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Turk, F., Kellett, S. and Waller, G. orcid.org/0000-0001-7794-9546 (2021) Determining the potential links of self-compassion with eating pathology and body image among women and men : a cross-sectional mediational study. Body Image, 37. pp. 28-37. ISSN 1740-1445

https://doi.org/10.1016/j.bodyim.2021.01.007

Determining the potential links of self-compassion with eating pathology and body image among women and men: A cross-sectional mediational study

Abstract

This study examined whether rumination, shame, self-criticism, and perfectionism mediate the previously established link between self-compassion and both eating and body image concerns. A cross-sectional online survey was completed by a community sample of non-clinical adult women (n = 369) and men (n = 201). Participants completed standardised measures of self-compassion (predictor), rumination, external shame, perfectionism and self-criticism (mediating variables), and eating pathology and body image (criterion variables). Path analyses confirmed that higher self-compassion was serially linked to lower eating pathology and body dissatisfaction through comparative self-criticism and external shame. Compared with women, the association between higher self-compassion and lower body dissatisfaction was weaker in men. However, there were no mediating effects of rumination, perfectionism, or internalized self-criticism. Overall results indicate notable similarities between women and men, and emphasise the potential value of targeting external shame during eating disorder prevention and treatment. Longitudinal study of these constructs is warranted in future research.

Key words: self-compassion, eating pathology, body dissatisfaction, external shame, comparative self-criticism, mediation, multiple group analysis

1. Introduction

Eating disorders are serious mental illnesses, which are associated with significant physical and psychological impairment (Schmidt et al., 2016). Body concerns have been identified as a risk and maintenance factor for eating pathology (Stice & Shaw, 2002). Furthermore, eating and body concerns have high comorbidity with depression and anxiety (Keel et al., 2005), and have a considerable effect on individuals' quality of life even without a clinical diagnosis (Cohen & Petrie, 2005). Body concerns and eating pathology were originally suggested as relevant predominantly among Caucasian, middle-class, female populations (Wildes et al., 2001). However, there is growing evidence that men also experience such issues (Bentley et al., 2014). Therefore, the origins and maintenance of these problems need to be understood better for both women and men.

There are various psychological models of eating disorders, particularly based on cognitive-behavioural theory (e.g., Fairburn et al., 2003). Most of those models recognise emotional regulation difficulties as a key part of the development and maintenance of eating pathology (Dingemans et al., 2017; Engel et al., 2013). Eating pathology among adult men and women is associated with more maladaptive emotion regulation strategies (Dingemans et al., 2017; Gianini et al., 2013; Kukk & Akkermann, 2020; Lavender et al., 2015). However, the role and maintaining influence of emotions is still not clearly elaborated in models of eating disorders or their treatment (Fox et al., 2012; Svaldi et al., 2012).

It has been demonstrated that self-compassion can be an important strategy to cope with negative emotions in other disorders (e.g., Diedrich et al., 2014; Feliu-Soler et al., 2017). Self-compassion can be defined as "non-judgmental understanding of one's pain, inadequacies, and failures, so that one's experience is seen as part of the larger human experience" (Neff, 2003a, p. 87). Gilbert (2009a) defines self-compassion as engaging with suffering (others' or our own) and trying to alleviate and prevent it. Self-compassion is associated with greater well-being

(Zessin et al., 2015). Therefore, it is possible that treatment outcomes might be enhanced by modifying existing therapies to improve levels of self-compassion towards the emotions that individuals experience (Gilbert, 2014; Neff, 2003a). However, such changes require an understanding of the psychological factors that underpin the link between self-compassion and the disorder in question, particularly in terms of targeting possible mediators (Windgassen et al., 2016). Such understanding needs to be gender-specific, given that there are significant gender differences in the regulation of negative emotions (Nolen-Hoeksema & Aldao, 2011).

Studies exploring the link between self-compassion and eating pathology/body image have been inconclusive, due to methodological limitations. A recent meta-analysis (Turk & Waller, 2020) has shown that greater self-compassion is associated with lower levels of eating and body image pathology, with medium effect sizes (respectively, $r = -.34$, $r = -.44$). However, the potential mechanisms underlying that link are not well understood to date. A cross-sectional study found a negative indirect effect of self-compassionate attitudes on disordered eating, via higher self-compassionate actions and higher body compassion acting serially (De Carvalho Barreto et al., 2018). Another cross-sectional study reported a negative indirect effect of self-compassion on binge eating severity via parallel mediators of higher emotional tolerance and higher unconditional self-acceptance (Webb & Forman, 2013). Results from a lab-based study indicated that body shame mediated the relationship between self-compassion and anticipated disordered eating (Breines et al., 2014). It is important to note that two of these studies used only women in their samples, and the majority of the participants in the other study were women. Similarly, psychological distress has been found to be a mediator between self-compassion and eating pathology in a clinical sample of female adolescents (Pullmer et al., 2019). The common feature of those mediators is that they are related to emotions. However, the generalizability of this research to men is limited, as the predominant focus has been on women.

It is clear that a comprehensive model of the link between self-compassion and eating/body image is needed, building on the different empirical links that have been suggested in the literature outlined above and other theoretical links. Therefore, in this study we suggest five potential mediators, which are related to negative emotions about self. Those potential links are: perfectionism (Bardone-Cone et al., 2007; Stoeber et al., 2020); internalized and comparative self-criticism (Fenning et al., 2008; Neff et al., 2007); rumination (Neff et al., 2007; Smith et al., 2018); and external shame (Ferreira et al., 2013; Johnson & O'Brien, 2013).

Rumination is characterized by a cognitive process involving repetitive focus of the individuals' attention on negative feelings and symptoms, their cause, meaning, and consequences (Nolen-Hoeksema, 1991; Nolen-Hoeksema et al., 2008). However, individuals who are higher in self-compassion maintain awareness of, explore, and understand their feelings (Neff, 2003a). Therefore, they are less likely to suppress their emotions following a perceived failure, resulting in a lower likelihood of rumination. Rumination has been shown to be relevant to eating and body image problems. In a recent meta-analysis of 38 studies, Smith et al. (2018) reported that rumination is associated with eating disorder psychopathology with a medium effect size, though the sample was mostly girls and women (87%). It predicts the onset of binge-eating and purging behaviours among undergraduate students (Gordon et al., 2012) and adolescent girls (Holm-Denoma, & Hankin, 2010). One recent study shows that lower depressive rumination mediates the link between greater self-compassion and less eating pathology cross-sectionally but not longitudinally (Fresnics et al., 2019). Again, the majority of their participants were undergraduate female students (84%). Giving its promising role, it is warranted to assess rumination as a potential mechanism to explain the relationship between self-compassion and body/eating concerns among males as well.

Self-criticism can be conceptualised as having two elements - internalized self-criticism (negative view of self-based on one's own high standards), and comparative self-criticism

(negative view of self in comparisons to others who are seen as threatening). Each of these constructs are potential processes by which higher levels of self-compassion might lead to reduced eating and body image concerns via different paths, as shown in Figure 1.

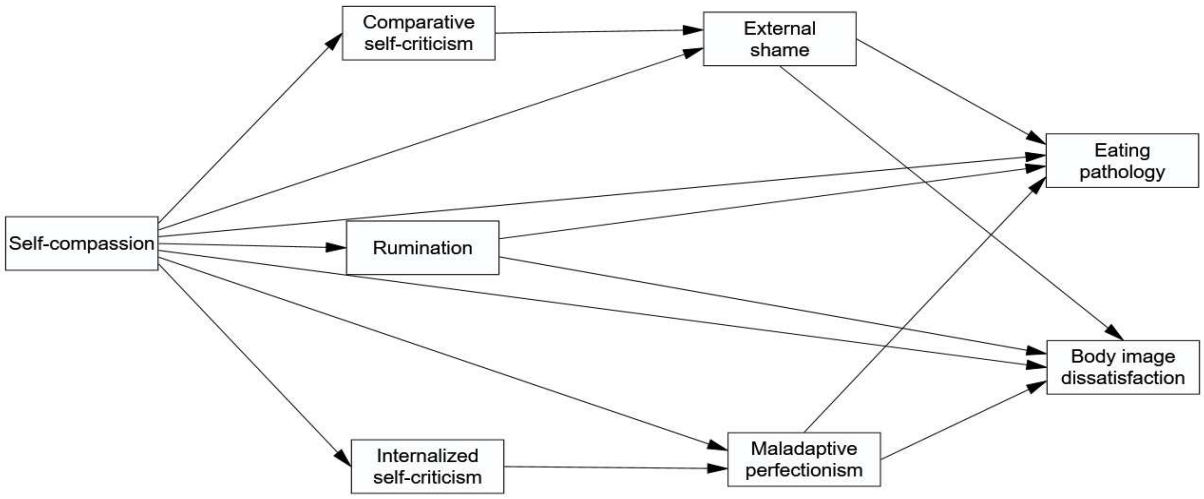

Figure 1. The proposed mediation model tested

The first path is related to 'self' in the context of 'others'. We suggest that higher self-compassion leads to lower comparative self-criticism and hence to lower *shame*, which in turn reduces eating and body image concerns. As self-compassion holds that failure is part of human experience, compassionate individuals are less likely to view themselves negatively and to evaluate themselves compared to others. Consequently, they are less likely to experience the external shame that is related to feelings/thoughts about what others are thinking. Although the constructs appear to overlap, self-criticism can be seen as a cognitive process, while external shame can be understood as a negative emotion resulting from that cognitive process. Previous theoretical models also suggest that self-critical personality style is associated with increased vulnerability to psychopathology through greater shame (Gilbert, 2005; Goss & Gilbert, 2002). Experiencing shame has been regarded as central in eating pathology in both community and clinical samples (Gee & Troop, 2003; Mustapic et al., 2015). Goss and Gilbert (2002) suggested that eating pathology behaviours function through regulating the perception of

unacceptance by others. Therefore, controlling diet, weight, or eating can be used to feel safe in one's social group. Kelly and Tasca (2016) reported that change in shame was a significant predictor of subsequent eating disorder symptoms in a largely female (97%) clinical sample. They also found that feelings of shame, in turn, were lower than usual following a period of higher self-compassion or lower eating symptoms. Nevertheless, external shame is unexplored to date as a potential mediator in any association between self-compassion and eating and body image concerns.

The second proposed path involves internal attributes of self. We propose a path where being compassionate towards oneself reduces internalized self-criticism, lowering the maladaptive perfectionism that can lead to a lower likelihood of eating and body image psychopathology. It is suggested that self-compassion buffers against negative self-feelings (Leary et al., 2007). Therefore, in the presence of self-compassion, individuals are less likely to have internalized self-criticism (a negative view of oneself in comparison to high personal standards). Lower internalized self-criticism is likely to reduce the *maladaptive perfectionistic concerns* that are associated with performance evaluation (and the perceived gap between personal standards and one's evaluation of having met those standards). While perfectionism is a multi-faceted construct (e.g., Flett & Hewitt, 2002), only maladaptive perfectionism is likely to be relevant to body image and eating pathology. Individuals showing high levels of maladaptive perfectionism feel that they constantly strive for unreasonable levels of success (in particular, a "perfect" weight or body), and assess their worth based on accomplishment. Such perfectionism means that one consistently fails to meet the standards one has set for oneself. Hence, maladaptive perfectionism is associated with maladaptive emotion regulation tendencies (Rice et al., 2014), resulting in disordered eating behaviours as an attempt to meet their idealized physical body. While there are extensive theoretical models and empirical studies demonstrating that maladaptive perfectionism contributes to the development and

maintenance of eating pathology (e.g., Bardone-Cone et al., 2007; Lilenfeld et al., 2006; Stice, 2002), its role as a potential mediator is not yet understood.

Although previous empirical and theoretical research has examined the variables included in this study, this is the first study to examine those variables in a mediator model that reflects the complexity that is hypothesised here, using multi-group modeling to investigate self-compassion's link to eating and body image concerns among both men and women within the same analysis. While other studies focus on self-compassion as a potential mediator (e.g., Barnett & Sharp, 2016; Ferreira et al., 2013). Therefore, the aim of this study was to test whether perfectionism, self-criticism, rumination, and shame might explain the link of self-compassion with eating pathology and body dissatisfaction in both women and men. This model is outlined above and in Figure 1.

This study used a cross-sectional design, to inform subsequent longitudinal testing. It was hypothesised that the relationship between self-compassion and eating and body image concerns would be (1) mediated by rumination; (2) serially mediated by comparative self-criticism and external shame; and (3) serially mediated by internalized self-criticism and perfectionism. Finally, we compare the strength of model pathways between men and women, though no hypotheses are advanced regarding gender as this is an exploratory analysis.

2. Method

2.1. Ethical Considerations

Ethical approval for the research study was obtained from the Department of Psychology Research Ethics Committee at the University of Sheffield.

2.2. Design

This mediational study used a cross-sectional design. It was pre-registered with ASPREDICTED (no: 32861).

2.3. Participants

Male and female participants were eligible if they were 18+ years old and fluent in English. Participants were not eligible if they were below 18 years old, had any self-reported neurological or psychotic conditions, or were not fluent in English.

Kline (2005) suggests that for multi-group modeling, the convention is 100 cases/observations per group (women and men). The sample consisted of 570 adults from the community - 369 self-identified women and 201 self-identified men. Therefore, the study was adequately powered. We did not include participants who identified themselves as 'other' in terms of gender, since our study focuses on women and men only.

Participants' ages ranged from 18 to 79 years (M = 29.78 years, SD = 9.7). They had a range of academic experience (0.4% no school completed, 22.3% high school, 24.0% Bachelor's degree, 40% Master's degree, and 13% doctoral degree). They self-identified as belonging to the following ethnic/racial groups: 58% White, 12% South Asian/Asian British, 8% Black/African/Caribbean/Black British, and 22% other. They had a range of employment statuses (42.3% employed, 48.4% students, 9.3% other).

2.4. Measures

Using Qualtrics software, the participants completed measures of demographic characteristics (age, gender, education level, and ethnicity). They completed self-report measures of self-compassion (predictor); discrepancy perfectionism, comparative and internalized self-criticism, rumination and external shame (mediating variables); and body image concerns and eating attitudes (criterion variables). Cronbach's alphas for all scales are presented in Table 1.

2.4.1. Self-compassion

Self-compassion was assessed using the Self-Compassion Scale (SCS; Neff, 2003b). Items are worded to represent both positive and negative dimensions of self-compassion, which are divided into the following six subscales: Self-Kindness vs Self-Judgment, Common

Humanity vs Isolation, Mindfulness vs Over-identification (Neff, 2003b). The overall self-compassion score was used, in the absence of specific hypotheses on the subscales of self-compassion. Participants rate according to a 5-point Likert scale (1 = *almost never*; 5 = *almost always*). A sample item is: "I'm disapproving and judgmental about my own flaws and inadequacies." The SCS has shown good construct validity in young adult men and women, correlating in expected directions with scales of self-criticism, perfectionism, depression, and anxiety (Neff, 2003a). Neff (2003a) also found evidence of good three-week test-retest reliability and internal consistency for all subscales in a sample of young adult men and women.

2.4.2. Perfectionism

Perfectionism was measured using the Short Form of the Revised Almost Perfect Scale (SAPS; Rice et al., 2014). The SAPS has two subscales - standards (high performance expectations) and discrepancy (self-critical performance evaluations or negative perfectionistic concerns). As we specifically are interested in maladaptive perfectionism, only the discrepancy perfectionism subscale (associated with less adaptive emotion regulation) is included in the current study. The SAPS has good psychometric features, including convergent and discriminant validity, internal consistency, and measurement invariance between women and men (Rice et al., 2014). The items are rated on a 7-point Likert scale ranging from 1 = *Strongly Disagree* to 7 = *Strongly Agree*. A sample item is: "My performance rarely measures up to my standards."

2.4.3. Self-criticism

Self-criticism was assessed using the Levels of Self-Criticism Scale (LOSC; Thompson & Zuroff, 2004). The LOSC addresses two dimensions of self-criticism - comparative self-criticism (CSC) with 12 items (e.g., "I am usually uncomfortable in social situations where I don't know what to expect"), and internalized self-criticism (ISC) with 10 items (e.g. "I am very frustrated with myself when I don't meet the standards I have for myself"). Both scales

are included in the analyses as they are each relevant to the model (see Figure 1). Thompson and Zuroff (2004) have shown that LOSC has good internal consistency (CSC α = .84; ISC α = .88). They also reported good evidence for the convergent and discriminant validity of the LOSC. Respondents rated items on a 7-point Likert scale that ranged from 1 = *Strongly Disagree* to 7 = *Strongly Agree*. Responses are summed, and higher scores reflect greater self-criticism.

2.4.4. Rumination

Rumination was measured using the Ruminative Thought Style Questionnaire (RTSQ; Brinker & Dozois, 2009). The RTSQ has demonstrated good convergent validity with the Response Style Questionnaire, the Global Rumination Scale and the Beck Depression Inventory, adequate test–retest reliability and high internal consistency with women and men (Brinker & Dozois 2009). A sample item is: "Sometimes I realize I have been sitting and thinking about something for hours." All responses are recorded on a 7-point Likert scale from 1 = *Not at all* to 7 = *Very well*. Item scores are summed, with higher scores indicating greater rumination.

2.4.5. External Shame

External shame was measured using the Other as Shamer Scale (OAS; Goss et al., 1994). The OAS has high internal consistency with women and men (α = .92). As we specifically propose external shame as relevant to our model, the OAS is an appropriate measure to use here. On items such as "Other people think I have lost control over my body and feelings," participants responded on a 5-point scale that ranged from 0 (*never*) to 4 (*almost always*). Higher summed scores reflect greater external shame. The scale assesses three distinct dimensions of external shame: inferiority (e.g., "Other people see me as small and insignificant"), emptiness (e.g., "Others see me as empty and unfulfilled"), and how others behave when they see me make mistakes (e.g., "Other people always remember my mistakes").

In the original study, a three-factor exploratory solution was put forward, and it was found to have good construct validity, relating to measures of internal shame, experience of shame and guilt (Goss et al., 1994).

2.4.6. Body Dissatisfaction

Body dissatisfaction was assessed using a shortened form of the Body Shape Questionnaire (BSQ-16; Evans & Dolan, 1993). The BSQ-16 has excellent α values (.93 to .96), and good concurrent and discriminant validity with women (Evans & Dolan, 1993). The BSQ has demonstrated reliability and validity for women and men (Rosen et al., 1996). Participants respond from 1 (*never*) to 6 (*always*) for each item (e.g., "Have you avoided wearing clothes which make you particularly aware of the shape of your body?"). Higher scores indicate greater body dissatisfaction.

2.4.7. Eating Pathology

Eating disorder psychopathology was measured using the Eating Disorder Examination Questionnaire – version 6.0 (EDE-Q; Fairburn & Beglin, 2008). It consists of four attitudinal subscales – the restraint subscale, the eating concern subscale, the shape concern subscale, and the weight concern subscale. Each reflects experiences over the last 28 days. Items are rated on a seven-point scale, ranging from 0 (*no days/not at all*) to 6 (*everyday/markedly*). Higher scores indicate greater ED pathology. A sample item is "Have you gone for long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape or weight?" The psychometric properties of the EDE-Q have been demonstrated in clinical and non-clinical samples, showing adequate test-retest reliability, internal consistency, and construct validity (Berg et al., 2012). In the current study, internal consistency for the global score was .95 for women and .94 for men. The alpha level was similar to a study with a non-clinical male sample (Schaefer et al., 2018).

2.5. Procedures

Participants were recruited through leaflets, online advertisement, and the university announcement system. When inviting the participants, the purpose of the study was described as: "how being kind to yourself (self-compassion) might be related to eating concerns."

This study was administered online, using the Qualtrics survey platform. Prior to any data collection, informed consent was obtained from the participants. Participants were asked to complete the questionnaires outlined above, and the demographic information.

2.6. Statistical Analysis

Path analysis was used to test the mediational model. Data were analysed for normality based on suggestions for regression-based analyses with skewness < 3 and kurtosis < 10 indicating acceptable levels (Kline, 2011). Multi-collinearity was assessed using Variance Inflation factor (VIF) and tolerance statistics. Values for VIF below 10 and for tolerance greater than .20 indicate acceptable ranges (Field, 2009). Descriptive statistics were used to describe the sample and study measures, and correlations were conducted among the study measures.

The model shown in Figure 1 was tested in SPPS AMOS 26, using Maximum Likelihood Chi-Square Estimation. Individual scales or subscales were treated as observed variables. Models were considered to have acceptable fit if they met the following criteria: comparative fit index (CFI) $\geqslant$ .90, standardized root-mean-square residual (SRMR) $\leqslant$ .10, and root mean-square error of approximation (RMSEA) $\leqslant$ .10 (Hu & Bentler, 1999). Models were considered to have good fit if indexes were as follows: CFI $\geqslant$ .95, SRMR $\leqslant$ .08, and RMSEA $\leqslant$ .06 (Hu & Bentler, 1999).

Multi-group analysis was used to examine whether the path coefficients for the associations between predictors of body dissatisfaction and eating pathology were equivalent in strength across women and men. First, structural paths were free to vary for women and men (fully variant model). Then, all structural paths were held constant (invariant model). A chi-square difference test was then used to compare the freed and constrained models to determine

whether at least one pathway differed by gender.

Mediation analysis was conducted using a bootstrapping approach. Preacher and Hayes (2008) suggest that bootstrapping provides the most robust and reasonable method of deciding confidence limits for specific indirect effects under most conditions. It is a resampling method based on random sampling with replacement. Therefore, the analysis used a 95% bias-corrected confidence interval that does not include zero, based on 2,000 bootstrappings, to test the significance of indirect effects.

3. Results

3.1. Preliminary Analyses

Data met normality assumptions, with skewness and kurtosis values ranging from -0.65 to 0.53 and -0.87 to 0.10 respectively for women, and -0.57 to 0.89 and -0.67 to 0.80 respectively for men. An examination of tolerance statistics confirmed no violations of multi-collinearity, as all values are within the acceptable range (*VIF* = 1.68 to 2.39, *Tolerance* = .42 to .60).

3.2. Sample Characteristics

Descriptive data for the total sample are given in Table 1, divided by gender. Scores on the SCS, LOSC, SAPS, BSQ-16, and EDE-Q were similar to those established for other nonclinical populations (Mond et al., 2006; Neff & McGehee, 2010; Rice et al., 2014; Thompson & Zuroff, 2004; Wasylkiw et al., 2012). The mean scores on the RTSQ and OAS were slightly higher than in a community sample (Brinker & Dozois, 2009; Marta-Simones et al., 2016). In line with previous research, women had significantly lower scores than men on self-compassion, and higher scores on internalized self-criticism, body dissatisfaction, and eating pathology (Ansari et al., 2014; Rose et al., 2013; Yarnell et al., 2019).

3.3. Bivariate Associations

The correlation coefficients for each pair of variables were conducted for women and men separately (see Table 2). The total self-compassion score was significantly associated with

all of the proposed dependent and potential mediator variables. We transformed the Pearson *r* scores to Fisher's *z* values to examine whether differences in correlations between female and male were significant. (Cohen et al., 2013). There was a negative correlation between self-compassion and eating pathology (women: $r = -.48$, men: $r = -.34$), but the difference between those correlations was not significant ($p = .06$). The pattern was similar to the correlations between self-compassion and body dissatisfaction (women: $r = -.53$, men: $r = -.30$). In this case, the difference in correlations was significant ($p < .05$).

Table 1

Descriptive Statistics and Internal Consistency of the Questionnaires for this Sample

	Total (N = 570)		Women (n = 369)	Men (n = 201)		
	M (SD)	*α*	*M (SD)*	*M (SD)*	*t*	*p*
Age (years)	29.8 *(9.80)*	--	29.3 *(10.2)*	30.67 *(8.80)*	1.67	*NS*
Self-compassion (SCS)	2.9 *(0.64)*	.76	2.90 *(0.70)*	3.00 *(0.50)*	3.35	.001
Shame (OAS)	24.7 *(13.5)*	.94	25.1 *(13.5)*	24.1 *(13.5)*	0.77	*NS*
Rumination (RTSQ)	84.5 *(22.5)*	.93	84.7 *(22.8)*	84.1 *(22.1)*	0.33	*NS*
Discrepancy Perfectionism (SAPS)	18.4 *(5.8)*	.84	18.4 *(6.00)*	18.5 *(5.40)*	0.16	*NS*
Comparative self-criticism (LOSC)	43.8 *(10.7)*	.74	44.1 *(11.3)*	43.5 *(9.60)*	0.66	*NS*
Internalized self-criticism (LOSC)	47.0 *(12.3)*	.90	48.4 *(12.2)*	44.5 *(12.2)*	3.63	.001
Body image (BSQ-16)	44.0 *(19.5)*	.95	48.3 *(19.7)*	36.1 *(16.5)*	7.83	.001
Eating pathology (EDE-Q)	1.7 *(1.30)*	.95	1.90 *(1.40)*	1.40 *(1.10)*	5.21	.001

Note. SCS: Self-Compassion Scale (Neff, 2003b), OAS: Other as Shamer Scale Scale (Goss et al., 1994), RTSQ: Ruminative Thought Style Questionnaire (Brinker & Dozois, 2009), SAPS: Short Form of the Revised Almost Perfect Scale (Rice et al., 2014), LOSC: Levels of Self-Criticism Scale (Thompson & Zuroff, 2004)., BSQ-16: Shortened form of the Body Shape Questionnaire (Evans & Dolan, 1993), EDE-Q: Eating Disorder Examination Questionnaire (Fairburn & Beglin, 2008).

Table 2

Correlations between the predictor, mediating, and criterion variables. Coefficients above the diagonal represent correlations for the women (n = 369), while those below the diagonal represent correlations among men (n = 201)

Variable	1	2	3	4	5	6	7	8
1.Self-compassion (SCS)	--	-.61**	-.53**	-.57**	-.69**	-.67**	-.53**	-.48**
2.Shame (OAS)	-.52**	--	.58**	.49**	.75**	.51**	.51**	.45**
3.Rumination (RTSQ)	-.50**	.51**	--	.48**	.55**	.52**	.41**	.35**
4.Discrepancy perfectionism (SAPS)	-.44**	.39**	.44**	--	.51**	.62**	.41**	.37**
5.Comparative self-criticism (LOSC)	-.64**	.68**	.48**	.47**	--	.54**	.48**	.47**
6.Internalized self-criticism (LOSC)	-.64**	.51**	.52**	.54**	.51**	--	.44**	.40**
7.Body image (BSQ-16)	-.30**	.47**	.29**	.24**	.39**	.30**	--	.87**
8.Eating pathology (EDE-Q)	-.34**	.39**	.24**	.22**	.39**	.27**	.76**	--

Note. **$p < .001$,*$p < .05$; SCS: Self-Compassion Scale, OAS: Other as Shamer Scale, RTSQ: Ruminative Thought Style Questionnaire, SAPS: Short Form of the Revised Almost Perfect Scale, LOSC: Levels of Self-Criticism Scale, BSQ-16: Shortened form of the Body Shape Questionnaire, EDE-Q: Eating Disorder Examination Questionnaire

3.4. Evaluation of the Proposed Model

The structural model in Figure 1 provided a good fit to the data, CFI = .99, SRMR = .01, RMSEA = .06. Therefore, we proceeded with analysing the structural model using multi-group analysis. The unconstrained model (where all paths were freed to vary across the gender groups) provided a good fit, CFI = .99, SRMR = .03, RMSEA = .02. Next, we compared the fit of the unconstrained model to the fit of various constrained models. Results of analyses showed that the difference between the unconstrained model and constrained model was not statistically significant, $\Delta\chi^2(15) = 19.61$, $p = .19$, suggesting that the model was equivalent across the women and men. Next, we tested the difference between the unconstrained model and the more constrained model. Results showed that the difference between the two models was statistically significant, $\Delta\chi^2(16) = 26.85$, $p < .05$. This finding indicates that at least one path was different

in strength between the gender groups. Only one path was found to be significantly different between the gender groups: the negative link between self-compassion and body image concerns was significantly weaker for men (B = -.05) than for women (B = -.29), $p < .05$ (CI 95% : -12.00, -1.87).

3.5. Evaluation of Mediation

For women, the model (Figure 2) accounted for 29% of the variance in eating pathology and 35% of the variance in body dissatisfaction. For men, the model accounted for 18% of the variance in eating pathology and 23% of the variance in body dissatisfaction.

In our model, the relationship between self-compassion and eating pathology was serially mediated by comparative self-criticism and shame (see Table 3). In addition, comparative self-criticism and shame serially mediated the relationship between self-compassion and body dissatisfaction.

The indirect effect of self-compassion on discrepancy perfectionism through internalized self-criticism was significant (see Table 3). However, the path from discrepancy perfectionism to both eating pathology and to body dissatisfaction was nonsignificant. Likewise, the indirect effects of self-compassion via rumination on eating pathology and body dissatisfaction were not significant.

Table 3

Mediation Analyses

Indirect Path	Unstandardized Estimate	Lower	Upper	*p*	Standardized Estimate
1. Self-compassion --> Com S-C --> Shame --> BD	-6.98	-10.70	-3.75	.01	-0.94*
2. Self-compassion --> Com S-C --> Shame --> EP	-0.45	-0.74	-0.23	.01	-0.94*
3. Self-compassion--> Int S-C --> Disc perf --> EP	-0.23	-0.57	-0.00	.10	-1.16**
4. Self-compassion--> Int S-C --> Disc perf --> BD	-3.19	-8.13	-0.27	.08	-1.16**
5. Self-compassion --> Rumination --> BD	-1.12	-2.94	0.40	.21	-0.04
6. Self-compassion --> Rumination --> EP	-0.031	-0.16	0.09	.63	-0.02

* p < .05, Com S-C: Comparative self-criticism, Int S-C: Internalized self-criticism, BD: Body image dissatisfaction, EP: Eating pathology, Disc perf: Discrepancy Perfectionism. ** The standardized estimates were above -1 in paths 3 and 4, potentially indicating some multicollinearity (Deegan, 1978), however our VIF values are in the accepted range.

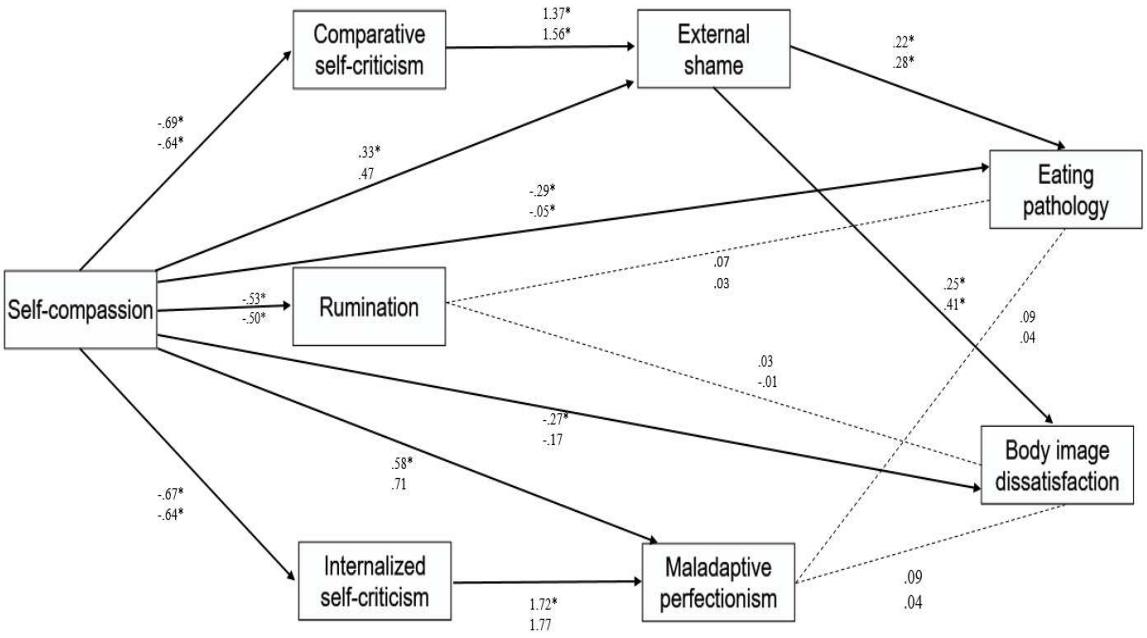

Figure.2. Multi-group analysis of the hypothesized path model. Standardized path coefficients are presented for women (above) and men (below)

4. Discussion

The aim of this study was to identify potential mechanisms underlying the link between self-compassion and levels of eating pathology and body dissatisfaction among a community sample of women and men. The potential mediating roles of external shame, rumination, maladaptive perfectionism, and internalized and comparative self-criticism were considered. As hypothesized, the relationship between self-compassion and eating and body concerns was serially mediated by comparative self-criticism and external shame. However, there were no significant mediating effects of rumination, internalized self-criticism or perfectionism in that relationship. Considering the role of gender, men showed a weaker negative link between self-compassion and body image concerns, but the links were not otherwise different across genders.

The primary association here was in line with findings from a recent meta-analysis, where greater self-compassion was associated with lower levels of eating pathology and body concerns (Turk & Waller, 2020). However, most of the potential mediators in the present model have not been examined in previous studies. While Fresnics et al. (2019) found a significant mediating effect of *rumination* in that association, that link was not replicated here. It is possible that the measure of rumination used here focuses on a general tendency towards a ruminative style of thinking, whereas depressive rumination might be more likely to be associated with greater eating pathology, predicting the onset of bingeing and purging behaviours (e.g., Gordon et al., 2012; Wang & Borders, 2018). The proposed path from *perfectionism* to higher eating pathology and body image was not significant. One potential explanation of the absence of such effect is that cognitive processes (perfectionist concerns) might not be as detrimental as negative feelings, given that individuals with eating pathology tend to have difficulties with managing their emotions.

The finding that self-compassion is indirectly related to eating pathology and body image through *comparative self-criticism* and *external shame* is novel. These findings

emphasize the importance of negative socially-based cognitions (criticizing oneself in comparison to others) and affect (shame) in this relationship. Shame's mediating effects here are similar to those shown elsewhere, in the link between self-compassion and depression (Johnson & O'Brien, 2013). Although previous research has reported that shame is important in eating and body image concerns, it has focused mainly on women or they are not specific to the external shame (e.g., Kelly & Tasca, 2016).

While self-compassion, external shame, and drive for thinness have been linked previously, the model used was different (Ferreira et al., 2013), with self-compassion as the mediator rather than the criterion variable. Theoretical models are not clear whether self-compassion or external shame are more appropriate as the predictor or the mediator in such a situation. However, considering temporal/developmental issues, we would argue that the early caregiving environment (e.g., parental warmth, kindness, and emotional closeness) is likely to result in related self-compassion being the earlier trait development, while shame is more likely to follow subsequent events, making it likely to be the mediator in this relationship (e.g., Matos et al., 2017). A third possibility is that self-compassion could be seen as a moderator of the shame-eating/body image relationship, with higher levels of self-compassion protecting against the effects of shame. However, the question of which of these is the most appropriate model requires further, longitudinal research.

The variance explained by the model in both eating pathology and body dissatisfaction was lower in men than in women. It might be that different factors contribute to the mechanism of how self-compassion works for men. However, it is also possible that measures that are specific to male body image might be more effective at drawing out the relationship more strongly. Men had a weaker negative link between self-compassion and body concerns, meaning that it is possible that women will derive more benefit from self-compassion related interventions to reduce their body dissatisfaction.

These results support models and theories that indicate emotions are important for understanding eating and body image issues (Cooper & Fairburn, 2011; Lavender et al., 2015). Therefore, enhancing adaptive emotional coping is likely to be important, along with identifying negative emotional coping mechanisms. Neff's (2003a) theory of self-compassion might explain the associations found here. Neff suggests that self-compassion is based on a feeling of self-acceptance and awareness of one's emotions in a balanced way. This non-judgmental acceptance of emotions might mitigate the desire to hide or escape that is central to the experience of shame (Tangney et al., 1992). Therefore, acknowledging emotions as being valid might lessen maladaptive coping. For instance, when individuals experience negative emotions, if they accept those emotions then they do not need to use secretive or isolating approaches (e.g., bingeing/purging) to manage shame. Similarly, these findings support Gilbert's theory (2005, 2009b) that when individuals experience "living in the minds of others," the social world becomes a threat and leads to varieties of defence, such as wanting to hide, conceal, or not to be seen. Therefore, such individuals might engage with disordered eating behaviours to deal with external shame.

Our findings suggest that feelings that stem from self-other processing (e.g., external shame) could be more closely linked to eating pathology than self processing. It is in line with the evolutionary perspective and social rank theory, which suggest that individuals might engage in controlling their weight, body shape, or eating patterns as strategies to assure social acceptance when they experience the self as unattractive and rejectable, and their social world becomes unsafe (Allan & Gilbert, 1995, 1997; Gilbert, 2007).

4.1. Limitations and Future Directions

Despite the presence of women and men in the sample, the generalisability of these results is limited by the sample consisting of a community group of adults with relatively high educational levels. Further research is needed to extend and replicate these findings across

different age groups, cultures, and backgrounds, as well as among eating disorder patients. Equally important, these findings are based on cross-sectional data, meaning that causality cannot be confirmed. However, this model provides a helpful foundation for identifying important areas for future research using longitudinal approaches, especially in relation to male participants.

Although we did not detect multi-collinearity, collinearity between variables (especially between shame and rumination in the present study) might still affect the power of the analysis (Beasley, 2013; Johnston et al., 2018), particularly because the data are cross-sectional. Therefore, results should be interpreted with caution, especially when determining the optimum mediator or moderator model to explain the links between these constructs (see above).

Finally, shame and self-criticism are common features across different psychopathologies, such as borderline personality disorder (Gratz et al., 2010) and addiction (Luoma et al., 2012). Therefore, the mediational model proposed in this study might not be specific to eating and body concerns. It should be tested in individuals with other psychopathologies, to determine whether the outcomes differ or whether there is a common model for issues such as impulsivity or compulsivity across disorders.

4.2. Clinical Implications

Despite these limitations, these results have important potential implications for treatment and prevention. While theories and therapies of eating disorders have been derived more from women than men, treatment outcomes are relatively similar across genders (e.g., Fernandez et al., 2009). However, it is possible that a more specific model for each gender will allow for the development of strategies that allow us to enhance therapy for both genders. For example, stressing self-compassion among men might enhance their relatively low likelihood of seeking help (e.g., Räisänen & Hunt, 2014; Thapliyal et al., 2020). Self-compassion-based

interventions might therefore enable easy access to help with dealing with body dissatisfaction and eating pathology, since they can be delivered online.

Self-compassion related interventions are effective in reducing eating and body image issues (Turk & Waller, 2020). Such approaches include compassion-focused therapy (which has been developed specifically for individuals who struggle with shame and self-criticism; Gilbert, 2014), and Acceptance and Commitment Therapy (which targets shame - Luoma & Platt, 2015). In cases where eating and body image have a strong emotional component, combining self-compassion interventions with cognitive-behavioural techniques might help to identify and challenge their critical thoughts. Clinicians should consider assessing patients' levels of self-compassion and shame, in order to determine whether improving self-compassion might impact on shame levels during treatment, and subsequently on eating pathology and body image.

4.3. Conclusion

This current study has addressed a critical gap in the literature, delineating mechanisms by which self-compassion is associated with eating and body image concerns among men and women. Comparative self-criticism and external shame emerged as potential intervention targets where the individual's eating pathology is emotionally-driven and where there is a problematic relationship with self. Experimental and longitudinal studies in community and clinical samples should further test and develop the validity of this model of eating and body image issues.

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