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The Mediating Emotion Dysregulation in Relationship between Mindfulness and Body Image Concern among Female Students

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Abstract

Introduction: Body image concern has ever prevailed among female students. It has affected their satisfaction with life and induced psychological disorders. Thus, the present study aimed to investigate the mediating role of emotion dysregulation in the relationship between body image concern and mindfulness in the target population.

Method: The present descriptive and correlational study lay within the Structural Equation Modeling (SEM) framework. A sample of 509 subjects were selected in a convenience method. Online surveys were used to collect the required data from all female university students in Mashhad. The instruments were Gratz and Roemer's Difficulties in Emotion Regulation Scale (2004), Mindful Attention Awareness Scale (2003) and Littleton's Body Image Concern Inventory (2005). The statistical procedures were run in SPSS26 and AMOS24.

Results: The results showed a statistically significant direct and negative correlation between mindfulness and body image concern. Besides, a significant direct and positive correlation was found between emotion dysregulation and body image concern. The effect of mindfulness on body image concern was mediated by emotion dysregulation. The significance level of interpreting the findings was <0.05.

Conclusion: Changes in body image concern can be directly explained based on mindfulness and indirectly based on emotion regulation in female students. Therefore, the use of mindfulness interventions and teaching emotion regulation strategies for this issue is recommended to psychotherapists.

Keywords: Body Image Concern, Emotion Dysregulation, Mindfulness, Female Students

Introduction

Body image is described as an individual's subjective evaluation of his/her appearance [1]. Body image is influenced by the perceived experiences, and personal or cultural attitudes towards the body [2]. The multidimensional construct entails a conscious perception of one's own physical body and the concomitant thoughts and feelings. This image results from certain complex interactions among socio-cultural, neuro-physiological and cognitive factors [3]. Dissatisfaction with the body image can have several reasons. An individual might tend to compare his/her own body image with ideal images in the cyberspace or mass media. This can induce concern, depression and anxiety [4]. Dissatisfaction with the body image can disrupt people's lives. For instance, those with eating disorders often overestimate their body size [3]. Besides eating disorders, body image concern is associated with negative emotions and moods [5]. Overall, a negative body image can adversely affect one's performance in life. It can actually be accompanied by psychological distress [6], sexual dysfunction [7] and symptoms of depression [8]. Body image can even be a predictor of life satisfaction [9]. As the related literature shows, the association between factors that damage body image and compensatory behaviors is less strong in boys than girls [10].

Dissatisfaction with body image prevails more in female university students. As a related study showed, 2.5% of girls were concerned about their body image [11].

Mindfulness is among the factors influencing body image concern [12]. The mindfulness construct is defined as a particular impartial attention to the present condition [13]. It allows the mind to stay focused on the current moment without making any partial judgment [14]. One manifestation of mindfulness is body consciousness, a dynamic process of perceiving bodily states, actions and feelings [15]. The existing body of research has shown a negative correlation between mindfulness and body image dissatisfaction. Arguably, mindfulness sends away thoughts that tend to misjudge the body. Mindfulness facilitates the act of responding to messages concerning the body image [16]. Individuals with a greater mindfulness and tendency to watch bodily emotions have a more positive body image [17].

Besides the overall positive effect on body image, mindfulness cuts down on negative emotions [18]. In a relevant study, Hill found mindfulness to decrease emotional instability, increase emotion differentiation, and improve emotion regulation [19]. Mindfulness can reduce the rate of using inappropriate emotion regulation strategies. In fact, mindfulness can change the ways of showing initial care and attention. Then, it affects how we employ cognitive change strategies [20].Therefore, it can be said that mindfulness facilitates emotion regulation [21].

Still another factor affecting the body image concern is emotion regulation. This variable involves everything that an individual does unconsciously to affect his/her emotions [22]. Emotion regulation involves a direct or indirect awareness of emotions and behavior to achieve the desired goals. Among these goals are increasing or decreasing the intensity of an emotion or expressing the desired emotions. While experiencing negative emotions, when certain strategies are used, emotion regulation can have a mediating effect [23]. An individual with an adaptive emotion regulation can have a fully active personality receptive to a variety of emotional experiences. She/he is capable of exploring these emotions without over-judging and using this sensitivity to regulate emotions and behaviors [24]. Emotion dysregulation can cause a psychological damage such as depression [25], anxiety or body image concern. A study conducted by Svaldi et al. on obese women dissatisfied with body image showed that the use of emotion regulation strategies increases acceptance, reduces anxiety, and returns mood to baseline levels, thereby reduce body image concerns [26]. In another study, Asberg et al. found that deficit in emotion regulation could predict negative body image, so that people with deficit in emotion regulation could not manage negative emotion relative to their body image [27].

Given the importance of body image in relation to mental disorders [28] and considering the fact that women have more concerns about their body image in comparison to men [29], studying this issue is of particular importance in girls. Mindfulness and emotion regulation also affect the perception of body image. How these variables which are associated with each other has been addressed in the existing literature. Yet, the mediating role of emotion regulation in the relationship between mindfulness and body image has not been investigated. Accordingly, to fill this gap, this study aimed to investigate the relationship between mindfulness and body image concern mediated by emotion dysregulation in female university students.

Method

The present study was a descriptive-correlational study using structural equation modeling methods. The statistical population of this study was all female students affiliated with the universities of Mashhad in 2021.

Due to the prevalence of corona virus during this study and as all classes were held online and access to participants was limited for study purposes, this study was conducted in such a way that at first a message was sent to the student groups of Mashhad universities on social networks, the purpose of the research was explained and was emphasized the principle of confidentiality. They were then asked to answer the questionnaire at the link (https://survey.porsline.ir/s/JStxUAj) if they were female students. The inclusion criteria were being female and being students of Mashhad universities. The exclusion criteria was having an incomplete questionnaire. Sampling was done using convenience sampling based on the inclusion and exclusion criteria between June and August 2021. The sample size was calculated based on Kline's method [30], which states that 10 or 20 samples are required for each variable, but a minimum sample size of 200 is appropriate. Therefore, the least number of samples must have been 200. However, for better fit indices we selected 520 participants through convenience sampling, of which 11 had not completed the whole questionnaire and were excluded, and the information of 509 participants were analyzed. Finally, the collected data were analyzed using the path analysis which is a comprehensive method for multivariate analysis through with AMOS-24 and SPSS-26 software.

The following tools were used in this study:

Body Image Concern Inventory (BICI): Developed in 2005 by Littleton et al., BICI consists of 19 items, each rated on a 5-point Likert scale ranging from 1 (=never) to 5 (=always). There are two constituent parts to the inventory. One is "dissatisfaction and embarrassment with appearance, self-consciousness and tendency to hide the perceived defects" with 11 questions. The other is "the effect of appearance concerns on social functioning" with 8 questions. Scores range from 19 to 95. Scores between 19 and 37 indicate very low or no body image fear, 38-52 indicates low body image fear, 53-69 average body image fear and 70 and above indicate high body image fear. In their research, Littleton et al. estimated a Cronbach's alpha of 0.93 [31]. In Iran, Basaknejad and Ghaffari estimated the reliability of this test via Cronbach's alpha, and found it to be 95%. In a similar research, Entezari and Alavizadeh estimated the internal consistency of the inventory and reported it to be 89% [32, 33]. The internal consistency of this measurement instrument was also

tested in the present study via Cronbach's alpha, and was found to be 0.94.

Difficulties in Emotion Regulation Scale (DERS): This scale was developed by Gratz and Roemer (2004) to assess emotion dysregulation. DERS was used with 41 items rated on a 5-point Likert scale ranging from 1 to 5. There are six dimensions to this scale, including the non-acceptance of emotional responses, difficulty engaging in goal-directed behavior, impulse control difficulty, lack of emotional awareness, limited access to emotion regulation strategies, and lack of emotional clarity. Scores range from 33 to 180. Score of 33 to 72 indicates difficulty in regulating emotion to a low level. A score of 72 to 108 indicates difficulty in regulating emotion at a moderate level and a score above 108 indicates difficulty in regulating emotion at a high level. The internal consistency of the scale is estimated at 0.93 [34]. In Iran, Cronbach's alpha was found to be 0.92 for this scale [35]. In the present study, Cronbach's alpha coefficient of the scale was estimated at 0.88.

Mindful Attention Awareness Scale (MAAS): This scale which has been developed in 2003 by Brown and Ryan, was used to measure mindfulness. With a total number of 15 items, this measurement instrument is scored on a 6-point Likert scale (1 = almost always to 6 = almost never). Scores range from 25 to 47 and a higher score indicates a higher mindfulness. In their research, Brown and Ryan estimated a Cronbach's alpha of 0.82-0.87 [36] . In Iran, this scale has been also used in several studies, and the Cronbach's alpha was reported to be 0.78 [37]. In the present study, the Cronbach's alpha coefficient of the scale was found to be 0.91.

Results

For data analysis, both descriptive and inferential statistics were used. For the latter, Pearson's correlation coefficient was estimated to test the relationship between variables. The model fit was tested within the SEM analytical framework. To test the hypotheses, a p-value of <0.05 was set.

The SEM has certain assumptions including a large sample size. It is suggested that, in estimating the structural equation models through the maximum likelihood method, the minimum sample size be 200 items. Overall, in studies within the SEM framework, the findings obtained from samples smaller than 100 are not adequately valid [38]. In the present study, the sample size was more than 200. So, the large sample assumption was met. Another assumption within SEM framework is the normality of multivariate distribution. To this aim, Mardia's multivariate skewness test is often used in Amos. Bentler suggests that values over five (in Mardia's test) represent an abnormal distribution of data [39]. In the present study, Mardia's coefficient was estimated at 3.19, which shows that the multivariate normality assumption was met. The next assumption (in SEM) is the absence of multiple collinearity. As the findings showed, the strength of correlation between mindfulness and emotion dysregulation was -0.30 (< 0.70). Thus, there was no multiple collinearity between the variables affecting the fear of body image.

The majority of participants (n=408, 80.2%) were single and 19.8% of them (n=101) were married. As for educational level, a vast majority of the participants (n=426, 83.7%) were undergraduates, while 16.3% (n=83) were postgraduates. The respondents' age ranged between 18 and 47 years, with a mean and standard deviation of 24.03±4.75 that was analyzed via SPSS-26.

According to Table 1, the total mean score of emotion dysregulation is 97.76. Among the sub-scales, "limited access to strategies" has the highest mean score (i.e., 23.77). The lowest mean score (i.e., 14.41) belongs to the "lack of emotional clarity". Mindfulness and body image concern are marked by the mean scores of 64.04 and 39.53, respectively.

Pearson's correlation coefficient was used to test the associations among the variables (Table 2). The skewness and kurtosis of all the main variables lay within the range of -1 and +1. Thus, the normality of distribution was confirmed, and the use of the parametric Pearson's correlation test was justified.

As the correlation test results show, the dependent variable (i.e., body image concern) is associated with emotion dysregulation and mindfulness ($p < 0.05$). Emotion dysregulation and body image concern are positively correlated, whereas mindfulness and body image concern are negatively correlated with each other. The correlation coefficient of body image concern and emotion dysregulation is 0.34 (a positive value). Yet, that of body image concern and mindfulness is -0.45 (a negative value). The analysis shows a negative correlation (i.e., -0.30) between emotion dysregulation and mindfulness. The association is statistically significant ($p < 0.05$). Moreover, all the six subscales of emotion dysregulation seem to be correlated with mindfulness and body image concern.

Table 1. Descriptive Statistics

Variable	M	SD
1. Non-acceptance of emotional responses	18.37	5.48
2. Difficulty engaging in goal-directed behavior	14.83	3.18
3. Impulse control difficulty	18.34	4.81
4. Lack of emotional awareness	14.48	3.22
5. Limited access to emotion regulation strategies	23.77	6.36
6. Lack of emotional clarity	14.41	4.06
7. Emotion dysregulation	97.76	23.01
8. Mindfulness	64.04	12.69
9. Body image concern	39.53	13.46

Note: * p< .05, ** p< .01

The conceptual model was tested within the SEM analytical framework in AMOS. Figure 1 represents the empirical model along with the estimated standardized coefficients and the R-squared.

The standardized model is represented in Figure 1 with all paths being statistically significant. The strongest path shows the effect of mindfulness on body image concern, with a correlation coefficient of -0.41 ($p<0.05$). The model fit indices are summarized in Table 3. The two following tables summarize the correlation results.

The fit indices estimated above confirm the overall model fitness. All the values lie within the acceptable range, as summarized in Table 2. NFI and GFI are of an average value, and the other six indices meet the desired levels. The R^2 of body image concern is 0.21, suggesting that emotion dysregulation and mindfulness explain 21% of the variance in body image concern. As there are only two independent variables in the model, the estimated R^2 seems to be acceptable. The results of testing the direct relationships within the model are summarized in Table 4. The estimated values prove the statistical significance of the three main paths within the model. The effect of emotion dysregulation and mindfulness on body image concern is confirmed, so is the effect of mindfulness on emotion dysregulation ($p<0.05$). Table 4 shows the mediating role of emotion dysregulation via a bootstrapping method in AMOS.

As evident in Table 4, the mediating role of emotion dysregulation in the relationship between mindfulness and body image concern is confirmed ($p<0.05$). The strength of the indirect effect is -0.030. As the results show, mindfulness has a direct effect on body image concern. Its effect on body image concern is mediated by emotion dysregulation.

Table 2. Pearson's Correlation Matrix

Variable	1	2	3	4	5	6	7	8	9
1. Non-acceptance of emotional responses	1								
2. Difficulty engaging in goal-directed behavior	0.36**	1							
3. Impulse control difficulty	0.69**	0.56**	1						
4. Lack of emotional awareness	0.10*	0.09	0.13**	1					
5.Limited access to emotion regulation strategies	0.74**	0.46**	0.79**	0.16**	1				
6.Lack of emotional clarity	0.69**	0.26**	0.62**	0.24**	0.72**	1			
7.emotion dysregulation	0.39**	0.19**	0.32**	0.04	0.34**	0.33**	1		
8.Mindfulness	-0.19**	-0.28**	-0.19**	-0.20**	-0.18**	-0.20**	-0.30**	1	
9.Body image concern	0.24**	0.21**	0.19**	0.22**	0.16**	0.20**	0.34**	-0.45**	1

Table 3. Model Fit Indices

Fit index	R^2	AGFI	PGFI	IFI	NFI	CFI	GFI	RMSEA	X2/df
Acceptable range	>0.33	>0.70	>0.70	>0.90	>0.90	>0.90	>0.90	<0.08	1-5
Estimated value	0.21	0.85	0.73	0.91	0.87	0.93	0.89	0.063	4.28

Table 4. Results of Testing Direct Paths in the Structural Model

Variable	B	SE	T	P
Mindfulness on emotion dysregulation	-0.20	0.18	4.14	<0.001
Emotion dysregulation on body image concern	0.15	0.09	3.26	0.001
Mindfulness on body image concern	-0.41	0.43	7.64	<0.001
Effect of mindfulness on body image concern mediated by emotion dysregulation	-0.03	0.07	3.24	0.002

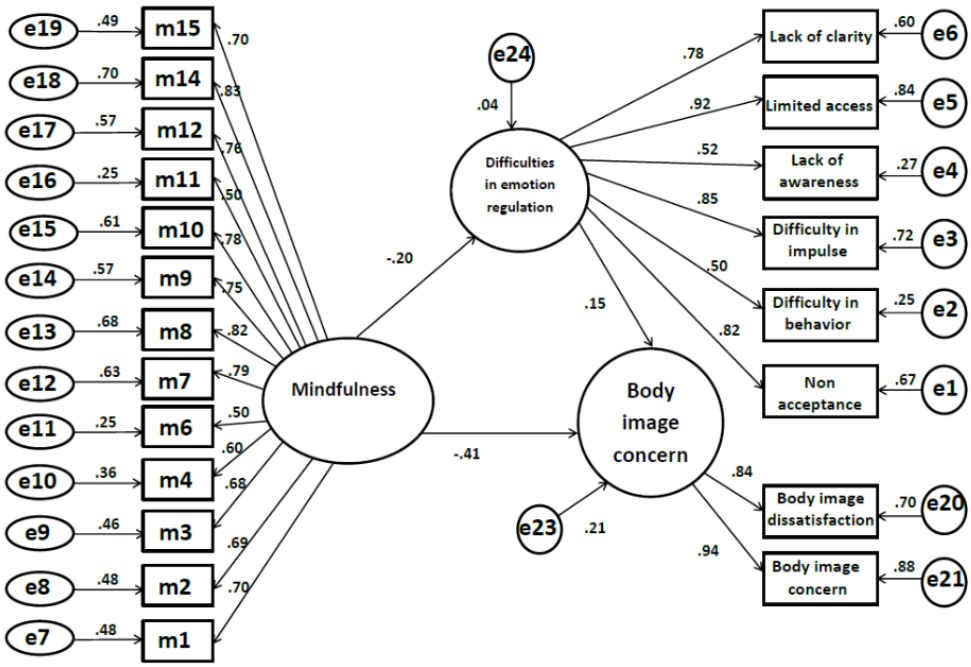

Figure 1. Final tested model and the standardized estimates.

Discussion

The main purpose of this study was to investigate the mediating role of emotion dysregulation in the relationship between mindfulness and body image concern in female students. The results showed that the proposed model had a good fit. In general, all direct and indirect paths had significant relationships. According to the results of the conducted analysis, emotion dysregulation in the relationship between mindfulness and the body image concern has an indirect effect in female students. Based on the findings, there was a direct correlation between mindfulness and body image concern in female students. This finding is consistent with previous research [12, 40-42]. To explain this finding, mindfulness is the capability of avoiding misjudgments and, instead, accepting the reality. It helps people develop a new attitude to better manage their feelings, thoughts, and bodily sensations and get rid of negative moods. Mindfulness enables people to live in the here and now, and allows them to perceive their own thoughts and mental patterns. This act of observing thoughts relieves the mind and allows thoughts to be as they are. People who are mindful can make the best use of their emotions and thoughts, so they have a less judgmental and degrading view of their body image. They are better aware of negative thoughts and emotions directed at their body, which reduces the intensity of annoyance. Furthermore, this increasing awareness helps people internalize the flawless imaginary body image to a less degree.

A significant finding of the present study was that mindfulness can predict body image mediated by emotion regulation. According to the findings, mindfulness is positively and significantly correlated with emotion regulation, which is in line with the related literature [43-45]. It can be argued that mindful individuals have the ability to closely monitor their thoughts and can distinguish and describe their emotional experiences. This high emotional awareness helps them consider the positive emotional experiences along with the negative. They can have a realistic view of the experiences; thus, they are better capable of controlling their emotions. Moreover, increasing mindfulness is associated with less instability of emotions, which increases people's stability in understanding and experiencing emotions [44].

As the findings revealed, emotion regulation is correlated with body image and can predict it. This finding is consistent with previous studies [26, 27]. Arguably, people who use emotion regulation strategies, instead of rumination, observe and accept their thoughts and emotions. It allows them experience less intense distress and worry. In addition, the ability to use emotion regulation strategies enhances body image recognition. Acceptance and reappraisal, two emotion regulation strategies, have a positive effect on body image dissatisfaction [46]. These findings suggest that the ability to reduce negative emotions can effectively help reduce negative body perceptions and contribute to body image realism.

Although the proposed model fitness was confirmed, this study had several limitations to be considered in future research. First, the participants were selected only among female students of Mashhad universities. Therefore, caution should be made in generalizing the findings. The same research should be replicated with a larger statistical population. Second, in this study, due to the limitations in the COVID-19 pandemic, it was impossible to hold face-to-face interviews. Therefore, a self-reporting questionnaire was used for data collection. Due to the nature of the measurement instrument, the answers may have been influenced by social desirability. It is suggested that future research use standardized interviews. Third, in this study, we only measured the mediating role of emotion dysregulation, and did not measure other variables that could have an effect. These could include rumination and anxiety sensitivity, which need to be considered in future research. In the light of the present findings, it is suggested that future research explore the role of mindfulness training and emotion regulation-based interventions on improving negative body image.

Conclusion

The results of this study demonstrate the role of emotion dysregulation in relationship between mindfulness and body image concern among female students and emphasizes the importance of applying mindfulness and emotion regulation training to reduce negative body image.

Conflict of Interest

The authors declare no conflicts of interest.

Ethical Approval

The present study has fully adhered to the standard ethical rules in research. Accordingly, an informed letter of consent was signed by all participants. They were ensured of the confidentiality of the information they provided.

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