Faculty of Social and Behavioural Sciences

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Master's Thesis

"To Your Eyes my Body is Perfect, but I Want to Disappear"

The Effect of Body Image Shame on the Relation Between Perfectionistic Self-Presentation and Body Checking-Avoidance After Recovery From Eating Disorders.

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Academic year

2019/2020

Semester II

Word count: 4990

Abstract

Eating disorders (EDs) are severe psychopathologies associated with higher relapse rates, compared to other DSM-5 diagnoses. Body image disturbances play an important role in the maintenance of EDs. These manifest in behavioural and psychological symptoms following recovery, such as body checking-avoidance and perfectionistic self-presentation. However, the mechanisms by which these variables operate after recovery are unclear. Therefore, the present research aimed to test a mediation model for ED symptoms involving perfectionistic-self presentation, body checking avoidance, and the mediator body image shame. Fifty-three women recovered from EDs ($M_{BMI} = 21.88$; SD = 2.88), aged between 18 and 50 years completed self-report measures via an online survey which included standardized measures of eating pathologies, perfectionistic self-presentation, shame and body checking-avoidance. Findings indicate that perfectionistic self-presentation and shame are strongly associated with body checking-avoidance. In line with the hypothesis, results also show that body image shame is a significant mediator in the relation between perfectionistic self-presentation and body checking-avoidance and thus, constitutes a key maintaining factor of body checking-avoidance behaviours. Overall, these findings have important implications for clinical practice since they point toward the need to revise the current first-line intervention programmes to include modules that besides focusing on healthy BMI restoration also address the psychological and behavioural factors that maintain EDs.

Keywords: Body checking-avoidance, Body image shame, Perfectionism, Recovery

The Effect of Body Image Shame on the Relation Between Perfectionistic Self-Presentation and Body Checking-Avoidance After Recovery From Eating Disorders

Eating disorders (EDs) are life-threatening psychopathologies characterized by various degrees of disturbance in eating behaviours and body image, and preoccupation with food (Wetzler et al., 2020); they have a negative impact on physical and psychosocial well-being (DeJong et al., 2013; Winkler et al., 2014), affecting one's sense of self and quality of life (Jenkins & Ogden, 2012). Anorexia nervosa (AN) and bulimia nervosa (BN) are two common ED presentations (Blythin et al., 2020) and, of all mental health difficulties, AN is associated with the largest mortality rate (Edakubo & Fushimi, 2020; Jassogne & Zdanowicz, 2018). Also, comorbidities are common during the course of the illness (i.e., >70%; Treasure et al., 2020; Wetzler et al., 2020), especially with mood and personality disorders (American Psychiatrist Association [APA], 2013; Demmler et al., 2020). Furthermore, recovery from EDs is a complex process that may be disrupted by numerous relapses (Khalsa et al., 2017) or by a phenomenon known as diagnostic crossover (Mortimer, 2019), which occurs when individuals relapse into a different ED category. The literature reports a large variation in recovery rates across EDs, ranging from 5% to 90% (Bardone-Cone et al., 2018) although consensus on a definition of recovery is lacking. At the moment, recovery is seen as the remission of physiological symptoms, indicated by the body mass index (BMI) and ED behaviours such as the absence of food restriction, purging, and binging (National Institute for Health and Care Excellence, 2017). However, many continue to display EDs psychological symptoms following treatment (Steinglass et al., 2020). In addition, the above-mentioned conceptualization does not match the patients' subjective experience of recovery, where changes in ED thinking seem to be crucial for achieving full remission (Bardone-Cone, 2012). This indicates the importance of transcending the BMI criterion and embracing

a definition of recovery that accounts for physiological, behavioural and psychological symptom remission to achieve stronger treatment outcomes (Bardone-Cone et al., 2019; Bardone-Cone, Harney, et al., 2010; de Vos et al., 2017); and for this to become possible, additional criteria related to mental health, such as psychological and emotional mechanisms involved in symptom maintenance need to be identified (Emanuelli et al., 2012) and included in the treatment plan for EDs.

Body image disturbances (BID) are considered a core feature of EDs (APA, 2013) and represent a multidimensional construct having cognitive and behavioural components[1] (Cash & Smolak, 2011). These may increase the risk for relapse (Franko et al., 2018) by constraining individuals to a state of pseudo recovery where they reach a healthy BMI while psychological symptoms remain (Bardone-Cone et al., 2018). Studies suggest that BID may stem from the negative self-evaluation and social comparison (Festinger, 1954) generated by the ideal of thinness that modern Western societies value by linking thinness to desirable physical and personality characteristics (Scoffier-Meriaux et al., 2018). In turn, women that internalize such ideal, that is they assimilate it into their attitudes and exhibit behaviours to match it (Brockmeyer et al., 2020) may be at a higher risk of developing full syndrome ED (Fairburn, 2008; Ferreira et al., 2014). On the other hand, a different line of research suggests that BID may reflect a trait factor (Eshkevari et al., 2014); in other words, personality traits and psychological characteristics are essential for the pathogenesis of BID (Cash & Smolak, 2011). This is important since personality traits may be more likely to trigger relapse because of their nature; they are linked to deeply rooted dysfunctional core beliefs that guide one's thinking and behaviours (Beck & Beck, 2011) and thus, challenging to shape in treatment. Accordingly, individuals experience body image-related perceptual and cognitive distortions;

[1] While acknowledging the theoretical multidimensionality of this construct, the present study endorsed a definition of BI that focuses on the construct's behavioural components *body checking* and *body avoidance*.

for instance, they might overestimate body weight and shape or display an intense fear of gaining weight (Summers & Cougle, 2018) and to cope with these BID, controlling behaviours are common.

Body checking and avoidance[2] (BCA; Legenbauer et al., 2017) are the behavioural expressions of BID considered to be a differentiating phenotype of individuals with EDs at the clinical and subclinical levels (Legenbauer et al., 2017). Body checking consists of frequent weighing, attentively examining the shape of specific body parts or pinching flesh, and seeking reassurance about shape (Rosen et al., 1997). In contrast, body avoidance manifests in strategies such as covering mirrors, avoidance of being weighed, wearing baggy clothes (Fairburn et al., 2003). Research showed that pathological BCA may display obsessive and perfectionistic traits (Kaye et al., 2013; Legenbauer et al., 2018) employed to exert control over one's weight and shape (Walker et al., 2018) and manage the perceived feeling of inferiority from others that may result into shame (Blythin et al., 2020; Gilbert, 2002). In other words, BCA is used as a coping behaviour (Bardone-Cone et al., 2020; Nikodijevic et al., 2018) but in turn, it is likely to reinforce BID and encourage the control or avoidance of body weight and shape (Calugi & Dalle Grave, 2019). Furthermore, research observed that body avoidance is more subtle and difficult to detect than body checking (Trottier et al., 2015) since it is strongly linked to weight and shape shame (Solomon-Krakus & Sabiston, 2017), and for this reason, it might interfere negatively with treatment. Although further research is needed to determine the mechanisms behind BCA persistence, the fact that current treatment programs do not include modules that tackle these behaviours as well as body image shame (BIS; Waller & Raykos, 2019) points toward the limitations of current interventions. Also, BCA may be time-consuming and distressing (Reas et al., 2002) and its

[2] Since the present research does not differentiate between body checking and body avoidance behaviours, they are referred to as body checking-avoidance (BCA).

persistence after recovery may produce psychological distress due to perceived lack of control over the illness (Wilhelm et al., 2020) as well as withhold time that individuals should use to re-establish social relationships, healthy routines and activities that have been neglected due to shame and BCA. Therefore, these outcomes stress the importance of addressing BID cognitions and behaviours in treatment to prevent symptom relapse, but also to increase one's confidence in the possibility to recover from EDs.

Moreover, recent literature suggests that the adoption of maladaptive emotion regulation strategies used to deal with the perceived inferiority for one's body weight and shape may be a key factor in EDs (Duarte et al., 2014). Research supports the view that shame perpetuates the ED symptom following recovery since it is related to the perceived inferiority for one's body image shape and weight; also, studies suggest that BID cognitions and perceptions are a great source of shame for individuals with EDs (Duarte et al., 2015). It follows that BIS may fuel BCA since these maladaptive coping strategies are used to decrease body weight and shape shame (Blythin et al., 2020; Duarte et al., 2014, 2017; Duarte et al., 2015) and receive approval and acceptance from others (Gilbert, 2002; Goss & GilBert, 2002). For instance, while BCA aims at monitoring one's overall appearance and testing whether the perceived aesthetic standards are met (Solomon-Krakus & Sabiston, 2017), these safety behaviours further increase the obsessive focus on controlling body characteristics (Duarte et al., 2016); but this sense of control soon fades away because the safety behaviours backfire and, in turn, increase the shame one attempted to avoid (Duarte et al., 2014).

Similarly to BCA, the need to appear perfect may be considered a compensatory strategy that individuals with EDs employ to cope with body image-related inferiority (Ferreira et al., 2015). Clinical perfectionism is a multidimensional construct that received the attention of researchers for its correlation with EDs (Ferreira et al., 2013a). This is defined as

a personality disposition characterized by striving for achieving flawlessness and self-criticism (Battersby, 2004). However, in the context of BID, the interpersonal expression of perfectionism, namely perfectionistic self-presentation (PSP; Hewitt et al., 2003) seems to be of great relevance. Perfectionistic self-presentation (PSP)[3] is a maladaptive tendency characterized by the need to appear perfect in the eyes of other (Hewitt et al., 2003) that ED patients, recovered groups and individuals with higher levels of BID display, compared to control (Stoeber et al., 2017; Wade et al., 2016). The mechanisms by which PSP operates require further understanding, however research hypothesized that individuals set excessively high body image standards (Duarte et al., 2016) and engage in constant and harsh self-scrutiny that comes from the concern with other's evaluation and fear of inadequacy (van der Kaap-Deeder et al., 2016; Vartanian & Grisham, 2012; Weingarden et al., 2016). Also, this may be accompanied by rigid routines and compulsive coping behaviours (Reas et al., 2002) such as BCA to deal with the perceived loss of control over one's weight and shape (Calugi et al., 2006; Shafran et al., 2004). For instance, some studies showed that patients engage in repetitive body checking to deliberately induce a state of dissatisfaction and increase motivation to maintain a rigid dietary restriction (Calugi et al., 2006; Calugi et al., 2017). With this in mind, due to their preoccupation with other's evaluation and excessive self-criticism, individuals might use perfectionistic self-presentation as a safety behaviour to prevent the distress caused by BIS, which manifests through the control or avoidance of body weight and shape (i.e., BCA; Haynos et al., 2018; Walker et al., 2018).

Overall, these findings give reasons to hypothesize that the relationship between perfectionism and body checking and avoidance may not be linear and that it could be mediated by BIS. Therefore, in the interest of building on past work, the present study aims

[3] Importantly, perfectionistic self-presentation (i.e., need to *appear* perfect) differs from perfectionism (i.e., need to *be* perfect) since the latter is conceptualized as a trait and the former is a context-specific coping behavior (Stoeber et al., 2016).

to disentangle the pathways through which these factors relate to one another in a sample of individuals recovered from EDs by testing the proposed mediation model. Particularly, two hypotheses were tested. It was estimated that higher levels of BIS are associated with higher PSP and BCA. Secondly, the effect of BIS was expected to weaken the correlation between PSP and BCA; hence, suggesting the mediating role of shame.

Material and Methods

Sample Size Estimation

A statistical a-priori power analysis was performed using G*Power 3.1® for a Linear multiple regression: Fixed model, R^2 deviations from zero, with two predictor variables (Faul et al., 2009; Faul et al., 2007). Assuming a large effect size of .35 with 95% power[4], a total sample size of 48 was required for a significance level of $\alpha = .05$ (Cohen et al., 2003). Hence, the proposed sample size (N = 59) is considered more than adequate for the main purpose of this study (Field, 2009).

Sample

Initially, 296 responses were recorded. 156 participants were excluded due to the presence of EDs or partial remission of symptoms (Bardone-Cone, Harney, et al., 2010), leaving a total of 140 responses for the analysis. All participants completed the survey voluntarily, they were able to withdraw at any moment and received no compensation for taking part in the study. Inclusion criteria were female sex, a minimum age of 18 years, and a prior diagnosis of an ED provided by a mental health professional.

[4] A large effect size was chosen and a power of 0.95% selected to reduce the risk of a Type II error (Cohen, 1992).

The study included two samples: *recovered* from EDs and *never ill*. A total of 53 recovered females, the majority (60%) aged between 22-30 years, BMI (M = 21.88; SD = 2.88) was included in the *recovered* sample. 87 women with no history of eating disorder, half of them (51%) aged between 22-25 years; BMI (M = 22.09; SD = 2.99) was included in the *never ill* sample. In the present study, recovery has been assessed in terms of physical, behavioural, and cognitive criteria, as described by Bardone-Cone (2010).

To avoid the inclusion of participants that may seem recovered according to their reported indicators (i.e., weight and behaviours) but who still engage in eating disorders-related thinking (Bardone-Cone et al., 2018; Keski-Rahkonen & Tozzi, 2005), BMI[5] was used to measure the physical criterion of recovery, while the EDEQ global score was used to assess behavioural and cognitive criteria of ED pathology.

Measures

Descriptive Variables

Personal characteristics such as gender[6], age, height, weight, and BMI were collected. When not provided, BMI was computed using self-reported height and weight. Four self-report measures were administered, which assessed eating psychopathology, trait perfectionism, state shame, and behavioural coping strategies respectively.

[5] Body Mass Index. Calculated as weight (kg)/height (m^2). According to the World Health Organization (2020) a healthy BMI should lie between 18.5 kg/m^2 and 24.9 kg/m^2.

[6] In the current study, participants reported gender by identifying as either male or female, although these terms are used to refer to the physical and biological traits that distinguish between male and female (i.e., sex; American Psychological Association, n.d.). However, as not to perpetuate the binary notion of gender, future research should offer to participants different options than male/female/prefer not to say, for self-identification of gender.

Eating Disorders Examination Questionnaire (EDE-Q)

The EDE-Q (Fairburn & Beglin, 2008) is a 28-items self-report questionnaire used to assess the presence of EDs by measuring one's attitudes and behaviours in the past four weeks. Global scores range from 0 to 6 and higher scores indicate greater ED psychopathology (Fairburn & Beglin, 2008). It uses a 7-point Likert scale measuring the number of days that ED cognitions and behaviours occur in terms of frequency. The EDE-Q has adequate internal consistency (Cronbach's α = .70 - .93) (Rand-Giovannetti et al., 2020). In the present study, also an adequate internal consistency (Cronbach's α = .84) is reported.

Perfectionistic Self-Presentation Scale (PSPS)

The PSPS (Hewitt et al., 2003) is a 27-items multidimensional scale that measures the need to appear perfect to others. Items are scored on a 7-point scale where higher scores indicate greater levels of perfectionistic self-presentation. The PSPS presents high internal consistency (Cronbach's α = .91) (Hewitt et al., 2003). The value in the present study was also high (Cronbach's α = .92).

State Shame and Guilt Scale (SSGS)

The SSGS (Marschall et al., 1994) is a 15-item self-rating instrument measuring in-the-moment (state) shame and guilt experiences. It comprises 15 items divided into three subscales: shame, guilt and pride, and rated on a 5-point Likert scale. Since the assessment of guilt and pride goes beyond the purpose of the present study, only the shame subscale has been used. The SSGS presents good internal consistency (Cronbach's α = .82 - .89) (Weingarden et al., 2016). The value in this study, for the Shame subscale, was good (Cronbach's α = .83).

Body Checking and Avoidance Questionnaire (BCAQ)

The BCAQ (Legenbauer et al., 2017) is a 30-item valid and sound measure of eating disorders behaviours such as BCA. Items are in the form of a 4-point Likert scale. This scale presents high internal consistency for body checking and body avoidance (Cronbach's α = .92). In the present sample, the reliability was replicated with good results (Cronbach's α = .87).

Procedures

Data was generated using Qualtrics® and collected via a survey distributed on various online platforms, such as eating disorders support groups, survey sharing pages, university, and other social media. Before being presented with demographic questions, respondents were asked to read and sign the informed consent. Then, participants were screened for EDs and were presented with the test battery. This research was approved by the Utrecht University's ethical committee.

Analytic Strategy

Prior to the analysis, data were screened for outliers. Results of this preliminary analysis indicated the presence of two univariate extreme scores. However, the inspection of the Skewness and Kurtosis' values showed no significant violation of univariate and multivariate normality, with values of Skewness ranging from -.57 (PSP) to .65 (BIS), and Kurtosis ranging from -1 to 0 (Tabachinick & Fidell, 2007). Therefore, the two scores were kept in the analysis since they represent the variability of the construct under investigation. Explorative analyses indicated that these data met the assumptions of normality, linearity, homoscedasticity, independence and multicollinearity (Field, 2009) and thus, were suitable for mediation analysis.

Questionnaires that contained any missing item were excluded from the statistical analysis. Product-moment Pearson's correlation analyses were conducted to examine the associations between PSP (independent variable), BIS (mediator) and BCA (dependent variable; Cohen et al., 2003). Descriptive, correlational, and mediation analyses were conducted using SPSS® statistics v25. A mediation model was tested using the PROCESS macro for SPSS v3.0 (Hayes, 2013). The hypothesized mediation effect of shame on the relationship between PSP and BCA was conducted utilizing 5000 bootstrap re-samples, and the level of significance was determined according to a 95% confidence interval corrected for bias.

Participants were excluded due to reporting a BMI[7] lower than 18.5 and EDEQ Global scores ≥ 4 (Bardone-Cone, Harney, et al., 2010).

Results

The final sample included 53 females recovered from EDs, aged between 18 and 50 years. Participants' BMI mean was within the normal range (World Health Organization, 2020). Also, the mean Global EDEQ score was 1.73 ($SD = .53$). Using a cut-off point of ≥ 4, none of the participants scored in the clinically significant range. Descriptive statistics of the variables under investigation are reported in Table 1.

Product-moment Pearson's correlation coefficients are reported in Table 2. Both, the total scores of PSPS and SSGS exhibited positive associations having moderate to high effect size with the BCAQ. Results also showed that PSP is positively related to BIS with moderate to high magnitude.

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[7] For measuring the physical recovery, a starting point BMI value of 18.5 remains the common indicator, even though different thresholds have been allowed since the 2016 (Bardone-Cone et al., 2018). Further, the literature does not specify an upper BMI value to determine recovery.

Table 1

Descriptive Statistics. Recovery (N = 53)

		M	SD	Frequency	%
BMI		21.88	2.88	-	-
AGE	18 - 21	-	-	9	17%
	22 - 30	-	-	32	60.4%
	31 - 40	-	-	9	17%
	41 - 50	-	-	3	5.7%
EDEQ		1.73	.53	-	-
PSPS		4.18	1.21	-	-
SSGS		1.86	.88	-	-
BCAQ		1.77	.42	-	-

Note. BMI = body mass index; EDEQ = Eating Disorders Examination Questionnaire; PSPS = Perfectionistic Self-Presentation Scale; SSGS = State Shame and Guilt Scale; BCAQ = Body Checking and Avoidance Questionnaire. Age is expressed as the frequency of participants in each age range. While descriptive statistics of the total score is reported for EDEQ, PSPS and BCAQ, mean and standard deviation of the Shame subscale are reported for the SSGS.

Table 2

Pearson Product–Moment Correlation Matrix of the Study Variables.

(N = 53)

	PSP	BIS
PSP	-	.45**
BIS	.45**	-
BCA	.43**	.35**

Note. Correlation is significant at **$p < .01$ (two-tailed).

PSP = perfectionistic self-presentation (independent variable); BIS = body image shame (mediator); BCA = body checking avoidance (dependent variable).

Mediation Analysis

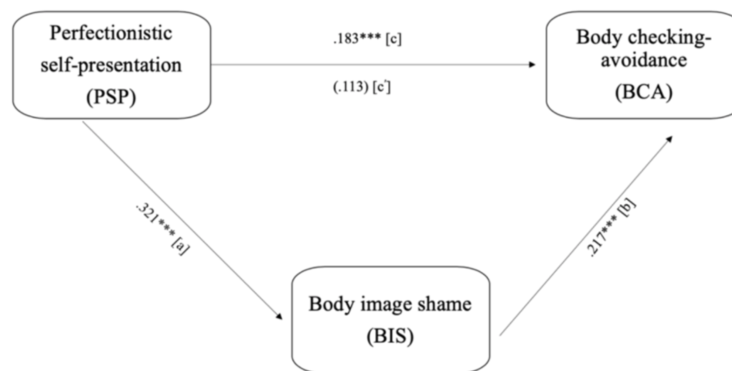
A mediation analysis as described by Hayes (2013) was used to test the indirect effect of perfectionistic self-presentation (PSP) on body checking and avoidance (BCA) through body image shame (BIS).

An overall significant model was found $F(2, 50) = 19.112$, $p < .001$, with 43.3% of the variance in BCA explained by the two predictors, PSP and BIS. Also, significant effects were found for PSP and BIS ($B = .321$, SE = .093, $t(51) = 3.467$, 95% CI [.135, .506], $p < .001$), for PSP and BCA ($B = .183$, SE = .042, $t(51) = 4.324$, 95% CI [.098, .268], $p < .001$), and for BIS and BCA ($B = .217$, SE = .057, $t(50) = 3.815$, 95% CI [.103, .332], $p < .001$). In the present study, the 95% confidence interval of the indirect effect was obtained with 5000 bootstrap re-samples (Preacher & Hayes, 2008).

Results of the mediation analysis (see Figure 1) confirmed the mediating role of BIS in the relation between PSP and BCA with a significant indirect effect of PSP on BCA ($B = .070$, SE = .027, 95% CI [.026, .132]. Also, the direct effect of PSP on BCA is lessened after controlling for BIS, making this correlation not significant (B = .113, SE = .042, $t(50) = 2.710$, 95% CI [.029, .197], $p = .009$), thus suggesting partial mediation.

Figure 2

The Mediation Role of Body Image Shame in the Relation Between Perfectionistic Self-Presentation and Body Checking Avoidance.



Note. a, b and c are unstandardized regression coefficients. a = the relation between the independent variable and the mediator; b = the relation between the mediator and the dependent variable; c = the total effect of the independent variable on the dependent variable; c′ = the direct effect of the independent variable on the dependent variable after controlling for the mediator.

***p < .001

Discussion

In the interest of building on previous research, the present study was designed to explore the mediation effect of BIS on the relation between PSP and BCA in a sample of women recovered from EDs. It was hypothesized that after recovery, women who strive to convey a perfect appearance present greater BCA behaviour and that this is due to the experience of BIS.

First, in line with current knowledge on recovery, it has been observed that BIS is displayed by recovered individuals (Doran & Lewis, 2012). Despite the BIS experienced following recovery might reflect symptoms at the subclinical level, it suggests that individuals are only partially recovered (Bardone-Cone et al., 2018). Also, a positive

correlation between PSP and the shame measure has been observed, which strengthens outcomes from previous studies suggesting that PSP acts as a coping strategy to deal with BIS and promote social acceptance (Ferreira et al., 2015; Hewitt et al., 2003). In fact, presenting oneself as flawless may increase connectedness since individuals feel they have something in common with their social environment that before was perceived ad distant and uncompassionate (Ferreira et al., 2013b). Furthermore, data suggest that the need to display a perfect body in social situations, as indicated by higher PSPS scores, is positively related to BCA. This is an important finding since the link between these variables has been scarcely studied. Lastly, findings indicate that significant levels of BIS, as measured by the SSGS, were associated with greater expression of BCA behaviours. This is also in line with previous studies that emphasize the link between shame and BID (Palmeira et al., 2018; Solomon-Krakus & Sabiston, 2017). Overall, these results support previous research on the association between PSP, BCA and EDs (Duarte et al., 2015; Nikodijevic et al., 2018; Stoeber et al., 2017), extend this knowledge demonstrating that PSP is a coping mechanism important for the understanding of BCA behaviours and suggests that the relationship between these factors is influenced by BIS. Contrary to what expected, the partial mediation suggests that PSP still influences BCA, even though BIS remains a key mechanism that contributes to this relation.

The proposed model highlights that BCA behaviours may be understood as strategies to control or escape from the feeling of shame for one's body that derives from the perception of inferiority and social rejection. After recovery, BID likely persist and increase the probability of relapse because BIS confines individuals in a negative cycle of obsessive-compulsive coping strategies that they perform to decrease this intense negative feeling and have a sense of control over body weight and shape. However, striving for a perfect image to portray in social situations may temporarily alleviate the burden of perceived social rejection while it becomes a long-term ineffective coping strategy that does strengthen the feeling of

shame for a body that does not meet idealistic standards of flawlessness. Furthermore, in contrast to prior findings suggesting that recovered individuals may experience a decrease in residual PSP over time (Bardone-Cone, Sturm, et al., 2010), the present study contributes to the literature on recovery and perfectionism with the assessment of the pathway through which PSP operates, proposing BIS as the key maintaining factor to target in treatment.

The present research has both, strong and weak points. One main strength of this study is that the sample was acquired via numerous recovery support groups that include women of different ages and nationalities, which experienced different levels of ED severity. This contributes to the generalizability of findings more than if data were collected from an eating disorder clinic. Furthermore, the sample was determined by the absence of a current ED diagnosis only, and this is considered another strength of the research design. In fact, including individuals despite their medical history made the sample more representative of the general population than a group formed by "perfectly healthy" individuals only. On the other hand, these results should not be interpreted without considering some limitations. Firstly, all data collected were self-report and cross-sectional. This limits the generalization of the conclusions and the attribution of causality. Further research may consider using a longitudinal study design to support the directionality and predictability of these findings. Secondly, grouping AN, BN, and not otherwise specified ED (EDNOS) into a single category is considered a limitation since there may be differences in the strength of the indirect relationship between PSP and BCA across types of ED. Future investigations should account for ED diagnostic category and explore these relationships at each level of both, the dependent and the independent variables. For instance, it might be interesting to study whether checking or avoidance strategies may have a stronger link with a specific ED and to extend the present research by exploring perfectionism at a multidimensional level, that is including trait perfectionism (i.e., feeling that others expect perfection from oneself and

setting unrealistic standards to oneself and other) and the frequency of perfectionistic-related thoughts. Also, it is relevant to mention that the sample did not include men. Since research has highlighted the presence of gender differences in the expression of shame as well as in the way it is presented in the therapy session (Gilbert, 2002), including males in the sample would be a valuable contribution to the findings. Lastly, the present study did not account for comorbid psychopathology. Research suggested that higher levels of perfectionism are associated with a higher level of comorbidity (Wade et al., 2016); therefore, this might have influenced the likelihood to engage in maladaptive coping behaviours.

Implications for Clinical Practice

These findings have practical implications for clinicians working in the field of EDs since they highlight the limitations of the current first-line intervention programs. According to the National Institute for Health and Care Excellence (NICE, 2017), these treatment protocols aim to restore a healthy BMI. However, the literature on recovery reports data suggesting that half of the patients relapse in the first year after the remission of symptoms (Wetzler et al., 2020), with relapse rates up to 52% (Khalsa et al., 2017). This may happen because treatments for EDs fail to address concerns and schemas related to BID, hindering the process of achieving full recovery, which is defined as the remission of physiological, behavioural, and psychological symptoms (Bardone-Cone et al., 2018). In the light of the present findings, if BIS is left untreated, it may promote a persistent pursuit of the “perfect” body through control of weight and shape according to the patient’s ideal standards (Walker et al., 2018). From this perspective, interventions that target the maintaining factors may be the key for attaining full recovery in EDs (Bardone-Cone, Sturm, et al., 2010), and findings of the present research provide evidence indicating that clinicians should consider revising

the current treatment protocols to include modules that target BIS, since this may prevent relapse and produce stronger long-term outcomes.

A second important clinical implication concerns the relevance of selecting a type of intervention that helps people to disengage from BIS and promotes emotion regulation and the acceptance of negative emotions. Therefore, these findings invite clinicians to reflect on the benefits that dialectical behavioural therapy (DBT; Linehan, 1993a, 1993b) may have for the treatment of EDs. This intervention is based on CBT but places a stronger emphasis on emotion regulation and the social aspects that influence symptoms. The different modules of DBT (Linehan, 1993a, 1993b) would teach the individual emotion regulation and distress tolerance skills. Also, they would learn how to be aware and accept shame as a state, and to express their needs to better cope with this negative emotion. Given that DBT includes a group skills training module, individuals may benefit from it by practising mindful eating, triggers identification, and adaptive responses to BIS. Overall, DBT is an intervention that, in line with the proposed findings may produce stronger long-term positive outcomes since, after recovery, individuals would have the necessary skills to functionally cope with the internalized BIS and with perceived negative evaluations in social contexts, and increase their self-esteem (Ferreira et al., 2014; Stoeber et al., 2017).

Lastly, the early assessment and targeting of BIS may have important prevention implications. Prevention programmes that encourage the practice of emotion regulation, mindfulness and distress tolerance, may protect against early experiences of body weight and shape-related shame and promote the development of a healthier relationship with one’s body image.

Conclusion

The current study shows that recovered women experience BIS, meaning that they perceive themselves as negatively judged by others about their body features (i.e., seen as flawed, unattractive). Hence, to protect themselves from this negative emotion and increase the sense of control they use PSP to create a perfect picture in the mind of others and engage in obsessive and compulsive BCA. However, these behaviours increase the shame, which encourages the internalization of a flawed body image. Therefore, addressing BIS in treatment is important for improving the outcomes and prevent relapse in EDs. Notwithstanding the limitations, the present study represents a contribution to the research on ED recovery. Particularly, these results clarify the directionality of the relationship between PSP and BCA and shed light on the mechanisms involved in the maintenance of symptoms such as shame, which is a central emotion in EDs that required further understanding. These research efforts may offer insight into the adoption of interventions that target BIS to improve long-term treatment outcomes and decrease the rates of relapse in EDs.

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Appendix A: Eating Disorders Examination Questionnaire

ID: **Date:**

EATING QUESTIONNAIRE

Instructions: The following questions are concerned with the past four weeks (28 days) only. Please read each question carefully. Please answer all of the questions. Please only choose one answer for each question. Thank you.

Questions 1 to 12: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days) only.

	On how many of the past 28 days ……	No days	1-5 days	6-12 days	13-15 days	16-22 days	23-27 days	Every day
1	Have you been deliberately trying to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
2	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?	0	1	2	3	4	5	6
3	Have you tried to exclude from your diet any foods that you like in order to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
4	Have you tried to follow definite rules regarding your eating (for example, a calorie limit) in order to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
5	Have you had a definite desire to have an empty stomach with the aim of influencing your shape or weight?	0	1	2	3	4	5	6
6	Have you had a definite desire to have a totally flat stomach?	0	1	2	3	4	5	6
7	Has thinking about food, eating or calories made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?	0	1	2	3	4	5	6
8	Has thinking about shape or weight made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?	0	1	2	3	4	5	6
9	Have you had a definite fear of losing control over eating?	0	1	2	3	4	5	6
10	Have you had a definite fear that you might gain weight?	0	1	2	3	4	5	6
11	Have you felt fat?	0	1	2	3	4	5	6
12	Have you had a strong desire to lose weight?	0	1	2	3	4	5	6

Questions 13-18: Please fill in the appropriate number in the boxes on the right. Remember that the questions only refer to the past four weeks (28 days).

Over the past four weeks (28 days)…….

13	Over the past 28 days, how many times have you eaten what other people would regard as an unusually large amount of food (given the circumstances)?	……………..
14	….On how many of these times did you have a sense of having lost control over your eating (at the time that you were eating)?	……………..
15	Over the past 28 days, on how many **DAYS** have such episodes of overeating occurred (i.e. you have eaten an unusually large amount of food and have had a sense of loss of control at the time)?	……………..
16	Over the past 28 days, how many times have you made yourself sick (vomit) as a means of controlling your shape or weight?	……………..
17	Over the past 28 days, how many times have you taken laxatives as a means of controlling your shape or weight?	……………..
18	Over the past 28 days, how many times have you exercised in a "driven" or "compulsive" way as a means of controlling your weight, shape or amount of fat or to burn off calories?	……………..

Questions 19-21: Please circle the appropriate number. Please note that for these questions the term "binge eating" means eating what others would regard as an unusually large amount of food for the circumstances, accompanied by a sense of having lost control over eating.

19	Over the past 28 days, on how many days have you eaten in secret (ie, furtively)?......Do not count episodes of binge eating	No days	1-5 days	6-12 days	13-15 days	16-22 days	23-27 days	Every day
		0	1	2	3	4	5	6
20	On what proportion of the times that you have eaten have you felt guilty (felt that you've done wrong) because of its effect on your shape or weight? ......Do not count episodes of binge eating	None of the times	A few of the times	Less than half	Half of the times	More than half	Most of the time	Every time
		0	1	2	3	4	5	6
21	Over the past 28 days, how concerned have you been about other people seeing you eat? ......Do not count episodes of binge eating	Not at all		Slightly	Moderately			Markedly
		0	1	2	3	4	5	6

Questions 22-28: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days)

	On how many of the past 28 days	Not at all		Slightly		Moderately		Markedly
22	Has your weight influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6
23	Has your shape influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6
24	How much would it have upset you if you had been asked to weigh yourself once a week (no more, or less, often) for the next four weeks?	0	1	2	3	4	5	6
25	How dissatisfied have you been with your weight?	0	1	2	3	4	5	6
26	How dissatisfied have you been with your shape?	0	1	2	3	4	5	6
27	How uncomfortable have you felt seeing your body (for example, seeing your shape in the mirror, in a shop window reflection, while undressing or taking a bath or shower)?	0	1	2	3	4	5	6
28	How uncomfortable have you felt about others seeing your shape or figure (for example, in communal changing rooms, when swimming, or wearing tight clothes)?	0	1	2	3	4	5	6

What is your weight at present? (Please give your best estimate). ………………………………

What is your height? (Please give your best estimate). ………………………………

If female: Over the past three-to-four months have you missed any menstrual periods? ……………

If so, how many? ………………………………

Have you been taking the "pill"? …………………..

THANK YOU

Figure 1 EDEQ reproduced with permission. Fairburn and Beglin (2008). In Fairburn, C. G. (2008). Cognitive Behavior Therapy and Eating Disorders. Guildford Press, New York.

Appendix B: Perfectionistic Self Presentation Scale

PSPS

Listed below are a group of statements. Please rate your agreement with each of the statements using the following scale. If you strongly agree, circle 7; if you disagree, circle 1; if you feel somewhere in between, circle any one of the numbers between 1 and 7. If you feel neutral or undecided the midpoint is 4.

1	2	3	4	5	6	7
Disagree Strongly			**Neutral**			**Agree Strongly**

		Disagree Strongly						Agree Strongly
1.	It is okay to show others that I am not perfect	1	2	3	4	5	6	7
2.	I judge myself based on the mistakes I make in front of other people	1	2	3	4	5	6	7
3.	I will do almost anything to cover up a mistake	1	2	3	4	5	6	7
4.	Errors are much worse if they are made in public rather than in private	1	2	3	4	5	6	7
5.	I try always to present a picture of perfection	1	2	3	4	5	6	7
6.	It would be awful if I made a fool of myself in front of others	1	2	3	4	5	6	7
7.	If I seem perfect, others will see me more positively	1	2	3	4	5	6	7
8.	I brood over mistakes that I have made in front of others	1	2	3	4	5	6	7
9.	I never let others know how hard I work on things	1	2	3	4	5	6	7
10.	I would like to appear more competent than I really am	1	2	3	4	5	6	7
11.	It doesn't matter if there is a flaw in my looks	1	2	3	4	5	6	7
12.	I do not want people to see me do something unless I am very good at it	1	2	3	4	5	6	7
13.	I should always keep my problems to myself	1	2	3	4	5	6	7
14.	I should solve my own problems rather than admit them to others	1	2	3	4	5	6	7
15.	I must appear to be in control of my actions at all times	1	2	3	4	5	6	7
16.	It is okay to admit mistakes to others	1	2	3	4	5	6	7
17.	It is important to act perfectly in social situations	1	2	3	4	5	6	7
18.	I don't really care about being perfectly groomed	1	2	3	4	5	6	7
19.	Admitting failure to others is the worst possible thing	1	2	3	4	5	6	7
20.	I hate to make errors in public	1	2	3	4	5	6	7
21.	I try to keep my faults to myself	1	2	3	4	5	6	7
22.	I do not care about making mistakes in public	1	2	3	4	5	6	7
23.	I need to be seen as perfectly capable in everything I do	1	2	3	4	5	6	7
24.	Failing at something is awful if other people know about it	1	2	3	4	5	6	7
25.	It is very important that I always appear to be "on top of things"	1	2	3	4	5	6	7
26.	I must always appear to be perfect	1	2	3	4	5	6	7
27.	I strive to look perfect to others	1	2	3	4	5	6	7

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Appendix C: State Shame and Guilt Scale

State Shame and Guilt Scale (SSGS)

The SSGS is a self-rating scale of in-the-moment (state) feelings of shame, and guilt experiences. Ten items (five for each of the two subscales) are rated on a 5-point scale Likert scale. The following are some statements which may or may not describe how you are feeling **right now**. Please rate each statement using the 5-point scale below. Remember to rate each statement based on how you are feeling **right at this moment**.

	Not feeling this way at all	Feeling this way somewhat	Feeling this way very strongly
1. I want to sink into the floor and disappear.	1 ------- 2 ------- 3 ------- 4 ------- 5		
2. I feel remorse, regret.	1 ------- 2 ------- 3 ------- 4 ------- 5		
3. I feel small.	1 ------- 2 ------- 3 ------- 4 ------- 5		
4. I feel tension about something I have done.	1 ------- 2 ------- 3 ------- 4 ------- 5		
5. I feel like I am a bad person.	1 ------- 2 ------- 3 ------- 4 ------- 5		
6. I cannot stop thinking about something bad I have done.	1 ------- 2 ------- 3 ------- 4 ------- 5		
7. I feel humiliated, disgraced.	1 ------- 2 ------- 3 ------- 4 ------- 5		
8. I feel like apologizing, confessing.	1 ------- 2 ------- 3 ------- 4 ------- 5		
9. I feel worthless, powerless.	1 ------- 2 ------- 3 ------- 4 ------- 5		
10. I feel bad about something I have done.	1 ------- 2 ------- 3 ------- 4 ------- 5		

Scoring <u>Each scale consists of 5 items:</u>
Shame - Items 1, 3, 5, 7, 9
Guilt - Items 2, 4, 6, 8, 10
All items are scored in a positive direction.

Total Shame (25 max): ________

Total Guilt (25 max): ________

Figure 3 Reproduced with permission. Marschall, D. Saftner, J., & Tangney, J. P. (1994). *The State Shame and Guilt Scale*. George Mason University.

Appendix D: Body Checking and Avoidance Questionnaire

Name **Date of birth**

Gender **Current weight**

This questionnaire covers various body-related behaviors. Please read each statement carefully and then decide to what extent this applies to you personally (1 = does not apply at all, 2 = applies very little, 3 = applies to a large extent, 4 = applies completely) .Please try that Answer questions as truthfully and spontaneously as possible. A few statements relate to behavior with a partner. If you do not currently have a partner, please either refer to past partnerships or imagine the situation.

Chose the statement that most apply to you

		Does not apply at all	Applies a little	Applies pretty much	Applies completely
1	I avoid places like swimming lakes and beaches.	1	2	3	4
2	I test whether I can reach around my wrists and ankles with one hand.	1	2	3	4
3	I only wear dark, muted clothes or scarves to detract attention from my figure.	1	2	3	4
4	I only look at myself in the mirror in certain positions.	1	2	3	4
5	I touch certain body parts such as my stomach or my hips.	1	2	3	4
6	I make certain body movements to check whether my fat wobbles.	1	2	3	4
7	I do not show myself naked in front of other people, e.g. my partner, my family, or even at the doctor's or the hospital.	1	2	3	4
8	I ask my partner or a girlfriend how attractive he/she finds me.	1	2	3	4
9	I measure the size of my thighs with my hands or with a measuring tape.	1	2	3	4
10	In sexual contact with a partner, I only adopt certain positions.	1	2	3	4
11	I pinch my skin together and measure the size of the folds.	1	2	3	4
12	I don't wear any clothes which show my feminine curves, e.g. jeans or tight tops.	1	2	3	4
13	I avoid communal showers, saunas, swimming pools or spas.	1	2	3	4

14	I pull my stomach in to see what it's like when it's completely flat.	**1**	**2**	**3**	**4**
15	When I'm sitting, I tense my thighs so that my legs are not resting completely on the chair.	**1**	**2**	**3**	**4**
16	When I'm walking, I check whether my legs are rubbing together.	**1**	**2**	**3**	**4**
17	I don't wear short clothing when exercising.	**1**	**2**	**3**	**4**
18	I compare my appearance with women from magazines or from the TV.	**1**	**2**	**3**	**4**
19	I wear clothes that cover my whole body, even in the summer.	**1**	**2**	**3**	**4**
20	I like being massaged and enjoy the physical contact.	**1**	**2**	**3**	**4**
21	In the mirror, I check whether my bones are visible.	**1**	**2**	**3**	**4**
22	I never leave the house without make-up.	**1**	**2**	**3**	**4**
23	I ask my partner or friends whether I have gained weight or should go on another diet.	**1**	**2**	**3**	**4**
24	I only have sex in the dark.	**1**	**2**	**3**	**4**
25	I ask my partner whether I look fat in certain clothes.	**1**	**2**	**3**	**4**
26	I avoid close physical contact with other people.	**1**	**2**	**3**	**4**
27	I check whether I have cellulite on my thighs when I'm sitting down.	**1**	**2**	**3**	**4**
28	I reach around my upper arm to measure how wide it is.	**1**	**2**	**3**	**4**
29	When I'm shopping, I don't leave the changing room in the new clothes to look at myself publicly in the mirror.	**1**	**2**	**3**	**4**
30	I check in the mirror whether my thighs touch when I'm standing upright.	**1**	**2**	**3**	**4**

Figure 4 Reproduced with permission. Legenbauer et al. (2017) Two sides of the same coin? A new instrument to assess body checking and avoidance behaviors in eating disorders. *Body Image* 21, 39-46.

Appendix E: Informed consent form for the *recovered* sample

Utrecht University

Department of Clinical Psychology

Title of the research: Recovered Eating

Main investigator: Lot Sternheim, L.C.Sternheim@uu.nl

Co-investigator: Jojanneke Bijsterbosh, j.m.bijsterbosch@uu.nl

Dear participant,

Thank you for showing interest in this research, which is part of our Master's thesis in Clinical Psychology at Utrecht University. This project is called "Recovered eating".

Recovery from an eating disorder involves overcoming physical and emotional obstacles to restore healthy habits, thoughts and behaviours. Research shows that some of these cognitions, behaviours and emotions persist after recovery from an eating disorder. Therefore, our aim is to further explore this phenomenon for better understanding and treatment implementation. This information may help people in the future.

This survey will ask you to answer some questions about mood, emotions and behaviours. Please fill out this questionnaire in your time and pace, try to answer the items according to your thoughts and feelings; in case there are no such options, choose the option that applies to you the most.

This informed consent letter is for **women recovered from eating disorders**, who wish to contribute to research and improvement of psychological treatment. The form also asks you to allow the researchers to record and use the information you provided as data in their study to enhance the understanding of the topic.

Participation in this study is completely **voluntary**. If you decide not to participate there will not be any consequences whatsoever. Please be aware that you can withdraw at any time during the survey. You will not receive any monetary compensation for completing this survey. However, your participation significantly contributes to enhancing the knowledge about eating disorders.

By submitting this form you are consenting to participate in this study, you are indicating that you have read the information given above and you agree with it, and you are over the age of 18.

This research is entirely confidential. If you have any questions or would like a copy of this consent letter please contact us at a.bucci@students.uu.nl, k.d.duarte2@students.uu.nl, m.boscarolli@students.uu.nl.

Thank you in advance for your participation,

Ambra Bucci
Karla Daniela Duarte Gomez
Myriam Boscarolli

Appendix F: Informed consent form for the *never ill* sample

Utrecht University

Department of Clinical Psychology

Title of the research: Eating Habits

Main investigator: Lot Sternheim, L.C.Sternheim@uu.nl

Co-investigator: Jojanneke Bijsterbosh, j.m.bijsterbosch@uu.nl

Dear participant,

Thank you for showing interest in this research, which is part of our Master's thesis in Clinical Psychology at Utrecht University. This project is called "Eating Habits".

Research shows that some of cognitions, behaviours and emotions are connected to our eating behaviour. Therefore, our aim is to further explore this phenomenon for better understanding and treatment implementation. This information may help people in the future.

This survey will ask you to answer some questions about your mood, emotions and behaviours. Please fill out this questionnaire in your own time and pace, try to answer the items according to your first thoughts and feelings, as often they are the most accurate so do not think it over. Completing this survey will take you approximately 15 to 20 minutes.

This informed consent letter is for **women who have never had an eating disorder**, who wish to contribute to research and improvement of psychological treatment. The form also asks you to allow the researchers to record and use the information you provided as data in their study to enhance the understanding of the topic.

Participation in this study is completely **voluntary**. If you decide not to participate there will be no consequences whatsoever. Please be aware that you can withdraw at any time during the survey. You will not receive any monetary compensation for completing this survey. However, your participation significantly contributes to enhancing the knowledge about eating disorders.

By submitting this form you are consenting to participate in this study, you are indicating that you have read the information given above and you agree with it, and you are over the age of 18.

This research is entirely confidential. If you have any questions or would like a copy of this consent letter please contact us at a.bucci@students.uu.nl, k.d.duarte2@students.uu.nl, m.boscarolli@students.uu.nl.

Thank you in advance for your participation,

Ambra Bucci
Karla Daniela Duarte Gomez
Myriam Boscarolli

Appendix G: Sobel Test output

In the present research, the Sobel test (Sobel, 1982) has been used in addition to bootstrapping to support the indirect effect of body shame on the relation between perfectionistic self-presentation and body checking-avoidance. However, even though the results of the Sobel test match those of bootstrapping, this test has not been mentioned in the results section. This is because in the present study bootstrapping offered a much better alternative since it does not impose distributional assumptions (Preacher, 2010).

Results of the Sobel test are reported in this appendix to provide a complete picture of the data analysis.

Input:			Test statistic:	Std. Error:	*p*-value:
a	.321	Sobel test:	2.55709765	0.02724065	0.01055496
b	.217	Aroian test:	2.51001374	0.02775164	0.01207265
s_a	.093	Goodman test:	2.60693466	0.02671989	0.00913568
s_b	.057	Reset all	Calculate		

Figure 5 Sobel test. Sobel, M. E. (1982). Asymptotic intervals for indirect effects in structural equations models. In S. Leinhart (Ed.), Sociological methodology 1982 (pp.290-312). Jossey-Bass.

Appendix H: Acknowledgements

Foremost, the greatest admiration and immense gratitude go to all the women who participated in this research, which with strength and determination learned to love and accept their body, until they "began to measure themselves in contentment and laughter rather than inches and pounds."

This thesis was made possible due to the masterly guidance of my supervisors. Jojanneke Bijsterbosch, who shared with me her professional and academic expertise, saw the potential in this topic and encouraged me to develop it further with motivation and optimism. I am thankful for her guidance through the whole process of research and writing. Also, I am pleased I had the opportunity to work under the supervision of Dr Lot Sternheim; her professional and experienced advice was crucial in all the steps of conducting this research.

In addition, I would like to express my appreciation for the opportunity to be part of the Clinical Psychology Master's programme at Utrecht University, which provided me with excellent skills for becoming a clinical psychologist and allowed me to learn from experienced clinicians and skilled researchers in the field of psychology.

I wish to thank my mother and brother, who always extend their enthusiasm to my projects, and helped me through this journey with love and support.

Last but not least, I owe my deepest gratitude to the person who always encouraged me to follow my dreams, believed in my ability to succeed, and whose affection enriched 27 years of my life- my father, who is always in my thoughts.