



Research Paper

The Mediating Role of Difficulty in Emotional Regulation in the Relationship Between Self-compassion and Anxiety Among University Students



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ABSTRACT

Background: The results of previous studies indicated that increasing self-compassion is associated with increased ability to regulate emotion.

Objectives: The aim of this study was to investigate the mediating role of difficulty in emotional regulation in the relationship between self-compassion and anxiety among university students.

Materials & Methods: The current cross-sectional study was performed on male and female undergraduate, graduate and doctoral students in Tehran from January to September 2022. After obtaining official permission, 208 students from Amir Kabir University, Shahid Beheshti University, Islamic Azad University, North branch, Central branch, Research Science branch and Rodehen branch were selected using a convenience sampling method. Self-compassion scale of Neff, difficulty in emotion regulation of Graz and Roemer, and Beck anxiety scale were used to collect data. Data were then analyzed using structural equation modeling.

Results: The Mean±SD age of participants was 27.63±9.13, of which 143 were female and 145 were single. The direct effect of self-compassion on anxiety is not significant ($\beta=0.261, P=0.109$), but the indirect effect of self-compassion on anxiety with mediating role in difficulty of emotional regulation is significant ($\beta=-0.674, P=0.001$). Thus, self-compassion reduces anxiety by reducing the difficulty in emotional regulation. The results also show that self-compassion alone explains 17% of the variance of anxiety. Self-compassion and difficulty in emotional regulation account for 34% of the variance of anxiety.

Conclusion: The findings revealed that difficulty in emotional regulation plays a full mediating role in the relationship between self-compassion and anxiety. This study highlights the role of self-compassion and difficulty in emotional regulation in reducing anxiety, But to use self-compassion-based education and emotional regulation in anxiety management, more research is needed to examine their effect in the form of empirical research.

Keywords: Anxiety, Emotion regulation, Self-compassion, Students

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1. Introduction

Anxiety disorders are one of the most common psychiatric disorders and impose a heavy burden on health [1]. Beck defines anxiety as an undesirable emotional state characterized by unpleasant inner feelings such as tension and anger, and physical symptoms such as palpitations, tremors, nausea, and dizziness [2]. The 12-month prevalence of this disorder has been reported at 17.7% [3]. Anxiety alone has been associated with decreased productivity at work and disability in social functioning and is a major risk factor for suicide along with depression [4]. Anxiety disorders start at an early age, and since they are more harmful than physical disorders, it is important to pay attention to early intervention both to reduce subsequent complications and to save costs [5].

The emergence of COVID-19 disease and its global epidemic, which has been associated with high rates of infection and mortality in the world, has caused an unprecedented state of emergency in the world. Recent findings raise concerns about students' mental health [6]. Recent research suggests a high prevalence of anxiety symptoms among students [7-9], a statistic more commonly reported than the general population and health care professionals [6]. The percentage of students suffering from depression and anxiety is worrying [6]. This high prevalence rate can be attributed primarily to the forced change of distance education despite limited resources and skills, which has made them concerned about the impact of this situation on their education and performance [6].

The structure of self-compassion can be considered a strong and important predictor of mental health [10]. The negative relationship between positive self-compassion traits and psychological pathology and its direct relationship with positive emotions has been confirmed [11, 12]. The results of a previous study showed that self-compassion itself is significantly associated with depression and anxiety [13]. The construct of self-compassion includes accepting or not avoiding one's own suffering, the desire to reduce one's suffering and healing with kindness [13]. Self-compassion also includes providing an unjudgmental understanding of one's pain, inadequacies, and failures, so that one's experience is seen as part of a larger human experience [13]. Given that an important characteristic of anxiety is avoidant behavior and excessive self-control, compassion itself has been highly effective in this disorder [14, 15].

It has been showed that self-compassion reduces anxiety by reducing perceived stress [16]. The result of another study, demonstrated the exact nature of difficulty in emotional regulation in a wide range of disorders [17]. One of the important characteristics of people with anxiety is difficulty in evaluating and managing negative emotions and using maladaptive strategies of emotional regulation in the form of repeated and automatic attempts to control or suppress negative emotional experiences [18]. The results of a study showed that the routine use of all emotion regulation strategies is significantly associated with symptoms of depression and anxiety [19], so that consistent emotion regulation strategies have a negative relationship i.e. fewer symptoms of depression and anxiety, while maladaptive emotional regulation strategies show a positive correlation i.e. more symptoms of depression and anxiety. Maladaptive emotional regulation strategies measured before the COVID-19 epidemic predicted state anxiety during the epidemic. While adaptive strategies had no relationship with anxiety during the epidemic [20].

Emotional regulation has been defined differently according to Graz and Roemer [21]. Emotional regulation includes four components: 1) awareness of emotions and their perception, 2) acceptance of emotions, 3) ability to control impulsive behaviors and behavior in accordance with desired goals in Time to experience negative emotions, and 4) The ability to use situational appropriate emotion regulation strategies to modulate emotional responses to meet situational demands and personal goals [21]. Graz and Roemer consider adaptive emotional regulation to be essential for mental health. Although maladaptive strategies of emotional regulation reduce suffering in the short term, they increase spontaneous arousal and cognitive load in the long term, resulting in impaired emotional regulation [21, 22]. Self-compassion predicts lower levels of negative emotion when experiencing daily difficult situations [23]. The results of a study showed that higher levels of self-compassion predict higher levels of Vagal-induced heart rate fluctuations, which in turn leads to a better ability for adaptive emotional responses. So, they have less stressful emotional reactions [24].

In addition, other studies have confirmed the relationship between self-compassion and emotional regulation, and the results show that increasing self-compassion is associated with increased ability to regulate emotion [25-28] and low self-compassion predict difficulty in emotional regulation [29]. In recent years and in several studies, the mediating role of difficulty in emotional regulation in the relationship between

self-compassion and symptoms of disorders such as obsessive-compulsive disorder, depression, post-traumatic stress disorder and stress has been studied, and the results show a positive effect of self-compassion for themselves by increasing their ability to regulate emotion on psychopathological symptoms [28-32].

Given the above and the increasing rate of anxiety among students during the COVID-19 epidemic, it seems that the study of anxiety is of great importance. In addition, there is a significant relationship between anxiety and education and quality of life and young people with this disorder need support to achieve their educational goals [33]. On the other hand, recognizing the factors that are related to anxiety and can predict a decrease or increase in the level of anxiety will increase knowledge about this common disorder. Therefore, the aim of this study was to investigate the mediating role of difficulty in emotional regulation in the relationship between self-compassion and anxiety among university students.

2. Materials and Methods

Study type and study population

The current research was a descriptive cross-sectional study. The statistical population included male and female undergraduate, graduate and doctoral students studying in Tehran from January to September 2022. After obtaining official permission and ethical license, 208 students from [Amir Kabir University](#), [Shahid Beheshti University](#), [Islamic Azad University](#), [North branch](#), [Central branch](#), [Research Science branch](#) and [Rodehen branch](#) were selected using a convenience sampling method. of [Amir Kabir University](#), [Shahid Beheshti University](#), [Islamic Azad University](#), [North branch](#), [Central branch](#), [Research Science branch](#) and [Rodehen branch](#) from January 2022 to September 2022 in Tehran. The confidentiality of personal details of the study participants was preserved throughout the study. The inclusion criteria were being a student during COVID-19 pandemic, having at least a bachelor's degree, and willingness to participate in this research.

Measures

In this study, self-compassion scale of Neff, Gratz and Roemer difficulty in emotion regulation, and Beck anxiety scale were used to collect data. Self-compassion Scale has 26 items. A five-point Likert scale (from almost never to almost always) measures self-compassion. The questionnaire has three basic compo-

nents including: kindness to oneself against self-blame, sharing one's experiences with other human beings against isolation, mindfulness against assimilation with thoughts [13]. These components was measured with 6 subscales of self-kindness, self-judgment, mindfulness, extreme cloning, human commonalities, and isolation. The range of the total score of self-compassion is between 26 and 130, where higher scores indicate more self-compassion. Also, the range of scores for the self-kindness and self-judgment subscales is between 5 and 25, and for the other subscales between 4 and 20. Neff obtained internal consistency between 0.75 and 0.81 for each of the subscales and overall reliability of the scale with Cronbach's alpha of 0.92. Neff also reported convergent validity of 0.59 [13]. In Khosravi et al. study, the alpha coefficient for the overall score of the scale was 0.76 [34]. In current study Cronbach's alpha coefficient of the scale was 0.90.

Gratz and Roemer Difficulty Emotion Regulation Questionnaire has 36 items that, in addition to assessing emotion regulation, also measure emotion difficulty with a five-point Likert scale (from almost infrequent to almost always. The score of each question is between 0 and 4) [21]. The range of scores for the total score is between 0 and 144 and for the subscales of non-acceptance, impulse control difficulties and lack of emotional awareness between 0 and 24, for the subscales of difficulties engaging in goal directed behaviors and lack of emotional clarity between 0 and 20 and the subscale of limited access to emotion regulation strategies are between 0 and 32 [21]. Higher scores on this scale indicate more difficulty in regulating emotions. Gratz reported the validity of this questionnaire as 0.93 and its reliability as Cronbach's alpha of 0.80 [21]. Also, test-re-test reliability of the questionnaire in Iranian study, was reported in a period of eight weeks ($r=0.88$) [35]. Cronbach's alpha coefficient of this scale in current study was calculated to be 0.95.

Beck Anxiety Scale has 21 items and with a four-point Likert scale (from at all to severe) with questions to measure the severity of anxiety in adolescents and adults. In this scale, each question is scored from 0 to 3 and the range of total numerical score is between 0 and 63. It is reported that the reliability of the re-test and the reliability of Cronbach's alpha of the Beck Anxiety Inventory of 0.75 and 0.92, respectively [2]. The validity of the Beck Anxiety Questionnaire was reported to be 0.51 by calculating the correlation coefficient with the revised Hamilton Anxiety Rating Scale (1959) [2]. In another study the reliability of the re-test and the reliability of the internal consistency

coefficient (by calculating the Cronbach's alpha coefficient) of the Beck Anxiety Inventory were reported to be 0.83 and 0.92, respectively [36]. In other study, the content, face and criterion validity of this questionnaire has been evaluated as appropriate. Cronbach's alpha coefficient calculated for this questionnaire was estimated above 0.7. [37]. Cronbach's alpha coefficient of this scale was calculated to be 0.91 in this study.

Mean±SD were used to describe the data. Data were analyzed through structural equation modeling and using SPSS (version 26) and AMOS (version 24) software. The assumptions of this method include normality of data (using skewness and kurtosis results), correlation between variables (using Pearson correlation), linearity of the relationship between independent and dependent variables (by checking the scatter diagram) and non-collinearity between independent variables (It was confirmed by examining the variance inflation index (VIF). In the measurement model of the present study, two latent variables of self-compassion and difficulty in regulating emotions and their markers were examined using confirmatory factor analysis with maximum likelihood method. Fitting the measurement model

using chi-square index (χ^2), chi-square ratio index to degree of freedom (χ^2/df), Tucker-Lewis index (TLI), Comparative Fit Index (CFI), Normed Fit Index (NFI) and Root Mean Squared Error of Approximation (RMSEA) has been investigated. CFI, NFI, TLI fit indices above 0.95 [38]; RMSEA less than 0.08 and (χ^2/df) less than 3 with $P>0.01$ indicate a good fit of the measurement model [39]. In order to check the path coefficients, we used the bootstrap test (with 2000 sampling times) and with a confidence interval of 95%. All statistical analyzes were performed at a significance level of 0.05.

3. Results

Of total, 143 individuals were female and 65 were male, 145 were single and 63 were married. The mean age of participants was 27.63 ± 9.13 , age range between 18 and 71 years. Table 1 shows descriptive information of the research variables. The evaluation of skewness and kurtosis indices in Table 1 shows that they in the range of (± 2) and (± 3), respectively. So, none of the research variables have serious deviations from the normal distribution. According to the results of Pearson correlation, there is strong inverse correlation between self-compassion

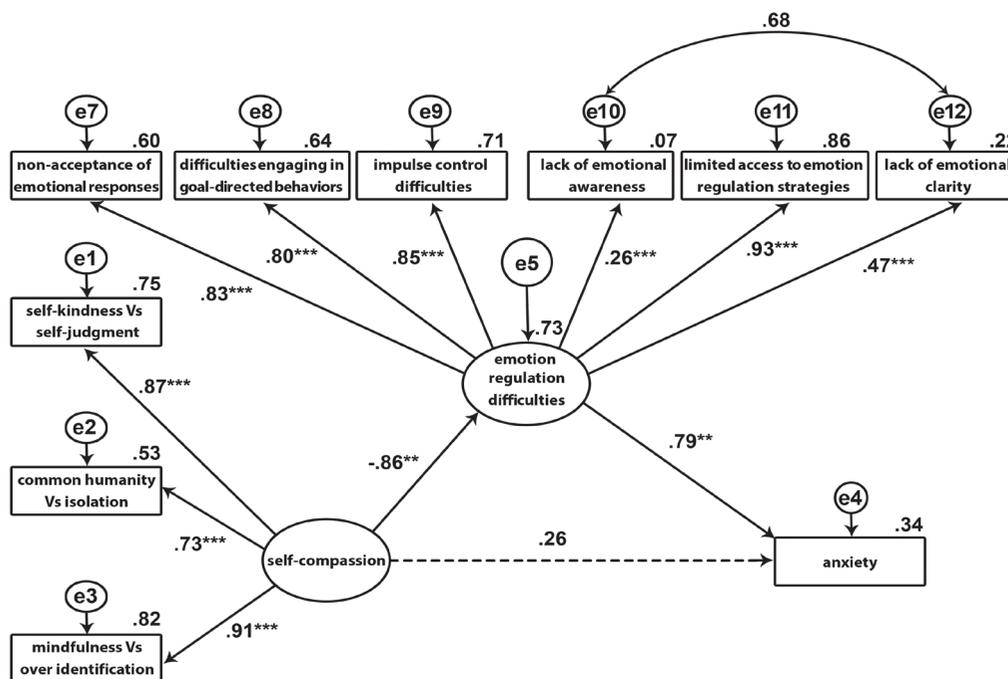


Figure 1. Structural equation model in the relationship between self-compassion and anxiety with a mediating role of difficulty in emotional regulation

All path and factor loading coefficients are standardized.

The relationship between self-compassion and anxiety shown by the dashed arrow is not significant.

** $P<0.01$, *** $P<0.001$



Table 1. Descriptive information of research variables

| Scales | Subscales | Mean±SD | Skewness | Kurtosis | Correlation Coefficient | | |
|--|--|-------------|----------|----------|-------------------------|--------|-----|
| | | | | | (1) | (2) | (3) |
| Self-compassion (1) | | 81.05±15.39 | 0.09 | 0.50 | 1 | | |
| | Self-kindness | 16.16±4.14 | -0.06 | -0.52 | | | |
| | Self-judgment | 14.46±3.41 | 0.06 | 0.06 | | | |
| | Mindfulness | 13.69±3.11 | -0.21 | -0.28 | | | |
| | Over identification | 10.84±3.55 | 0.09 | -0.56 | | | |
| | Common humanity | 13.02±2.83 | -0.23 | -0.33 | | | |
| | Isolation | 12.87±3.47 | -0.22 | -0.34 | | | |
| Difficulty in emotional regulation (2) | | 49.35±25.53 | 0.43 | 0.39 | -0.78** | 1 | |
| | Non-acceptance of emotional response | 7.40±5.71 | 0.71 | 0.17 | | | |
| | Difficulties engaging in goal-directed behaviors | 8.91±5.04 | 0.25 | 0.17 | | | |
| | Impulse control difficulties | 8.17±5.98 | 0.66 | 0.17 | | | |
| | lack of emotional awareness | 9.34±4.45 | 0.34 | 0.17 | | | |
| | Limited access to emotion regulation strategies | 10.65±7.51 | 0.56 | 0.17 | | | |
| | Lack of emotional clarity | 4.87±4.05 | 1.05 | 0.17 | | | |
| Anxiety (3) | | 10.20±9.33 | 1.75 | 1.76 | -0.38** | 0.54** | 1 |

**P<0.01



sion and difficulty in emotional regulation ($r=-0.775$, $P<0.01$), weak inverse correlation between anxiety and self-compassion ($r=-0.376$, $P<0.01$), and moderate direct correlation between anxiety and difficulty in emotional regulation ($r=0.54$, $P<0.01$).

In order to investigate the mediating relationship, the structural equation model was examined (Figure 1). The maximum likelihood method was used in this analysis. Based on the recommendations of Amos software, we modified the model by establishing covariance between errors e_{10} and e_{12} . The results showed that fitting indices, except for the (χ^2/df) index, indicate a good fit of the proposed model ($\chi^2=62.95$, $df=32$, $\chi^2/df=1.97$, $P=0.001$, $NFI=0.954$, $CFI=0.978$, $TLI=0.974$, $RMSEA=0.068$).

In order to calculate 95% confidence interval, the bootstrap method with 2000 iteration was used. The results of the path coefficients are shown in Table 2. The results

show that the direct effect of self-compassion on anxiety is not significant ($\beta=0.261$, $P=0.109$), but the indirect effect of self-compassion on anxiety with mediating role in difficulty of emotional regulation is significant ($\beta=-0.674$, $P=0.001$). Therefore, the total effect i.e. both direct and indirect effects of self-compassion to anxiety is significant ($\beta=-0.417$, $P=0.001$). Thus, high self-compassion predicts low anxiety. Also, the results show that high self-compassion predicts difficulty in emotional regulation, and difficulty in emotional regulation can predict an increase in anxiety level. These results suggest that difficulty in emotional regulation plays a full mediating role in the relationship between self-compassion and anxiety. Thus self-compassion reduces anxiety by reducing the difficulty in emotional regulation. The results also show that self-compassion alone explains 17% of the variance of anxiety, but in general, self-compassion and difficulty in emotional regulation are able to account for 34% of the variance of anxiety.

Table 2. Standardized coefficient of direct, indirect, and total effect between research variables

| Type of Effect | Paths | β | P | 95% Confidence interval | |
|----------------|--|---------|-------|-------------------------|--------|
| | | | | Lower | Upper |
| Total | Self-compassion→Anxiety | -0.417 | 0.001 | -0.519 | -0.300 |
| | Self-compassion→Difficulty in emotional regulation | -0.856 | 0.001 | -0.904 | -0.798 |
| Direct | Self-compassion→Anxiety | 0.261 | 0.109 | -0.044 | 0.670 |
| | Difficulty in emotional regulation→Anxiety | 0.787 | 0.001 | 0.486 | 1.180 |
| Indirect | Self-compassion→Difficulty in emotional regulation→Anxiety | -0.674 | 0.001 | -1.057 | -0.413 |



4. Discussion

The results of this study, consistent with other studies [20, 27] showed that difficulty in emotional regulation is positively related to anxiety. Explaining this finding, it can be said that one of the characteristics of anxious people is a syndrome in recognizing their primary emotions such as anger, sadness, fear, hatred and happiness, and another characteristic of these people is their inability to manage incompatible emotions, which means that they do not know when and how to reduce or improve their emotional experience in a way that suits the environment, which causes them to experience more intense emotional reactions [18]. As a result, they make repeated, automated attempts to control or suppress their emotional experiences [18]. One of the components of emotion regulation is recognizing and accepting emotions, the ability to manage impulsive behaviors, and using emotion-adjusting strategies appropriate to the situation. Thus, the ability to regulate emotions allows people to recognize and accept their initial emotions and using effective and consistent strategies to be able to manage their emotions according to the situation and thus moderate negative emotional responses [21].

Another result of this study was that self-compassion itself is negatively related to anxiety, which was consistent with other studies [14, 16]. Explaining this finding, we can say that according to Rogers theory, anxiety arises from the mismatch between the ideal self and the real self, which causes a person to feel ashamed and self-critical [14]. Self-compassion involves understanding without judgment about one's pain, failures, and fractures [13]. Thus, self-compassion, by strengthening one's empathy and kindness towards oneself, provides the necessary ground for accepting one's shortcomings and sufferings, thus reducing self-criticism, shame, and ultimately anxiety. One of the characteristics of anxious people is to avoid accepting

negative emotions, which intensifies the occurrence of these emotions. On the other hand, self-compassion includes accepting suffering and not avoiding it and the desire to reduce suffering and kindness to oneself [13]. Self-compassion therefore helps to reduce anxiety by accepting suffering instead of avoiding it.

The results of this study also showed that self-compassion itself is negatively related to difficulty in emotional regulation. This result was consistent with previous studies [25-28]. Self-compassion involves a non-judgmental perception of pain, inadequacy, and failure, so that one's experience is seen as part of a larger human experience. They are more likely to seek solutions [13, 23]. Self-compassion itself leads to re-evaluation and acceptance and ultimately to the reduction of painful emotional responses [32]. Thus, it can be said that self-compassion itself creates a self-regulatory process that regulates adaptive emotions [29]. Higher self-compassion also improves the physiological ability to respond emotionally to situations [24]. Thus, it can be said that self-compassion itself creates the necessary ground for the use of emotional regulation skills in the individual and modulates emotional responses, thus enabling the individual to use effective emotional regulation strategies.

The results of path analysis in this study showed that difficulty in emotional regulation has a mediating role in the relationship between self-compassion and anxiety. This study, in line with other studies, shows that difficulty in emotional regulation plays a mediating role in the relationship between self-compassion and psychopathological symptoms [28-32]. Explaining this finding, it can be said that using emotional regulation skills in the short term may intensify people's suffering because knowing a negative emotion and accepting and tolerating it instead of fighting it causes people helplessness and their unrealistic fear of the catastrophic consequences of emotions. It becomes uncontrollable and eventually

the person again seeks familiar but ineffective solutions of the past [22]. On the other hand, the characteristics of anxious people are the experience of negative emotions and their repeated attempts to control or suppress these emotions instead of using emotional regulation strategies [18]; Which in turn increases the intensity of their negative emotions. Self-compassion in itself increases a person's potential to tolerate and accept negative emotions and provides the necessary ground for processing these emotions, thus enabling the individual to use more adaptive strategies of emotional regulation [29-31].

The results also showed that the direct path between self-compassion and anxiety is not significant and difficulty in emotional regulation has a complete mediating role in the relationship between self-compassion and anxiety. These results therefore indicate the prominent role of difficulty in emotional regulation in the relationship between self-compassion and anxiety. Self-compassion provides the necessary ground for tolerating and accepting negative emotions and is a strategy for stabilizing the mood and motivates the person to help himself in reducing his suffering [22]; But to reduce the symptoms of anxiety, it is necessary to use other strategies of emotional regulation.

5. Conclusion

This study highlights the role of self-compassion and difficulty in emotional regulation in reducing anxiety, but to use self-compassion-based education and emotional regulation in anxiety management, more research is needed to examine their effect in the form of empirical research.

One of the limitations of this study was the use of self-report tools. It is suggested that other methods such as interviews be used in future research. Another limitation of this research was its cross-sectional nature, which suggests that in future studies, causal interpretations may be provided by longitudinal studies. Finally, this research has been done only on students and it is recommended that it be done on other societies in future research.

Ethical Considerations

Compliance with ethical guidelines

The study proposal was approved by the Institutional Ethic Committee of [Mehre Saie College & Research Institute](#), (study ref No: 400-9/138-date 30-01-2022).

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Authors' contributions

All authors equally contributed to preparing this article.

Conflict of interest

The authors declare no conflict of interest.

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