (e.g., childhood sexual abuse).
NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 21, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.
  Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: CH15051903
PROJECT TITLE: The Impact of Varieties of Shame on Disordered Eating: Exploring the Influence of Emotion Regulation and Self-Compassion
PROJECT TYPE: Change to a Previously Approved Project
RESEARCHER(S): Tiffany Hopkins
COLLEGE/DIVISION: College of Education and Psychology
DEPARTMENT: Psychology
FUNDING AGENCY/Sponsor: NIA
IRB COMMITTEE ACTION: Expedited Review Approval
PERIOD OF APPROVAL: 09/08/2015 to 09/08/2016
Lawrence A. Hosman, Ph.D.
Institutional Review Board
REFERENCES


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