

## Chapter #3

# MINDFULNESS AND EATING DISORDERS: THE MEDIATION ROLE OF DYSMORPHIC CONCERNS

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### ABSTRACT

Previous research suggests that mindfulness can improve body satisfaction and reduce problematic behaviors like body comparison, which is linked to dysmorphic concerns and eating disorders. This study aimed to explore whether mindfulness's impact on eating disorders is mediated by dysmorphic concerns. 288 individuals aged between 18 and 35 years old were recruited on social media and filled an online survey measuring mindfulness, dysmorphic concerns, and eating attitudes. Structural equation modeling was used to analyze the data. The hypothesized model showed good fit indices:  $\chi^2(24) = 49.45$ ,  $p = .002$ ; CFI = .99, RMSEA = .06 (90% CI = .04 – .09), SRMR = .03. Significant paths were found from mindfulness to dysmorphic concerns ( $\beta = -.37$ ) and from dysmorphic concerns to eating disorders ( $\beta = .51$ ), but a non-significant path was found from mindfulness to eating disorders ( $\beta = -.04$ ). However, the indirect relation of mindfulness with eating disorders through dysmorphic concerns was statistically significant ( $\beta = -.19$ ). The findings suggest that lower mindfulness may increase susceptibility to dysmorphic concerns, highlighting the potential of mindfulness-based interventions to reduce dysmorphic concerns in eating-related psychopathologies.

*Keywords:* mindfulness, dysmorphic concerns, eating disorders.

### 1. INTRODUCTION

Dysmorphic concerns are a concept that includes both the presence of maladaptive behaviors aimed at changing one's appearance as well as behavioral, emotional, and cognitive components connected with a negative body image. (Luca, Giannini, Gori, & Littleton, 2011). Such concerns of perceived flaws in appearance may cause individuals to severely alter their food intake and employ compensatory techniques to manage their body size and form (Tang, Cooper, Wang, Song, & He, 2020), and may contribute to a greater probability of developing disordered eating issues (Gori, Topino, & Griffiths, 2021). Eating disorders are a group of pathologies characterized by inappropriate food intake and weight obsession that can impair a person's functionality (American Psychiatric Association, 2013). According to research, mindfulness may increase body satisfaction (Lavender, Gratz, & Anderson, 2012) and lessen harmful behaviors like body comparison, which has been linked to dysmorphic concerns (Dijkstra & Barelds, 2011) and eating disorders (Hamel, Zaitsoff, Taylor, Menna, & Le Grange, 2012). Mindfulness does not focus on any thought, feeling, or happening above others, since it entails being open to all experiences as they arise, and fosters intentional, nonjudgmental attention to one's current feelings (Kiken & Shook, 2012). Research has demonstrated that both state and trait mindfulness can enhance basic and higher-order cognitive functions (Li, Yang, Zhang, Xu, & Cai, 2021; Nien et al., 2020), as well as contribute to improved mental health

(Dillard & Meier, 2021; Enkema, McClain, Bird, Halvorson, & Larimer, 2020). Indeed, several mindfulness-based programs have proven effective in mitigating mental health issues, including anxiety, depression, and stress (Witarto et al., 2022; Bäuerle et al., 2021).

## **2. BACKGROUND**

Based on the above considerations, it is reasonable to think that the reduction of negative, distorted cognitions and beliefs related to dysmorphic concerns may be one potential mechanism driving the beneficial effects of mindfulness for managing eating disorder symptomatology (Tsai, Hughes, Fuller-Tyszkiewicz, Buck, & Krug, 2017). Nonetheless, there are not many studies examining the connection between mindfulness and dysmorphic concerns and, even though some studies have found that mindfulness can help in preventing eating disorders and in lowering their symptomatology, further research is still required (Beccia, Dunlap, Hanes, Courneene, & Zwickey, 2018; Sala, Shankar Ram, Vanzhula, & Levinson, 2020).

## **3. METHODS**

### **3.1. Participants**

This study was comprised of 288 participants ranging in age between 18 and 35 years ( $M = 26.36$ ;  $SD = 4.49$ ). Regarding the educational level, 1% of the participants had an elementary school certification, 7% obtained a middle school certification, 52% achieved a high school diploma, and 40% had a master's degree. Concerning occupational status, 45% of the participants were students, 8% were unemployed, 5% were homemakers, 33% were employed, 8% were self-employed, while 1% were pensioners. With regard to marital status, 40% of the participants were single, 35% were engaged, 12% were living with a partner, 11% were married, 1% were divorced, and 1% were widowed.

### **3.2. Measures**

#### **3.2.1. Mindfulness**

The Five Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) is a self-report questionnaire consisting of 39 items which analyze aspects regarding mindfulness, and is composed of five subscales: observing, describing, acting with awareness, nonjudging of inner experience, nonreactivity to inner experience. Participants are required to rate, on a 5-point Likert scale, their level of agreement with each item (e.g.: "When I'm walking, I deliberately notice the sensations of my body moving"). Higher scores represent higher mindfulness. In the present study, Cronbach's alpha was .83.

#### **3.2.2. Dysmorphic Concerns**

The Italian Body Image Concern Inventory (I-BICI; Luca et al., 2011) is a self-report questionnaire which assesses dysmorphic concerns. The test comprises 19 items and 2 subscales: dysmorphic symptoms and symptom interference. Participants are required to rate, on a 5-point Likert scale, their level of agreement with each item (e.g.: "I spend a significant amount of time checking my appearance in the mirror"). Higher scores represent higher dysmorphic concerns. In the present study, Cronbach's alpha was .95.

### **3.2.3. Eating Disorders**

The Eating Attitudes Test (EAT-26; Garner, Olmsted, Bohr, & Garfinkel, 1982) is a self-report questionnaire consisting of 26 items which analyze features concerning eating disorders symptoms, and 3 subscales: dieting, bulimia and food preoccupation, and oral control. Participants are required to rate, on a 6-point Likert scale, their level of agreement with each item (e.g.: “I am terrified about being overweight”). Higher scores represent higher abnormal eating behaviors. In the present study, Cronbach’s alpha was .89.

### **3.3. Procedure**

This study acquired a convenience sample through online social networks. The protocol was administered online. The inclusion criteria consisted of being between 18 and 35 years old and speaking Italian with ease. The researchers received approval, in accordance with the international standards of the Helsinki Declaration and the Italian Association of Psychology (AIP), from the regional ethics committee for psychological research of CERIP (Centre for Research and Psychological Intervention - University of Messina, Italy). Participants could only be able to participate in the research by signing the informed consent form. It took about 10 minutes to complete the protocol. There were no missing answers because all questions were set as required. The data were then analyzed using IBM SPSS and RStudio.

### **3.4. Statistical Analysis**

Correlations and descriptive analyses were performed for all the observed variables. Using structural equation modeling (SEM) with latent variables, a model with mindfulness as a predictor variable, dysmorphic concerns as a mediator, and eating disorders as an outcome, was examined. We parceled the data to identify the latent variables' indicators. The parceling approach groups randomly chosen items from a questionnaire in three indicators of each latent variable (Little, Cunningham, Shahar, & Widaman, 2002). Parcels are less prone to method effects and more likely to adhere to presumptions of normality (Little et al., 2002; Marsh, Hau, Balla, & Grayson, 1998). RStudio with the integration of the lavaan Package for R was used to analyze the covariance matrices, and solutions were generated using maximum-likelihood estimation. The significance of the indirect effects, which consist of a drop from the overall effect to the direct effect, was investigated using a bootstrap-generated bias-corrected confidence interval approach (Preacher & Hayes, 2004; Shrout & Bolger, 2002).

## **4. RESULTS**

### **4.1. Descriptive Statistics and Correlations**

The descriptive statistics and correlational analyses for all the research variables are presented in Table 1. To investigate the distribution of the data, the values of skewness and kurtosis were measured, and no issues concerning the violation of the normal distribution were found (Kline, 2005). Analyses revealed that mindfulness was negatively correlated with dysmorphic concerns and positively associated with eating disorders. Furthermore, dysmorphic concerns were positively related to eating disorders.

Table 1.  
Descriptive Analysis and Correlations.

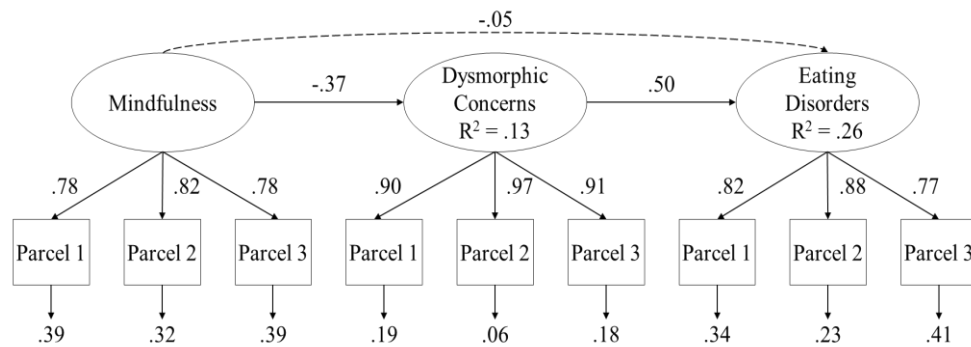
	Min	Max	M	SD	Skew	Kurt	$\alpha$	1	2
1. Mindfulness	1.72	4.49	3.21	.43	.01	.09	.83	-	-
2. Dysmorphic Concerns	1.00	5.00	2.87	.99	.15	-.74	.95	-.33*	-
3. Eating Disorders	.00	2.27	.48	.45	1.41	1.90	.89	-.20*	.49*

Note:  $N = 288$ ; \*  $p < .01$ .

#### 4.2. Mediation Model

The model solution (Figure 1) highlighted a good fit:  $\chi^2(24) = 69.46$ ;  $p < .001$ , CFI = 0.97, RMSEA = 0.08, 90% CI (0.06, 0.10), SRMR = 0.04.

Figure 1.  
Structural model of associations between Mindfulness, Dysmorphic Concerns, and Eating Disorders.



Note: The model represents the relationships between study variables. Circles represent the latent variables; boxes represent the observed variables. The numerical values on the arrows between latent variables are standardized multiple regression coefficients. The dotted lines represent non-significant associations.

The results of direct effects (Table 2) showed that mindfulness was negatively correlated with dysmorphic concerns ( $\beta = -.37$ ;  $p < .001$ ), though there was not a statistically significant association with eating disorders ( $\beta = -.05$ ;  $p < .50$ ). Furthermore, dysmorphic concerns were positively related with eating disorders ( $\beta = .50$ ;  $p < .001$ ). Examination of the indirect effects (Table 2) underlined an indirect effect of mindfulness to eating disorders through dysmorphic concerns ( $\beta = -.18$ ;  $p < .001$ ).

Table 2.  
Path Estimates, SEs and 95% CIs.

	$\beta$	p	SE	CI LL	CI UL
Direct Effect					
Mindfulness → Dysmorphic Concerns	-.37	<.001	.15	-1.11	-.52
Mindfulness → Eating Disorders	-.05	<.50	.09	-.22	.11
Dysmorphic Concerns → Eating Disorders	.50	<.001	.04	.20	.36
Indirect Effect via Dysmorphic Concerns					
Mindfulness → Eating Disorders	-.18	<.001	.05	-.33	-.13

Note: *p* = level of significance; *SE* = Standards Errors; *CI* = confidence interval; *LL* = lower limit; *UL* = upper limit.

## 5. FUTURE RESEARCH DIRECTIONS

The results of our research may have important clinical and scientific implications. This study advances existing knowledge by highlighting the relationship between mindfulness, dysmorphic concerns, and eating disorders. Future research should further evaluate the relationships between the analyzed constructs, possibly considering different populations, instruments, and study design. From a clinical perspective, the results suggest that mindfulness might be a useful tool for dealing with dysmorphic concerns and could also be implemented in preventative and therapeutic programs treating eating disorders, specifically when such disorders are interlinked with unhealthy preoccupations intended to change one's appearance.

## 6. CONCLUSION/DISCUSSION

The findings suggest that individuals with lower levels of mindfulness may be more likely to experience dysmorphic concerns, which may act as risk factors for eating disorders. Dysmorphic concerns include both the presence of maladaptive habits intended to change one's physique, as well as behavioral, emotional, and cognitive aspects associated with a poor body image (Luca et al., 2011). Indeed, the inclusion of potentially dangerous activities whose purpose is to transform the body, such as fasting, is one of the key elements of dysmorphic concerns (Monks, Costello, Dare, & Reid Boyd, 2021). Individuals who struggle with dysmorphic concerns may identify themselves with a body type they consider undesirable, which might encourage unhealthy dietary habits and create the basis for the development of eating disorders (Pedersen, Hicks, & Rosenrauch, 2018). Dysmorphic concerns, characterized by unhelpful body-related sensations and consequent preoccupations with one's body (Bahreini, Kahrazei, & Nikmanesh, 2022; Lavell, Webb, Zimmer-Gembeck, & Farrell, 2018), might also be prevented by mindfulness-related behaviors, characterized by an intentional and nonjudgmental attention to one's current feelings. Indeed, mindfulness does not focus on any thought, feeling, or happening above others, since it entails being open to all experiences as they arise (Kiken & Shook, 2012). Based on the above considerations, it would be reasonable to think that an empowerment of mindfulness capabilities, focused on a minimization of distorted cognitions related to body image issues and a promotion of non-reactivity to thoughts and emotions (Baer, Fischer,

& Huss, 2005), might help in the management of concerns related to one's appearance, and in turn reduce the need to engage in disordered eating habits, behaviors which might have been implemented to combat thoughts and feelings concerning one's appearance (Tsai et al., 2017). The present study has some limitations. First, it only uses self-reported instruments. Furthermore, the study is cross-sectional in nature. Moreover, given that the research was only open to those with Internet access, there might be issues with generalization. Finally, we did not control for participants' familiarity with mindfulness sensitization or training, so their prior experience with mindfulness practices may have varied.

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## ACKNOWLEDGEMENTS

We thank all the participants who generously volunteered their time for this study.

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