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Research Paper

Investigating the Effectiveness of Self-Compassion Training on Distress Tolerance and Difficulty in Emotion Regulation in Patients with Chronic Diseases

Raziyeh Ekhtiari[1*]

1 Assistant Professor, Department of Psychology, University of Mazandaran, Mazandaran, Iran.
Corresponding author: r.ekhtiari59@umz.ac.ir

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Abstract

The aim of this study was to examine the effectiveness of self-compassion training on distress tolerance and emotion regulation difficulties in patients with chronic illnesses. This research employed a quasi-experimental design with a pretest–posttest control group. The statistical population included all patients with chronic illnesses such as cardiovascular disease, cancer, and those undergoing dialysis who referred to Shahid Beheshti Clinic and Health Center in Babol during 2023. Sampling was conducted using a combination of convenience and random selection methods. Data were collected through standardized questionnaires, the validity and reliability of which had been confirmed. Hypotheses were tested using SPSS version 25. The findings indicated that self-compassion training significantly improved distress tolerance and reduced emotion regulation difficulties in patients with chronic illnesses. Specifically, patients who practiced self-compassion demonstrated greater ability in managing emotions and tolerating distress. In other words, these patients were more inclined to encourage themselves with kindness during life changes and to modify maladaptive behavioral patterns. Therefore, self-compassion can be considered an effective emotion regulation strategy through multiple pathways.

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Introduction

Compassion can be defined as "a basic kindness, with a deep awareness of the suffering of oneself and other living beings, coupled with the wish and effort to alleviate it" (Gilbert, 2009). Specifically, self-compassion refers to the ability to remain open to and alleviate one's own difficulties with kindness and nonjudgmental understanding. For example, (Neff, 2003) conceptualizes self-compassion as comprising three interrelated components: self-kindness (i.e., being supportive and gentle with oneself rather than engaging in harsh self-criticism), common humanity (i.e., recognizing life challenges as part of the shared human experience), and mindfulness (i.e., maintaining moment-to-moment awareness of one's experiences in a balanced, nonjudgmental, and accepting way).

A growing body of evidence suggests that self-compassion plays a significant role in reducing symptoms of depression, anxiety, and stress across diverse populations. Higher levels of self-compassion have been shown to correlate with lower levels of depressive symptoms, anxiety, and perceived stress (Alicke & Sedikides, 2009; Babenko & Guo, 2019; Berry et al., 2020; Breedvelt et al., 2019), and also predict lower levels of depressive symptomatology.

The three bipolar components of self-compassion (Neff, 2003) reflect core qualities that may buffer against the distress of living with chronic illness. Self-kindness versus self-judgment emphasizes understanding rather than criticizing oneself when facing difficulties or personal shortcomings. In line with this perspective, research has highlighted several mechanisms by which self-compassion facilitates coping with the distress associated with chronic conditions. Self-compassion promotes more positive appraisals of illness-related challenges, which predict better adjustment and lower stress (Ghasemi, Goudarzi, & Ghazanfari, 2019). Moreover, it reduces tendencies toward catastrophizing and rumination (Diedrich, Grant, Hofmann, Hiller, & Berking, 2014). The characteristic patterns of depression (e.g., hopelessness, guilt, low self-esteem) and anxiety (e.g., fear, apprehension, uncertainty) often co-occur, and both involve distorted and irrational beliefs about oneself and others (Steindl, Yiu, Baumann, & Matos, 2020). Research demonstrates that self-compassion is effective in reducing symptoms of anxiety and depression (Zhao et al., 2021). It has also been associated with reduced fear and disability related to pain, as well as improvements in depression, pain acceptance, and adaptive coping strategies following intervention (Edwards et al., 2019).

Self-compassion involves treating oneself kindly in a nonjudgmental way, fostering a sense of shared humanity to counter isolation, and remaining mindful of one's pain and difficulties rather than ignoring them leading ultimately to positive change. It is closely linked with coping styles and emotion regulation (Diedrich et al., 2014). One psychological intervention directly addressing these factors is *Mindful Self-Compassion Therapy*. Mindfulness-based

therapies have been shown to influence a wide array of variables related to mental health (Wardi-Zonna & Wardi, 2020). Furthermore, self-compassion is considered one of the mindfulness skills that enhance well-being (Neff, 2011). Compassion-focused therapy helps clients cultivate a compassionate stance toward themselves, replacing self-blame, condemnation, or harsh self-criticism with kindness (Ghasem Zadeh, Motamedi, & Sohrabi, 2019).

Empirical studies suggest that self-compassion training improves mental health (Mak et al., 2018), enhances self-control (Martin, Kennett, & Hopewell, 2019), reduces dysfunctional attitudes (Shafiei, Sadeghi, & Mohammadi, 2020), and facilitates emotion regulation (Keshavarz Mohammadi, 2018).

This study employed a quasi-experimental design with a pretest–posttest control group. The statistical population consisted of all patients with chronic illnesses including cardiovascular disease, cancer, and those undergoing dialysis who attended Shahid Beheshti Clinic and Health Center in Babol during 2023. A convenience sampling method was used. From among 80 patients with chronic illnesses who referred to the clinic, 45 individuals were selected based on predefined inclusion and exclusion criteria. Participants were then randomly assigned to either the experimental group (n = 15) or the control group (n = 15). Both pretests and posttests were administered before and after the intervention.

Given the rising prevalence of chronic illnesses (e.g., cancers, cardiovascular diseases), patients often experience not only physical difficulties but also psychological problems such as depression and anxiety. It appears that there is insufficient awareness and skill in effectively managing such psychological difficulties. Training in self-compassion skills may therefore offer a viable pathway to alleviating these challenges among individuals with chronic illnesses. The necessity of the present study stems from the limited body of research examining the effectiveness of self-compassion training for this population. Accordingly, this research was designed to investigate the impact of self-compassion training on reducing psychological symptoms associated with chronic illness.

Research methodology

The inclusion criteria were: a confirmed diagnosis of chronic illness by a specialist, absence of any severe psychiatric disorder, age between 30 and 50 years, and not receiving concurrent psychological treatments during the study period. Ethical considerations included obtaining written informed consent, ensuring confidentiality, and avoiding any harm to participants.

Distress Tolerance Scale (DTS).

The DTS was developed by (Simons & Gaher, 2005) and consists of 15 items across four subscales: emotional distress tolerance, absorption by negative emotions, subjective appraisal of distress, and regulation of efforts to alleviate distress. Items are rated on a 5-point Likert scale ranging from 1 (strongly

agree) to 5 (strongly disagree), with total scores ranging from 15 to 75. Higher scores indicate greater distress tolerance. Cronbach's alpha coefficients reported by the authors ranged from 0.70 to 0.82 (Simons & Gaher, 2005).

Difficulties in Emotion Regulation Scale (DERS).

The DERS was developed by (Gratz & Roemer, 2004) and consists of 36 items with six subscales: non-acceptance of negative emotions, difficulties engaging in goal-directed behavior under distress, impulse control difficulties, limited access to effective emotion regulation strategies, lack of emotional awareness, and lack of emotional clarity. Each item is rated on a 5-point Likert scale ranging from 1 (almost never) to 5 (almost always). Gratz and Roemer (2004) reported Cronbach's alpha coefficients for the total scale and subscales ranging from 0.80 to 0.93, and a test–retest reliability coefficient of 0.88 for the total score over a 4–8 week interval (subscale reliabilities ranged from 0.57 to 0.89). In an Iranian study, (Mansouri & Mansouri, 2017) reported reliabilities for the total and subscales ranging from 0.60 to 0.89. Confirmatory factor analyses further indicated good model fit indices (e.g., CFI = 0.95, NFI = 0.91, NNFI = 0.94, IFI = 0.95, RFI = 0.90, GFI = 0.79, RMSEA = 0.078). In the present study, internal consistency was examined, yielding a Cronbach's alpha of 0.76 for validity and 0.84 for reliability. Example items include: "I feel responsible for my stressful events or adverse conditions" and "I feel I must accept what has happened."

Procedure and Data Analysis

Data collection was conducted in five stages. Step 1: Defining the population and selecting the sample through convenience sampling from patients with chronic illnesses attending Shahid Beheshti Clinic in Babol. Step 2: Participants were screened based on inclusion criteria and randomly assigned to an experimental or control group. Step 3: Both groups completed the pretest measures. Step 4: The experimental group received self-compassion training, while the control group did not receive any intervention. Step 5: Both groups completed the posttest measures.

The intervention consisted of eight weekly group-based sessions of 60 minutes each, based on (Gilbert, 2009) Compassion-Focused Therapy protocol. Details of the intervention sessions are presented in Table 1.

Data were analyzed using SPSS version 25. Descriptive statistics (mean, standard deviation) were first computed, followed by inferential statistics. To assess the effectiveness of self-compassion training on distress tolerance and emotion regulation difficulties, multivariate analysis of covariance (MANCOVA) was performed. Prior to conducting MANCOVA, assumptions of normality and other relevant statistical prerequisites were examined.

Table 1. Content of Self-Compassion Training Sessions

Session	Content
Session 1	Introduction of group members, clarification of group rules, explanation of distress tolerance, emotion regulation difficulties, and anxiety sensitivity, as well as their consequences. Group discussion about problems arising from low distress tolerance, emotion regulation difficulties, and anxiety sensitivity. Explanation of how the mind functions, and how and why its dysfunctions may occur.
Session 2	Definition and conceptualization of compassion: what compassion is and how it can be applied to overcome psychological difficulties.
Session 3	Reflection on compassion toward others, cultivating attention and focus on compassion, developing compassionate thinking, compassionate behaviors, and compassionate imagery practices.
Session 4	Enhancing warmth and energy, practicing mindfulness, acceptance, wisdom and strength, as well as cultivating warmth and non-judgmental awareness.
Session 5	Mindfulness exercises, raising awareness of beliefs associated with maladaptive emotions, and examining the advantages and disadvantages of such beliefs.
Session 6	Compassion-focused imagery practices (color, voice, and image of compassion), and compassionate letter-writing exercises.
Session 7	Advanced compassionate letter-writing, exercises on anger and compassion, addressing fear of compassion, and preparing members for group termination.
Session 8	Review and integration of skills learned, group summary and closure, and administration of the post-test.

Research Finding

The means and standard deviations of distress tolerance and emotion regulation difficulties for the experimental and control groups are presented in Table 2.

Table 2. Mean and Standard Deviation of Distress Tolerance and Emotion Regulation Difficulties in Experimental and Control Groups

Variable	Group	Mean	Standard Deviation
Distress Tolerance	Self-Compassion Training	51.60	6.98
	Control	32.80	7.48
Emotion Regulation Difficulties	Self-Compassion Training	89.07	12.31
	Control	132.67	9.56

The assessment of normality for all study variables is presented in Table 3. Results indicated that the distributions of all variables were normal ($p > 0.01$).

Assumptions of homogeneity of variances and homogeneity of variance–covariance matrices were examined and are presented in Table 4. Levene's test results indicated that

the variances of all study variables were equal across groups and did not differ significantly, confirming the assumption of equality of variances ($p > 0.05$). Box's M test showed a significance level greater than 0.05 ($p > 0.05$), indicating that the assumption of equality of variance–covariance matrices was met.

Furthermore, results presented in Table 5 indicated that the assumption of homogeneity of regression slopes for both groups on the dependent variables was satisfied ($p > 0.05$).

Table 3. Assessment of Normality for Study Variables

Variable	Group	Shapiro–Wilk Statistic	df	Significance (p)
Distress Tolerance	Self-Compassion Training	0.96	15	0.68
	Control	0.93	15	0.28
Emotion Regulation Difficulties	Self-Compassion Training	0.95	15	0.56
	Control	0.97	15	0.78

Table 4. Assessment of the Assumptions of Homogeneity of Variances and Homogeneity of Variance–Covariance Matrices for Study Variables

Variable	Levene's Test			Box's M Test			
	F	df1	df2	p	BM	df1	df2
Distress Tolerance	0.81	42	2	0.21	854.61	12	71
Emotion Regulation Difficulties	0.38	42	2	0.98	—	—	—

Table 5. Results of the Test for Homogeneity of Regression Slopes

Source of Variation	Dependent Variable	Sum of Squares (SS)	df	Mean Square (MS)	F	Significance (p)
Between Groups / Intervention	Distress Tolerance	35.10	3	11.70	2.12	0.11
	Emotion Regulation Difficulties	54.99	3	18.33	1.63	0.20

Table 6. Results of Multivariate Analysis of Covariance (MANCOVA) for Experimental and Control Groups on Study Variables

Source of Variation	Dependent Variable	Sum of Squares (SS)	df	Mean Square (MS)	F	Significance (p)	Eta Squared (η^2)
Pre-test Distress Tolerance	Post-test Distress Tolerance	1722.03	1	1722.03	293.92	0.001	0.88
	Post-test Emotion Regulation Difficulties	51.88	1	51.88	2.93	0.095	0.068
Pre-test Emotion Regulation Difficulties	Post-test Distress Tolerance	18.71	1	18.71	3.19	0.081	0.074
	Post-test Emotion Regulation Difficulties	3440.97	1	3440.97	194.54	0.001	0.829
Group	Distress Tolerance	1656.74	2	782.87	130.73	0.001	0.87
	Emotion Regulation Difficulties	9980.47	2	4990.24	288.06	0.001	0.96

The results presented in Table 6 indicate that, after controlling for the pre-test scores, the difference between the pre-test and post-test scores of the two groups for the variable of distress tolerance was significant (F = 295, $p < 0.05$, $\eta^2 = 0.874$). To further examine the pairwise differences between the study groups, the Bonferroni post hoc test was conducted (Table 7).

Table 7. Bonferroni Post Hoc Test Results for Study Variables

Variable	Group 1	Group 2	Mean Difference	Standard Error	Significance (p)
Distress Tolerance	Self-Compassion Training	Control	15.35	0.95	0.001
Emotion Regulation Difficulties	Self-Compassion Training	Control	-38.85	1.61	0.001

The results presented in Table 7 indicate that there were significant differences between the self-compassion training and control groups in the mean scores of distress tolerance and emotion regulation difficulties ($p < 0.05$). Considering the results from Tables 1 and 7, it can be concluded that self-compassion training was effective in increasing distress tolerance and improving emotion regulation difficulties. Accordingly, Hypothesis 1, which proposed that self-compassion training would have a significant effect on distress tolerance in patients with chronic illnesses, was supported. Similarly, Hypothesis 2, which proposed that self-compassion training would significantly affect emotion regulation difficulties in patients with chronic illnesses, was also supported.

Discussion & Conclusions

The primary aim of the present study was to investigate the effectiveness of self-compassion training on distress tolerance and emotion regulation difficulties in patients with chronic illnesses. Chronic patients, in this context, refer to individuals suffering from conditions such as cancers, cardiovascular diseases, dialysis, and similar disorders, who experience not only physical complications but also psychological difficulties such as depression, anxiety, and related emotional distress.

The results of this study indicated that self-compassion training significantly improved both distress tolerance and emotion regulation in patients with chronic illnesses. These findings are consistent with previous studies demonstrating the positive impact of compassion-focused interventions (Gilbert, 2014; Gooding, Stedmon, & Crix, 2020) and self-compassion training (Berry et al., 2020) as innovative approaches for enhancing mental health, pain management, and quality of life in individuals living with chronic conditions (Terry & Leary, 2011). Furthermore, research has shown that self-kindness substantially reduces anxiety, depression, pain catastrophizing, and pain-related self-efficacy deficits (Babenko & Guo, 2019).

Based on these findings, it can be inferred that self-compassion is grounded in evolutionary psychology, emphasizing the understanding of brain function and emotions in the context of the development of adaptive processes (Gilbert, 2014). Compassion-focused therapy encourages patients to internalize external soothing thoughts, factors, images, and behaviors, thereby calming the mind in response to internal experiences just as it reacts to external stimuli (Neff, 2003). Additionally, chronic patients were guided to focus on understanding and cultivating self-compassion during negative cognitive processes, which enhanced their ability to tolerate distress and regulate emotions. Self-compassion exercises emphasized body relaxation, calm awareness, self-kindness, and mindfulness, which are crucial for reducing stress and intrusive negative thoughts (Neff & Germer, 2013). By alleviating stress and negative self-directed thoughts, patients demonstrated a notable

improvement in distress tolerance and emotion regulation.

Self-compassion involves recognizing and accepting that pain and suffering are natural aspects of human existence (Neff, 2003), and rather than avoiding them, individuals can mitigate their adverse effects through awareness and self-compassion. In the present study, patients who applied self-compassion effectively exhibited greater competence in emotion regulation and distress tolerance. Specifically, patients encouraged themselves gently to embrace life changes and corrected maladaptive behavioral patterns. Consequently, self-compassion can be considered a multifaceted strategy for emotion regulation (Neff, 2003).

Previous research supports these findings, indicating that individuals high in self-compassion enjoy better mental health compared to those with lower levels of self-compassion (Alicke & Sedikides, 2009). These findings suggest that self-compassion practice can serve not only to enhance mental well-being but also as a protective buffer against the adverse effects of anxiety and hopelessness. Self-compassion enables individuals to regulate their emotions, cope with stressful situations, and foster positive feelings. Additionally, cultivating self-compassion can promote kindness, love, and hopeful perspectives.

The underlying premise of self-compassion in this study was that it involves awareness and recognition that pain and suffering are inherent aspects of human life. Patients learned to optimally enhance their distress tolerance and emotion regulation. Through self-compassion, they were able to increase positive emotions and improve their ability to tolerate distress while mitigating symptoms of their chronic conditions. Self-compassion serves as an accessible and effective tool for individuals experiencing anxiety and depression, enhancing functional outcomes and quality of life. Research indicates that self-compassion supports the development of a positive and healthy relationship with oneself, fostering vitality and a hopeful outlook on life. Moreover, self-compassion exercises can help individuals overcome obstacles, improve their personal and social lives, and enhance overall well-being.

Limitations of the present study include the use of convenience sampling and the lack of a follow-up phase. Additionally, participants were heterogeneous in terms of socioeconomic, ethnic, and religious backgrounds. It is therefore recommended that future studies replicate this research across diverse contexts, cultures, and populations. Cultural differences may influence perceptions and conceptualizations of self-compassion and pain. While self-compassion is a universal concept, in Iran, religious and cultural factors may enhance the effectiveness of self-compassion interventions for patients with chronic illnesses. Accordingly, the involvement of trained counselors and psychologists in hospital wards could significantly contribute to both the psychological and physical well-being of these patients.

Resources

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