

MINDFULNESS AND EATING DISORDERS: THE MEDIATION ROLE OF DYSMORPHIC CONCERNS

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Abstract

Background: Research has shown that mindfulness may foster body satisfaction (Lavender et al., 2012), and may reduce problematic behaviors such as body comparison, which seems to be pivotal in dysmorphic concerns (Dijkstra & Barelds, 2011) and eating disorders (Hamel et al., 2012). However, there is a paucity of studies observing the direct relation between mindfulness and dysmorphic concerns, with the latter potentially being a risk factor for eating disorders (Kollei et al., 2013). Even if several studies suggest that mindfulness may play an important role in the prevention and reduction of risk factors in eating disorders, a deeper knowledge is still needed (Beccia et al., 2018; Sala et al., 2020).

Objective: The goal of this study was to assess whether the relationship between mindfulness and eating disorders would be mediated by dysmorphic concerns.

Method: 288 individuals aged between 18 and 35 years old ($M = 26.36$; $SD = 4.49$) were recruited on social media platforms and filled an online survey comprising: the Five Facet Mindfulness Questionnaire (FFMQ), the Italian Body Image Concern Inventory (I-BICI), and the Eating Attitude Test (EAT-26). A structural equation modelling (SEM) with latent variables was used to test a model with mindfulness as predictor variable, dysmorphic concerns as mediator, and eating disorders as outcome.

Results: 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 ($\beta = -.19$).

Conclusions: The results suggest that individuals low in mindfulness may be more prone to develop dysmorphic concerns. Indeed, the promotion of behaviors characterized by intentional, judgment-free attention towards one's current sensations may protect against behaviors characterized by maladaptive body-related sensations and thus preoccupations towards one's body (Bahreini et al., 2022; Lavell et al., 2018), which have been shown to contribute to the development and maintenance of eating disorders (Peat et al., 2008; Striegel-More et al., 2004). Implementation of mindfulness-based programs to reduce dysmorphic concerns is needed to improve clinical management of 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 et al., 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 et al., 2020), and may contribute to a greater probability of developing disordered eating issues (Gori et al., 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 et al., 2012) and lessen harmful behaviors like body comparison, which has been linked to dysmorphic concerns (Dijkstra & Barelds, 2011) and eating disorders (Hamel et al., 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). 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 et al., 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 et al., 2018; Sala et al., 2020).

2. Objectives

Considering the above reasons, this study sought to determine if dysmorphic concerns might act as a mediator in the association between mindfulness and eating disorders. Specifically, this research tested a model in which lower mindfulness would predict higher dysmorphic concerns and higher eating disorders, while higher dysmorphic concerns would predict higher eating disorders.

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 et al., 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 et al., 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 et al., 2002). Parcels are less prone to method effects and more likely to adhere to presumptions of normality (Little et al., 2002; Marsh et al., 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 et al., 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.

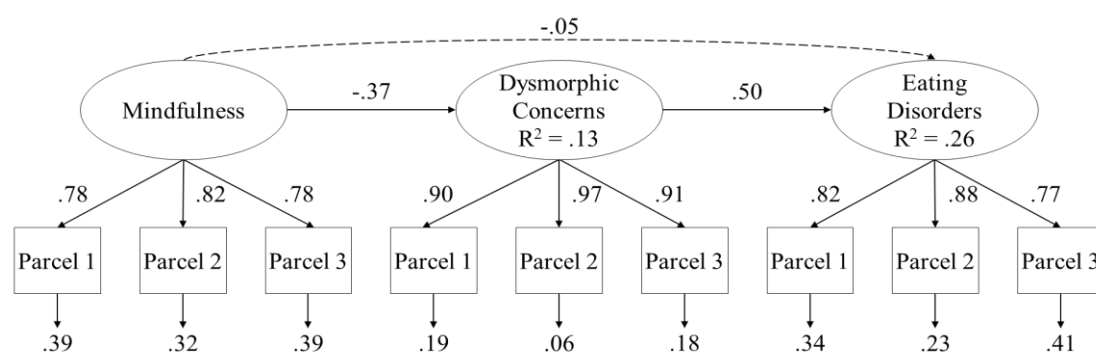
| | Min | Max | M | SD | Skew | Kurt | α | 1 | 2 |
|------------------------|------|------|------|-----|------|------|----------|-------|------|
| 1. Mindfulness | 1.72 | 4.49 | 3.21 | .43 | .01 | .09 | .83 | - | - |
| 2. Dysmorphic Concerns | 1.00 | 5.00 | 2.87 | .99 | .15 | -.74 | .95 | -.33* | - |
| 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: Coefficients shown are standardized path coefficients. Black dashed lines represent non-significant relationships between variables.

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.

| | β | p | SE | Lower Bound (BC) | Upper Bound (BC) |
|---|---------|-------|-----|------------------|------------------|
| | | | | 95% CI | 95% CI |
| 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; BC 95% CI = Bias Corrected-Confidence Interval.

5. 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 et al., 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 et al., 2018). Dysmorphic concerns, characterized by unhelpful body-related sensations and consequent preoccupations with one's body (Bahreini et al., 2022; Lavell et al., 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 et al., 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).

6. Conclusion

The present study has some limitations. First, it only uses self-reported instruments. Furthermore, the study is cross-sectional in nature. Finally, given that the research was only open to those with Internet access, there might be issues with generalization. Nonetheless, 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.

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