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Effectiveness of Self-Compassion-Based Training on Reducing Suicidal Thoughts and Death Anxiety in Chronic Pulmonary Patients

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ABSTRACT

This study aimed to examine the effectiveness of Self-Compassion-Based Training (SCMT) in reducing suicidal thoughts and death anxiety among patients with chronic pulmonary diseases. The research employed a quasi-experimental design with a pre-test-post-test format and a control group. The statistical population consisted of 150 patients who visited the Chronic Pulmonary Disease Association during the first six months of 2024. From this population, 30 participants were selected through convenience sampling and randomly assigned to an experimental group (n = 15) and a control group (n = 15). The experimental group received eight 90-minute online SCMT sessions. The instruments included the Beck Scale for Suicidal Ideation (BSSI) and the Templer Death Anxiety Scale (DAS). Data were analyzed using univariate analysis of covariance (ANCOVA) via SPSS version 26. The findings indicated that self-compassion training significantly reduced suicidal thoughts ($\eta^2 = 0.61$, $F = 40.85$, $p < 0.001$) and death anxiety ($\eta^2 = 0.54$, $F = 28.91$, $p < 0.001$) in the experimental group. These effects were associated with medium to large effect sizes, indicating a meaningful impact of the intervention on improving patients' suicidal ideation and death anxiety. The final conclusion suggests that self-compassion training can serve as a cost-effective and efficient intervention strategy for reducing suicidal ideation and death anxiety in patients with chronic pulmonary conditions. Integrating this intervention into comprehensive care programs for these patients is recommended.

Keywords: Self-compassion, suicidal thoughts, death anxiety, chronic pulmonary diseases.

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Introduction

Chronic pulmonary diseases, including Chronic Obstructive Pulmonary Disease (COPD), severe asthma, and pulmonary fibrosis, are debilitating conditions characterized by persistent limitations in respiratory function (1). These illnesses not only reduce quality of life and necessitate long-term treatment dependence but also impose significant psychological burdens on patients. Continuous exposure to symptoms such as dyspnea, extreme fatigue, and fear of suffocation can lead to profound psychological distress and complicate

patients' adaptation to their illness (2). Among the most concerning psychological components in this clinical population are suicidal thoughts (3) and death anxiety—both of which require particular attention.

Suicidal thoughts encompass a range of cognitions and images, from fleeting fantasies about death to serious planning for ending one's life. These thoughts may appear actively (a conscious desire to die by suicide) or passively (wishing to be dead without specific planning for action) (4). In chronic pulmonary patients, such thoughts frequently emerge in response to feelings of helplessness, persistent physical pain, and a perceived lack of control over the illness. Research has shown that physiological factors such as hypoxia (oxygen deficiency) and systemic inflammation may, through neurochemical changes in the brain, elevate the risk of depression and suicidal ideation. Moreover, social isolation due to functional limitations and disease-related stigma may exacerbate feelings of loneliness and worthlessness (3).

Death anxiety refers to a persistent and unpleasant fear of the dying process, concerns about nonexistence after death, or the fear of losing control when confronting mortality (5, 6). Among patients with progressive pulmonary diseases, repeated encounters with respiratory attacks and the possibility of sudden death have made this anxiety a common phenomenon. Death anxiety not only intensifies physical symptoms but also, by initiating a vicious cycle of avoidance of necessary activities, further deteriorates quality of life (6). The chronic and often unpredictable nature of these diseases diminishes patients' sense of control, while death anxiety, by overactivating the sympathetic nervous system, impairs breathing and initiates a self-perpetuating loop. Facing the gradual decline of pulmonary function often entangles patients in existential questions about life and death. Within this context, psychological interventions that enhance resilience and emotional regulation hold special significance. Self-Compassion-Based Training, as an emerging approach, emphasizes three core elements—self-kindness, recognition of common humanity, and mindfulness—and has demonstrated significant potential in alleviating psychological distress in these patients (5).

Self-compassion interrupts the vicious cycle of rumination and feelings of worthlessness—key drivers of suicidal ideation—by reducing self-criticism and fostering self-acceptance. Through cultivating self-kindness, patients learn to refrain from blaming themselves for disease-related dependency and, by embracing a sense of shared humanity, begin to see their suffering as a natural part of the human experience. This shift in perspective reduces feelings of isolation and enhances hope (7). Additionally, the mindfulness component of self-compassion helps patients observe suicidal thoughts without judgment and avoid overidentification with them (8). Regarding its effect on death anxiety, studies have shown that self-compassion, by promoting inner emotional safety through acceptance of difficult emotions, can attenuate fear of death (7). The self-kindness component replaces anxiety arising from physical frailty with supportive self-talk. Similarly, the recognition of shared humanity normalizes the fear of death as a universal experience, thereby reducing its emotional weight (7). Mindfulness, by preventing catastrophizing about the future, redirects the patient's focus to the present and regulates physiological responses associated with anxiety—such as rapid breathing (9).

Given the high prevalence of suicidal ideation and death anxiety in patients with chronic pulmonary conditions and the scarcity of targeted psychological interventions, the present study investigates the effectiveness of self-compassion-based training as a low-cost and integrable strategy alongside medical treatments. The findings from this study can provide a framework for developing integrated psychotherapy protocols that complement medical care, ultimately contributing to the improvement of life quality and the

prevention of psychological complications. Furthermore, the study's emphasis on integrating psychosomatic and psychological components represents a novel approach in the field of integrated mental health care. Therefore, the aim of the current study was to answer the following research question: Is self-compassion-based training effective in reducing suicidal thoughts and death anxiety among patients with chronic pulmonary diseases?

Methods and Materials

Study Design and Participants

The present study was applied in purpose and quasi-experimental in method, utilizing a pre-test-post-test design with a control group. The statistical population included all patients diagnosed with chronic pulmonary diseases (such as COPD, severe asthma, and pulmonary fibrosis) who were registered online with the Chronic Pulmonary Disease Association during the first six months of 2024. Among 150 eligible patients (with informed consent, adequate motivation, age between 18 and 65 years, and no acute psychiatric disorders such as psychosis), 30 individuals who scored one standard deviation above the mean on both the Beck Scale for Suicidal Ideation (BSSI) and the Templer Death Anxiety Scale (DAS) were selected using convenience sampling and randomly assigned to an experimental group and a control group (15 participants in each). The experimental group received an 8-session Self-Compassion-Based Training (SCMT) intervention (two 90-minute sessions per week) online through videoconferencing platforms, while the control group received no intervention during this period. The sessions began with an orientation session outlining the research objectives, attendance requirements, and the framework for between-session exercises. The content of the sessions was designed based on Neff's (2003) standard self-compassion protocol, emphasizing the components of self-kindness, common humanity, and mindfulness.

Data Collection

Beck Scale for Suicidal Ideation (BSSI): This is a 19-item self-report tool developed by Beck (1961) to assess attitudes, thoughts, and plans related to suicide. The first five items serve as a screening tool—if a participant scores zero on these, they are considered not to be suicidal. Items are rated on a scale from 0 to 2. A total score of 1–5 indicates suicidal ideation, 6–19 indicates suicidal planning, and 20–38 suggests intention to attempt suicide. In the study by D'Onofrio et al. (2002), the internal consistency was reported as 0.89, and inter-rater reliability was 0.83. Niemusz et al. (2009) reported a Cronbach's alpha of 0.95 and a concurrent validity coefficient of 0.76 with the depression subscale of the General Health Questionnaire. In Iran, Alizadeh Birjandi et al. (2021) reported a concurrent validity of 0.76 with the General Health Questionnaire and a Cronbach's alpha reliability of 0.95 (10).

Templer Death Anxiety Scale (DAS): Developed by Templer (1970), this scale includes 15 items assessing the respondent's attitudes toward death. Participants respond to each item with either "yes" or "no," with a "yes" indicating the presence of anxiety. The total score ranges from 0 to 15. Templer (1970) reported a test-retest reliability coefficient of 0.83. Gorstein (2017) reported Cronbach's alpha coefficients for three factors derived via factor analysis in the Italian adaptation as 0.68, 0.49, and 0.60, respectively. In Iran, Rajabi and Bahrani (2001) found a split-half reliability of 0.60 and internal consistency of 0.73. Aminpour et al. (2012)

reported a Cronbach's alpha of 0.73. Ghasempour et al. (2012) also reported a Cronbach's alpha reliability of 0.65 (5).

Intervention

This intervention was designed and implemented in 8 weekly 90-minute sessions, based on Neff's (2003) model, emphasizing the three core components of self-kindness, common humanity, and mindfulness. Following the orientation session, in which research goals, conceptual definitions, and session rules were explained, the training proceeded in a structured manner. It included a combination of cognitive-behavioral techniques, practical exercises, and group feedback, following a sequence of structured stages.

The intervention protocol consisted of ten structured sessions based on the Pennsylvania Resilience Program, incorporating cognitive-behavioral principles and Ellis's Rational-Emotive Behavior Therapy (REBT). In the first session, participants were introduced to the program, goals were clarified, ground rules were established, and group rapport was built through discussion of the emotional and psychological consequences of having an incarcerated spouse. The second session focused on identifying emotional responses to adverse events and introduced Ellis's ABC model. In the third session, participants practiced applying the REBT model to personal experiences. The fourth session examined attributional styles and their relation to hopelessness, depression, stress, and anxiety, followed by cognitive reframing. In the fifth session, participants learned to challenge catastrophic beliefs using evidence-based disputation techniques and cognitive restructuring. The sixth session taught effective communication and conflict resolution strategies, linking them to personal experiences and cognitive patterns. The seventh session introduced the five-step problem-solving model, applied to participants' real-life challenges. The eighth session focused on empathy skills and the consequences of empathy-deficient behaviors. The ninth session addressed assertiveness training, encouraging participants to reflect on its role in their interpersonal difficulties. The final session covered negotiation skills, reviewed behavioral outcomes of non-negotiation, integrated learning with participants' lived experiences, and concluded with post-testing to evaluate program outcomes. Each session included reviewing homework assignments and reinforcing skill application through experiential exercises.

Data analysis

Data were analyzed using SPSS version 26 and the statistical method of Analysis of Covariance (ANCOVA). Criteria for exclusion from the study included missing more than two sessions, incomplete instrument responses, or the emergence of new medical conditions (e.g., pulmonary disease exacerbation).

Findings and Results

In examining the demographic characteristics of the research sample, which consisted of 30 participants (15 in the experimental group and 15 in the control group), the mean age in the experimental group was 42.5 years (SD = 5.2), and in the control group 41.8 years (SD = 4.9). In terms of gender, the experimental group included 8 men (53.3%) and 7 women (46.7%), while the control group had 9 men (60%) and 6 women (40%). Marital status data revealed that 18 individuals (60%) were married, 8 (26.7%) single, and 4 (13.3%) divorced. Regarding educational background, 12 participants (40%) had a high school diploma, 10 (33.3%)

held an associate degree, 6 (20%) had a bachelor's degree, and 2 (6.7%) had a master's degree. Concerning the type of pulmonary disease, 16 individuals (53.3%) had COPD, 10 (33.3%) had severe asthma, and 4 (13.3%) had pulmonary fibrosis. The mean duration of illness was 5.8 years (SD = 2.1) in the experimental group and 5.5 years (SD = 1.9) in the control group. A total of 22 participants (73.3%) had a history of hospitalization, and 8 (26.7%) had a history of using psychiatric medication. Economic status was evaluated as low for 6 individuals (20%), average for 18 individuals (60%), and good for 6 individuals (20%), indicating relative homogeneity between the two groups in demographic variables.

Table 1. Descriptive Indicators of Research Variables in the Two Groups

Variable	Group	Test Phase	M	SD	Skewness	Kurtosis
Suicidal Ideation (BSSI)	Experimental	Pre-test	24.73	3.82	-0.32	0.18
		Post-test	14.20	2.91	-0.15	-0.22
	Control	Pre-test	23.87	4.15	-0.28	0.12
		Post-test	22.93	3.76	-0.21	0.08
Death Anxiety (DAS)	Experimental	Pre-test	10.53	2.14	0.45	-0.31
		Post-test	6.40	1.85	0.22	-0.15
	Control	Pre-test	10.20	2.37	0.38	-0.27
		Post-test	9.87	2.05	0.31	-0.19

Table 1 presents the descriptive statistics for the study variables across the experimental and control groups. The skewness and kurtosis values for all variables fall within the acceptable range (-1 to +1), indicating a normal distribution of the data. In the experimental group, the mean score for suicidal ideation decreased from 24.73 at pre-test to 14.20 at post-test, and the mean score for death anxiety decreased from 10.53 to 6.40, indicating the effectiveness of the intervention. In contrast, the control group showed no significant changes in the studied variables (suicidal ideation from 23.87 to 22.93; death anxiety from 10.20 to 9.87).

To evaluate the effectiveness of the intervention, univariate analysis of covariance (ANCOVA) was employed. First, the assumption of homogeneity of error variance was tested using Levene's test.

Table 2. Assumption Tests for ANCOVA on Research Variables

Variable	Test	Statistic	df	p	Result
Suicidal Ideation	Levene	1.24	(1,28)	0.275	Assumption met
	Kolmogorov-Smirnov	0.98	–	0.285	Normal distribution
Death Anxiety	Levene	0.87	(1,28)	0.359	Assumption met
	Kolmogorov-Smirnov	0.92	–	0.312	Normal distribution

As shown in Table 2, Levene's test results for suicidal ideation ($F = 1.24$, $p = 0.275$) and death anxiety ($F = 0.87$, $p = 0.359$) were not significant, indicating the assumption of homogeneity of variance was met. Additionally, Kolmogorov-Smirnov tests showed non-significant results for both variables ($p = 0.285$ and $p = 0.312$, respectively), confirming normal data distribution. Other assumptions, such as linearity between covariates and dependent variables, and homogeneity of regression slopes, were also verified, validating the use of univariate ANCOVA for data analysis.

Table 3. Univariate ANCOVA Results for Intervention Effectiveness

Variable	Source of Variation	SS	df	MS	F	p	η^2	Power
Suicidal Ideation	Pre-test	112.45	1	112.45	18.72	0.001	0.42	0.98
	Group	245.63	1	245.63	40.85	0.001	0.61	1.00
	Error	156.82	26	6.03	–	–	–	–
Death Anxiety	Pre-test	38.17	1	38.17	12.64	0.001	0.34	0.99
	Group	87.25	1	87.25	28.91	0.001	0.54	1.00
	Error	78.43	26	3.02	–	–	–	–

As shown in Table 3, the ANCOVA results demonstrated a statistically significant difference between the groups on both suicidal ideation and death anxiety after controlling for pre-test scores. For suicidal ideation, the group effect was significant ($F = 40.85$, $p < 0.001$) with a large effect size ($\eta^2 = 0.61$) and full statistical power, indicating a strong impact of the intervention. Similarly, for death anxiety, the group effect was also significant ($F = 28.91$, $p < 0.001$), with a moderate to large effect size ($\eta^2 = 0.54$) and high statistical power. These findings suggest that the intervention significantly reduced suicidal ideation and death anxiety in the experimental group compared to the control group, with a greater effect observed for suicidal ideation.

Discussion and Conclusion

The findings of the study demonstrated that self-compassion training significantly reduced suicidal thoughts in patients with chronic pulmonary diseases. These results are consistent with the prior findings (2, 3, 5, 7, 8). This effect can be explained from several perspectives. First, the component of self-kindness helps patients respond to illness-related limitations with more gentle and supportive self-reactions by reducing internal criticism and self-blame—factors identified as central in the development of suicidal thoughts (3). Second, the common humanity component reduces the intensity of suicidal ideation by normalizing suffering and mitigating the sense of social isolation that is frequently associated with chronic illness (2). Third, mindfulness enables patients to observe suicidal thoughts nonjudgmentally and without excessive identification, thus preventing their intensification (8). Furthermore, self-compassion may exert neurobiological effects by reducing systemic inflammation—an underlying mechanism linked to depression and suicidal ideation (3).

Regarding death anxiety, the findings also indicated that self-compassion significantly decreased this variable. These results align with the prior findings (6, 7, 9). Several mechanisms may explain this effect. Self-kindness, by replacing catastrophic self-talk about death with supportive inner dialogue (6), helps patients face death-related fears with a stronger sense of internal security. Common humanity, by normalizing fear of death as a universal human experience (7), reduces the emotional burden of this anxiety. Mindfulness, by preventing future-oriented catastrophizing and anchoring attention to the present moment (9), regulates physiological responses associated with anxiety, such as rapid breathing. Additionally, self-compassion enhances psychological resilience (5), thereby improving patients' capacity to cope with the existential fears stemming from illness.

This study was limited by the use of convenience sampling and the inability to fully control for confounding variables. Future research is recommended to include longer follow-up periods and examine the physiological effects of self-compassion. Integrating this intervention into the care plans of chronic pulmonary patients may contribute to improving their mental health outcomes.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Written consent was obtained from all participants in the study.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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