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An Exploratory Study:
The Mediating Role of the Facets of Mindfulness in the
Relationship Between Body Appreciation and Disordered
Eating Behavior

Dissertação no âmbito do Mestrado em Intervenções Cognitivo-Comportamentais em Psicologia Clínica e da Saúde, orientada pela Professora Doutora Paula Cristina de Oliveira de Castilho Freitas apresentada à Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra.

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Faculty of Psychology and Educational
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**An Exploratory Study: The Mediating Role of the Facets of
Mindfulness in the Relationship Between Body Appreciation
and Disordered Eating Behavior**

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Master's Dissertation in Cognitive-Behavioral Interventions in Clinical and Health
Psychology, supervised by Professor Doctor Paula Cristina de Oliveira de Castilho Freitas
and presented to Faculty of Psychology and Educational Science of University of
Coimbra.

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Statement of integrity.

I hereby declare having conducted this academic work with integrity. I confirm that I have not used plagiarism or any form of undue use of information or falsification of results along the process leading to its elaboration.

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Resumo

Diversos estudos demonstraram que tanto a apreciação do corpo quanto a atenção plena relacionam-se negativamente com a sintomatologia dos transtornos alimentares. Além disso, estudos mostraram que a atenção plena está positivamente relacionada à apreciação do corpo e que essas construções compartilham semelhanças nos mecanismos pelos quais afetam o comportamento alimentar perturbado, o que pode indicar que existem aspectos da atenção plena que desempenham um papel no caminho pelo qual a apreciação do corpo afeta o comportamento alimentar. No entanto, a literatura científica carece de estudos que explorem esta hipótese. Portanto, o objetivo do presente estudo foi investigar o papel mediador dos aspectos da atenção plena na relação entre a apreciação do corpo e comportamento alimentar perturbado em uma amostra de 85 mulheres estudantes universitárias portuguesas. As diferentes facetas da atenção plena foram exploradas como preditoras do comportamento alimentar por meio de uma análise de regressão múltipla. Os resultados mostraram que a faceta da não reatividade prevê significativamente níveis mais baixos de alimentação desordenada, explicando 33,3% da variância. Além disso, os resultados confirmaram essa faceta da atenção plena como um mediador na relação entre a apreciação do corpo e a alimentação desordenada, explicando 34% da variância na alimentação desordenada. Embora este seja um estudo preliminar com limitações metodológicas, seus resultados podem ter implicações na prevenção e intervenção nas perturbações do comportamento alimentar, sugerindo que promover a apreciação do corpo associada ao treinamento na não reatividade pode ser especialmente útil no tratamento destas patologias.

Palavras-chave: Perturbações alimentares; Facetas da Atenção Plena; Apreciação corporal; Análise de Mediação

Abstract

Extensive research has shown that both body appreciation and mindfulness negatively associate with eating disorder symptomatology. Furthermore, studies have shown that mindfulness is positively related to body appreciation and that these constructs share similarities in the mechanisms through which they impact disordered eating, which may indicate that there are aspects of mindfulness which play a role in the path through which body appreciation affects disordered eating. Nevertheless, scientific literature lacks studies that explore this hypothesis. Therefore, the aim of the present study was to investigate the mediating role of the facets of mindfulness in the relationship between body appreciation and disordered eating in a sample of 85 Portuguese female university students. The different facets of mindfulness were explored as predictors of eating behavior through a multiple regression analysis. The results showed that the non-reactiveness facet of mindfulness significantly predicts lower levels of disordered eating, accounting for 33.3% of the variance. Furthermore, the results confirmed this facet of mindfulness as a mediator in the relationship between body appreciation and disordered eating, explaining 34% of the variance in disordered eating. Although this is a preliminary study with methodological limitations, its findings may have implications for prevention and intervention of eating disorders by suggesting that promoting body appreciation paired with training in non-reactiveness can be especially helpful in treating these disorders.

Keywords: Eating disorders; Facets of Mindfulness; Body Appreciation; Mediation Analysis

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Introduction

Eating disorders are characterized by a disruption in eating behavior with excessive concern about body weight, leading to impairment in physical health and psychological functioning (Smik, van Hoeken & Hoek, 2012). This group of mental disorders has been shown to bring great levels of suffering and dysfunctionality to those afflicted and their families, as well as the highest mortality rate amongst mental disorders (Ziefel et al., 2015). Furthermore, a systematic literature review conducted by Galmiche et al. (2019) indicated that the prevalence of eating disorders increased from 3.5% to 7.8% between 2000 and 2018. Therefore, the study of these disorders, as well as their risk, maintenance and protective factors, has gained more and more attention in the scientific literature (Steiner et al., 2003; Holland, Bodell & Keel, 2013; Dakanalis et al., 2016).

Body appreciation, defined by Avalos and colleagues (2005) as the (a) deliberate acceptance of one's body, including the recognition of flaws and imperfections, (b) respect and care for one's body's needs, and (c) rejection of unrealistic socially-prescribed beauty standards, has been consistently shown in the scientific literature to be a protective factor against disordered eating, with higher levels of body appreciation being associated with healthier eating behaviors, (Gillen, 2015). Research has also shown that higher levels of body appreciation are associated with lower disordered eating symptoms in adolescents (Baceviciene & Jankauskiene, 2020), and a meta-analysis conducted by Linardon et al. (2022) concluded that body appreciation was consistently associated with lower general- and eating disorder specific psychopathology in adults. Therefore, this construct has received increasing attention in scientific literature (Marta-Simões & Ferreira, 2020). According to Tylka (2011) individuals with higher body appreciation are less prone to psychopathology by more frequently taking steps to protect and nurture their physical health, such as healthy amounts of exercise, yoga, meditation or unwinding by reading novels. Tylka & Kroon van Diest (2013) have proposed that one of the paths through which body appreciation influences eating

behavior is via the promotion of an adaptive style of eating that involves eating consumption based on internal hunger cues rather than emotional reactivity to stressors.

Research has shown that body appreciation is associated with the construct of mindfulness (Cox & McMahon, 2019), defined as the ability to pay full attention to thoughts, emotions, feelings, and physical sensations that arise in the present moment, with a non-judgmental attitude (Kabat-Zinn & Hanh, 2019), as higher levels of this construct are positively associated with higher body appreciation and lower body comparison in Dutch women (Dijkstra & Barelds, 2011). Trait mindfulness has been positively associated with more positive appearance evaluations and negatively linked to a drive for muscularity (Lavender, Gratz, & Anderson, 2012). Research has shown that mindfulness can promote a variety of benefits for mental and physical health, including reducing stress, anxiety, and rumination, as well as increasing emotional regulation, attention, and cognitive control (Albert, Thewissen & Raes, 2012; Wielgosz et al., 2015; Schuman-Oliver et al., 2020). Furthermore, systematic review studies and meta-analyses point to negative associations between mindfulness and disordered eating and mindfulness-based interventions have demonstrated effectiveness in reducing problematic eating behaviors such as body image concerns, emotional eating, and external eating (O'Reily et al., 2014; Sala et al., 2020). Although evidence supports the notion that body appreciation and mindfulness are negatively associated to disordered eating behavior and that mindfulness and body appreciation are related, a model with mindfulness as a mediator in the relationship between body appreciation and disordered eating has not yet been tested. Nonetheless, studies suggest that cultivating a quality of being present in each meal and in every context related to food seems to help individuals recognize and respond to internal cues of hunger and satiety more effectively (Warren et al., 2017). This may facilitate the proposed mechanism through which body appreciation affects disordered eating behavior (consumption based on internal hunger cues and less emotional reactivity to stressors).

It appears that body appreciation and mindfulness, besides being associated (Cox & McMahon, 2019), negatively impact disordered eating through a change in the way the individual relates and reacts to external cues, stressors and the emotional experience that ensues from them (Tylka & Kroon van Diest, 2013; Warren et al., 2017). It is possible that individuals who appreciate their bodies are more likely to engage in healthy eating behavior partly due to also possessing mindfulness skills, which protect these individuals from engaging in disordered eating

behaviors. However, mindfulness is a multi-dimensional construct that consists of five facets: (a) *Observing* refers to noticing or attending to internal and external experiences such as sensations, emotions and thoughts; (b) *Describing* refers to labeling internal experiences with words; (c) *Awareness* includes paying attention to one's actions in the moment as opposed to acting in automatic pilot; (d) *Nonjudgement* refers to adopting a stance of non-evaluation of internal and external states; and (e) *Non Reactiveness*, the tendency to allow thoughts and feelings to happen without being caught up and acting abruptly (Baer et al., 2006). In order to properly understand the role that mindfulness might play in the relationship between body appreciation and disordered eating, the role of each separate facet needs to be investigated.

Understanding the mechanisms behind the relationship between body appreciation and disordered eating could shed a light into research, development and refinement of treatments and prevention protocols for these pathologies. Furthermore, understanding the role that mindfulness plays in this relationship could provide insight into how to better integrate its practice in the clinical context, specifically for eating disorders. The present study aims to explore the relationship between body appreciation, facets of mindfulness, and disordered eating behaviors in a sample of Portuguese female university students. It is hypothesized that women who have a less favorable body relationship (and lower body appreciation) experience more disordered eating behaviors. It is expected that being fully aware of the present experience, without judgment and without being carried away by distressing thoughts and emotions is associated with higher levels of body appreciation and with a reduction in disordered eating behaviors and depressive symptoms. Furthermore, we expect that the facets of mindfulness can predict changes in disordered eating levels. Based on the hypotheses outlined above, we set out to test the mediating effect of mindfulness facets on the relationship between body appreciation and disordered eating behaviors while controlling for depressive symptoms.

Methods

Participants

The participants consisted of 85 female Portuguese university students, aged between 18 and 30 ($M = 21.9$; $SD = 3.6$), with the average year of study being year 3 ($SD = 1.4$). The Body Mass Index (BMI) ranged from 15.62 to 44.62, with an average of 21.7 ($SD = 4.0$), which corresponds to the normal weight (World Health Organization [WHO], 2010). According to BMI categories defined by WHO (2010), 8.2% of participants presented as underweight (BMI less than 18.5), 65.9% presented as normal weight (BMI between 18.5 and 24.9), 9.4% presented as overweight (BMI between 25 and 29.9), 3.5% presented obesity (BMI of 30 and higher) and 16.5% of the participants did not inform their weight.

Procedure

All the study procedures followed the ethical and deontological principles inherent to research in psychology and with human beings. Ethical clearance from the Ethics Committee of the Faculty of Psychology and Education Sciences of the University of Coimbra was granted. This is a cross-sectional study with quantitative nature. The sample was collected in several higher education institutions in Portugal. Participant recruitment and data collection took place between January and May 2023 and was carried out using a convenience method in three ways: (1) Via e-mail; (2) Via social networks; and (3) In-person data collection: with permission of teachers from the university of Coimbra via to collect data from consenting students during classes. The survey had a duration of approximately 20 minutes and was comprised by an informed consent form explaining the study and guaranteeing the confidentiality of the information collected from the participants and a set of self-report questionnaires (see *Materials* section). Inclusion criteria were: (1) identifying as woman; (2) having between 18 and 30 years old; (3) being fluent in Portuguese; and (4) being a university student. Participants were excluded from this study upon incomplete completion of the scales, if they demonstrated clear evidence of non-compliance with response instructions or if they displayed problems with comprehension that compromised the correct completion of the scales.

Measures

Sociodemographic questionnaire

Participants answered an online self-report form with questions about age, gender, university course attended, year of schooling, self-reported height, and weight (for later calculation of the body mass index - BMI). Participants that did not meet the inclusion criteria were excluded from this study.

Body mass index (BMI)

The BMI was calculated using the participant's self-reported weight (kg) and height using the Quetelet method (kg/m^2).

Independent Variable: Body Appreciation

Body evaluation was operationalized by means of the Body Appreciation Scale-2 (BAS-2) which has been translated and validated for the Portuguese population (Marta-Simões et al., 2016). It has been shown that the questionnaire has good psychometric characteristics. The scale has 10 items that assess acceptance of favorable opinions and respect for the body. The items are scored from 1 to 5 using a Likert scale where 1 represents never and 5 represents always. Example items include: "I respect my body"; "I feel comfortable with my body"; "My behavior reflects my positive attitude towards my body". Higher scores indicate higher body appreciation. The original and Portuguese version of this scale showed good psychometric properties, obtaining Cronbach's alphas of .97 and .95 respectively. The Cronbach's alpha in the present study was .96.

Dependent Variable: Disordered Eating Behavior

Disordered eating behavior was operationalized using the Eating Attitudes Test-25 (EAT-25). The Abbreviated Portuguese version assesses the characteristic symptoms of eating disorders and consists of 25 items distributed across three subscales: (1) motivation to lose weight - concern about weight loss, avoidance of fatty foods, engagement in extreme physical exercise, and self-control over food; (2) bulimic behaviors - compensatory strategies to avoid weight gain and feelings and thoughts of guilt and discomfort regarding food; (3) social pressure to eat - subjective experience of pressure from others to gain weight (Pereira et al., 2008). The

items are evaluated through a forced choice of 6 points. Severity is measured on a scale of 0-3, where never/rarely is marked as 0, and frequently, very frequently, and always are respectively marked as 1, 2, and 3. Example items include: “I worry about food”; “I vomit after eating”; “I worry about the idea of having fat in my body”. Higher scores indicate higher levels of disordered eating and the authors propose that scores above 19 indicate presence of an eating disorder (Pereira et al., 2008). The Portuguese version of this scale showed good psychometric properties, obtaining a Cronbach’s alpha of .84. The present study obtained a Cronbach’s alpha of .92.

Mediating variable: Facets of Mindfulness

Mindfulness was operationalized using the Five Facets Mindfulness Questionnaire (FFMQ). This questionnaire was translated and validated for the Portuguese population (Gregório & Gouveia, 2009) and has been shown to have good psychometric characteristics. The original version (Baer et al., 2006) has 39 items that assess five distinct facets of mindfulness: (1) Non-reactivity to internal experience, (2) Non-judgment of internal experience, (3) Act with awareness, (4) Describe, (5) Observe. Items are rated on a 1 (never/rarely true) to 5 (very often/always true) scale. Example items include: “I Criticize myself for having irrational or inappropriate emotions”; “I observe my feelings without getting lost in them”; “In difficult situations, I am able to stop and not react immediately”. Higher scores indicate higher levels of each mindfulness facet. The subscales in both the original version and Portuguese version of this scale showed good internal consistency: α *Observe* = .83; α *Describe* = .91; α *Act with awareness* = .87; α *Non-judgement* = .87; α *Non-reactivity* = .75 (original version), and α *Observe* = .83; α *Describe* = .91; α *Act with awareness* = .87; α *Non-judgement* = .87; α *Non-reactivity* = .75 (Portuguese version). The Cronbach’s alphas of the subscales in the present study was α *Observe* = .73; α *Describe* = .81; α *Act with awareness* = .78; α *Non-judgement* = .76; α *Non-reactivity* = .75.

Covariate Variable: Depression

Depression was operationalized using the Depression, Anxiety and Stress Scale-21 (DASS-21). The abbreviated version adapted for the Portuguese population (Ribeiro, Honrado & Leal, 2006), assesses anxiety and depression and is composed of 21 items that are answered using a 4-point Likert scale (0 = does not apply to me, 3 = applies to me most of the time/always). Participants evaluate the frequency/severity of negative emotions experienced over the past week. The results of the DASS-21 need to be doubled to be compared to those of

the DASS-42. Example items include: “I have difficulty taking initiative to do things”; “I have difficulty relaxing myself”; “I feel tired and melancholic” (Ribeiro, Honrado & Leal, 2006). For this study only the results of the questions that assess depressive symptoms were used. The Portuguese version of the depression subscale showed good psychometric properties, obtaining a Cronbach’s alpha of .85. The present study obtained a Cronbach’s alpha of .89.

Data Analyses

All statistical analyses were conducted using IBM SPSS Statistics (Version 26) software and the PROCESS computational tool. First, descriptive statistics were calculated for all variables (means and standard errors) in order to analyze the characteristics of the sample. Secondly, the normality of the study variables was assessed using the Kolmogorov-Smirnov test, as well as skewness and kurtosis values to examine deviation from the mean. The data was considered to be normally distributed for a variable if the skewness coefficient was between -3 and +3 and if the kurtosis coefficient was between -10 and +10 in accordance with Kline (2011). The presence of multicollinearity between study variables was assessed through the calculation of VIF values. VIF values of 5 or higher are considered as an indication of multicollinearity (reference). In order to understand the associations between all variables in the study a bivariate correlation analysis was conducted. Variables were considered significantly correlated if their *p* values were less than 0.05 (Cohen, 2003). After this, Cronbach’s alpha values were calculated as an assessment of the scales’ internal consistency, this was assessed according to guidelines (Cronbach, 1951). Subsequently, a multiple regression analysis was conducted to assess depressive symptoms and the five factors of mindfulness as predictors of the variance in disordered eating behavior. Finally, a mediation analysis was conducted via the PROCESS computational tool in order to test the significant predictors as mediators of the relationship between body appreciation and disordered eating behavior while controlling for the effect of depressive symptoms. In accordance with Preacher & Hayes (2004), the mediation effect was assessed only through the indirect effect with a confidence interval of 95%. The effect was considered statistically significant when the *p* value was less than 0.05 and if zero was not included in the confidence interval.

Results

Preliminary Analyses

Before conducting any statistical analyses, we excluded the data from participants that did not meet the inclusion criteria. Furthermore, due to the fact that the number of non-female participants was too low (11) these were excluded from the dataset. Overall, 110 participants were excluded from this study which left a final sample of 85 participants.

The study variables did not follow a normal distribution, and the skewness and kurtosis values did not show significant deviations ($Sk < |3|$ and $Ku < |10|$; Kline, 2011). Graphical representation of the results (Box-and-Whisker plots) revealed the presence of some outliers. However, it was decided to retain these values in the analysis as they were considered potentially relevant to the phenomenon under investigation. The regression was validated as the following assumptions were confirmed: normality, assessed using the K-S test and skewness and kurtosis values); homoscedasticity, examined through a normal probability plot; and independence of residuals, checked using the Durbin-Watson statistic (Williams, Grajales & Kurkiewicz, 2013).

Pearson's product-moment correlations

The descriptive statistics and Pearson's bivariate correlations for the variables in this study are listed in Table 2.

Table 2.
Descriptive Statistics and Bivariate Correlations of the Studied Variables (N = 85)

Factors	<i>M</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
1. BAS-2	3.6	.0.9	1	-	-	-	-	-	-	-
2. FFMQ (Obs)	27.1	4.8	.080	1	-	-	-	-	-	-
3. FFMQ (Des)	26.4	6.3	.40***	.05	1	-	-	-	-	-
4. FFMQ (Awr)	22.2	5.2	.21*	.06	.19	1	-	-	-	-

5. FFMQ (NJ)	24.0	7.7	.43***	-.08	.34**	.40***	1	-	-	-
6. FFMQ (NR)	21.1	4.0	.31**	.20	.20	.03	.07	1	-	-
7. EAT-25	10.8	11.0	-.52**	.17	-.23*	-.26*	-.33**	-.40***	1	-
8. DASS-21 (Dep)	6.3	5.1	-.34**	.11	-.33**	-.29**	.55***	.02	.22*	1

Note. BMI = Body Mass Index; BAS-2 assesses body appreciation; FFMQ assesses de facets of mindfulness; EAT-25 assesses disordered eating; DASS-21 assesses depression. * $p \leq 0.05$, ** $p \leq .01$, *** $p \leq .001$.

Body appreciation was negatively and significantly correlated with disordered eating behavior. Furthermore, it was positively and significantly correlated with Describing, Awareness, Non-judgement and Non-reactiveness. The latter two facets held the strongest correlations with body appreciation. With the exception of Observe (Obs), all other facets of mindfulness were negatively and significantly correlated with disordered eating behavior. Non-reactiveness had the strongest negative correlation. Depression was positively and significantly correlated to disordered eating behavior and negatively and significantly correlated to body appreciation.

Multiple Regression Analysis

The results obtained show that depression symptomatology and the facets of mindfulness statistically significantly predicted disordered eating behavior, $F(5, 68) = 6.501, p < .001$. The factor of mindfulness that held the largest explanation in the variance of disordered eating behavior was non-reactiveness, explaining 33.3% of the variance, $R^2 = .333$. Furthermore, non-reactiveness was the only variable in the model that was statistically significant to the prediction, $p < .05$.

Mediation Analysis

Following the results of the previous analyses, we decided to test of the influence of body appreciation on eating behavior mediated by the non-reactiveness facet of mindfulness, while controlling for depressive symptoms. The mediation analysis results show that body appreciation negatively predicts disordered eating ($b = -6.14, t = -4.90, p < .001$). When analyzing the indirect effects, results reveal that non-reactiveness significantly mediates the

relationship between body appreciation and disordered eating behavior, $b = -1.25$, 95% BCa CI [-2.871, -0.130]. Body appreciation significantly predicts non-reactiveness ($b = 1.63$, $t = 0.50$, $p < 0.01$) and non-reactiveness, in turn, negatively predicts disordered eating behavior ($b = -0.77$, $t = -2.89$, $p < 0.01$). This mediation model explained 34% of the variance in disordered eating, $R^2 = .34$. Furthermore, the model controls for the effect of depressive symptoms on non-reactiveness ($b = 0.11$, $t = 1.32$, $p = 0.192$), and on disordered eating behavior ($b = 0.21$, $t = 0.98$, $p = 0.331$). Figure 1 shows a statistical diagram of the mediation model.

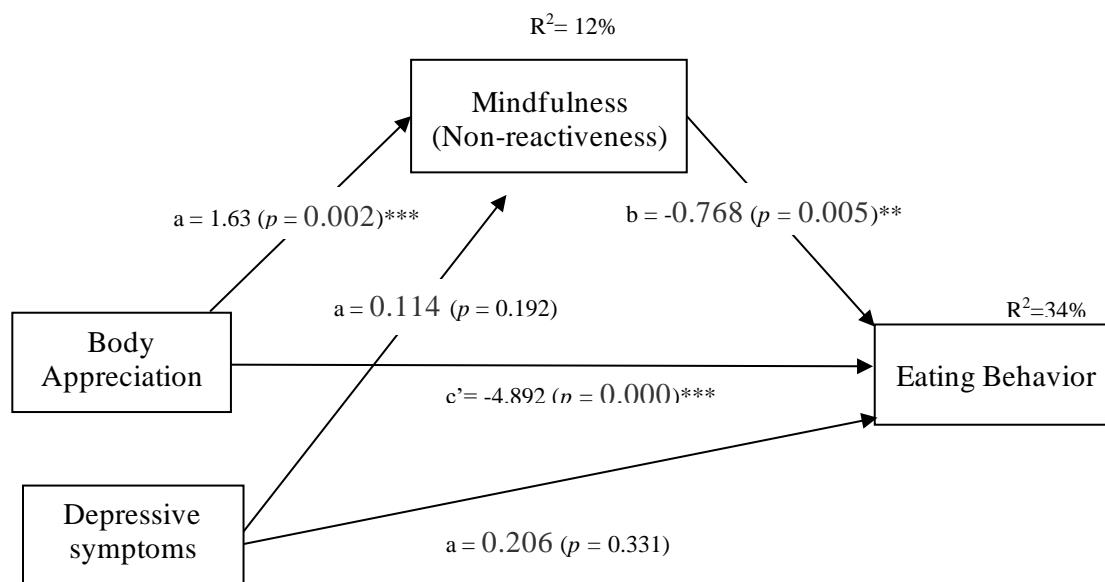


Figure 1. Statistical diagram of the hypothesized mediation model. Path values represent unstandardized coefficients. Numbers in parentheses represent standard errors. ** $p \leq .01$, *** $p \leq .001$.

Discussion

The current study aimed to investigate the relationship between body appreciation, mindfulness facets (specifically observing, non-judgment, and non-reactiveness), disordered eating behavior, and depressive symptomatology. The study also explored the potential mediating role of the mindfulness facets in the relationship between body appreciation and disordered eating behavior, while controlling for depressive symptoms. The results provide

valuable insights into the intricate connections between these variables and contribute to our understanding of factors influencing disordered eating.

The findings obtained through the correlational study support our expectations and show that body appreciation has a negative association with disordered eating behavior which is congruent with previous research (Baceviciene & Jankauskiene, 2020; Linardon et al., 2022). Furthermore, body appreciation is positively associated with mindfulness regarding the Describing, Awareness, Non-judgement and Non-reactiveness facets. The latter two facets are more strongly associated with body appreciation. It appears that women who deliberately accept their bodies and recognize their flaws and imperfections while caring for their bodily needs are often also capable of being aware of their actions in the present moment and describing their experiences with words, which supports previous findings that associate mindfulness and body appreciation (Dijkstra & Barelds, 2011; Lavender, Gratz, & Anderson, 2012; Cox & McMahon, 2019). These individuals are especially likely to engage with experiences without evaluating them and to not react impulsively in face of their thoughts and emotions. The correlational study also showed that individuals who are aware of the present moment and do not evaluate or react abruptly to their experiences are more likely to display healthy eating behaviors which corroborates previous research (Masuda & Wendell, 2010; Lavender et al, 2011; Sala et al., 2020). Finally, the correlations with depressive symptoms are also in line with previous studies that suggest that having depressive symptoms decreases the likelihood of appreciating one's body (Linardon et al., 2022) and increases the likelihood of engagement in disordered eating behaviors (Green et al., 2009).

The findings of the regression analysis showed that mindfulness significantly predicted eating behavior, however, non-reactiveness was the only significant facet in this model and demonstrated itself to be the strongest predictor of disordered eating. Nevertheless, this finding might help better explain the mechanism through which mindfulness influences disordered eating behavior as it supports previous scientific literature that poses that many maladaptive eating behaviors, such as emotional eating, purging or compulsive exercise arise from a maladaptive response to internal and external food-related triggers. These triggers can be thoughts (internal) and situations (external) that result in stress. In response to this stress, maladaptive eating behaviors are used, often reactively and unconsciously, as a means of

emotional and cognitive suppression (Elliston et al., 2017; Kakoschke, Aarts & Verdejo-Garcia, 2019). These maladaptive responses are caused in part by an inability to experience these stressors without attaching to or automatically reacting to them, as well as to perform interoception and have bodily awareness, which hinders recognition and differentiation of sensations of hunger, satisfaction, and emotional activation, and results in an inability to regulate emotions and a propensity to impulsivity (Lattimore et al., 2011; van Strien, 2018). The mindfulness facet of non-reactivity seems to counteract this as individuals who score higher on this facet are more able to perceive their thoughts and feelings without reacting to them (Baer et al., 2006). In fact, it has been shown empirically that non-reactivity is negatively associated with emotional eating, external eating and overall eating pathology (Lavender et al., 2011; Jablonski, 2013; Lattimore et al. 2011).

The mediation analysis revealed that there is an indirect effect of body appreciation on disordered eating which is mediated by the mindfulness facet of non-reactiveness, with the model explaining 34% of the variance in disordered eating when controlling for depressive symptomatology. This finding supports the notion that body appreciation influences eating behavior is via the promotion of a style of eating that involves eating consumption based on internal hunger cues rather than emotional reactivity to stressors (Avalos et al., 2005; Tylka, 2006; Tylka & Kroon van Diest, 2013). The ability to accept one's body, including flaws and imperfections while attending to its physiological needs (Avalos et al., 2005), combined with the ability to experience emotions and thoughts without getting attached and carried away can help individuals to cease the use of eating as a means of cognitive and emotional suppression (Elliston et al., 2017; Kakoschke, Aarts & Verdejo-Garcia, 2019) and reduce their levels of disordered eating.

This study assessed non-reactiveness as a mediator in the relationship between body appreciation and disordered eating, and its findings have implications for both prevention and intervention of eating disorders. The significant mediating role of the non-reactiveness facet suggests that interventions in eating disorders that attempt to promote body appreciation should also focus on enhancing patients' ability to not become attached or respond reactively to distressing thoughts and emotions. Nevertheless, despite these valuable contributions, this study is not without limitations.

A notable limitation of this study is the relatively small sample size of 85 participants. This could affect the generalizability of the findings to broader populations. Future research should aim to replicate these findings with larger and more diverse samples, encompassing various demographic backgrounds, cultural contexts, and age groups. A larger sample size would improve the robustness and external validity of the results. Furthermore, the study was conducted within a specific cultural context in a non-clinical setting, and only with female participants, factors which can significantly influence body image, mindfulness practices, and eating behaviors. Future research should aim to replicate these findings across different cultural backgrounds, with participants of different genders, as well as in clinical settings to determine the generalizability of the findings and potential cultural variations in these associations.

Another limitation of this study is the cross-sectional design, which prevents us from establishing causal relationships between variables. Therefore, we cannot assert the direction in the relationship between body appreciation and mindfulness. Longitudinal and experimental studies are needed to confirm the directionality of the observed associations. Additionally, the reliance on self-report measures might introduce response bias through the effect of social desirability and because participants who struggle with disordered eating might avoid being honest when answering questions about eating behavior. Future research could try to incorporate longitudinal or experimental designs in order to provide more valid information on causality.

While this study examined the mediating role of specific mindfulness facets, other potential mechanisms may also contribute to the relationship between body appreciation and disordered eating behavior. Exploring additional psychological factors, such as self-esteem, body image flexibility, or emotion regulation, could offer a more nuanced understanding of the underlying processes driving these associations.

In conclusion, this study sheds light on the interplay between body appreciation, mindfulness facets, disordered eating behavior, and depression symptomatology. The findings underscore the importance of fostering positive body image and non-reactiveness as potential pathways to alleviate disordered eating tendencies. Interventions that encourage body positivity, emotional regulation and non-reactiveness to distressing thoughts or emotions could hold promise in addressing disordered eating behaviors and promoting overall well-being. Despite the noteworthy contributions of this study, the limitations mentioned above underline

the need for caution in interpreting the results. Addressing these limitations through larger sample sizes, longitudinal designs, objective measures, and consideration of cultural diversity would enhance the reliability and applicability of the findings. By refining the methodology and expanding the scope of investigation, future research can provide a more comprehensive understanding of the complex relationships between body appreciation, mindfulness and disordered eating.

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