1 Khorasgan Branch, Islamic Azad University, Isfahan, Iran.
2 Department of Clinical Psychology, Faculty of Medical Sciences, Tabriz University, Tabriz, Iran.
3 Department of Psychiatry and Behavioral Science, Isfahan University of Medical Sciences, Isfahan, Iran.
4 Department of Clinical Psychology, Science and Culture University, Tehran, Iran.
5 Curriculum Planning Department, Faculty of Humanities and Psychology, University of Tabriz, Tabriz, Iran.

Corresponding author email address: faezehnorouzi@chmail.ir

Exploring the Mediating Role of Self-Compassion in the Relationship Between Resilience and Psychological Well-Being in Cancer Patients

Shima. Minoo[1], Saba. Khalilpour[2], Faezeh. Norouzi[3*], Negin. Bozorgmehr Majd[4], Simin. Zeinali[5]

ABSTRACT

Objective: This study aims to examine the relationship between resilience and psychological well-being, particularly considering self-compassion as a mediating factor.

Methods and Materials: This study involved 221 patients undergoing chemotherapy for various cancers at public hospitals in Tehran. Inclusion criteria required participants to be adults diagnosed with cancer, currently receiving chemotherapy, and willing to participate. This population is relevant as they face significant psychological challenges during treatment. Data were collected using a structured questionnaire assessing resilience, self-compassion, and psychological well-being. Structural equation modeling (SEM) was employed to analyze the data with AMOS software, allowing for the assessment of relationships among the variables. Prior to participation, informed consent was obtained, and ethical considerations were strictly followed, ensuring participant confidentiality and data security. The methodology emphasizes the importance of resilience and self-compassion in understanding and improving psychological well-being in cancer patients.

Findings: The analysis revealed a significant positive correlation between resilience and both self-compassion (r =0.591, p <0.01) and psychological well-being (r=0.499, p<0.01). Self-compassion positively influenced psychological well-being (β=0.31, t = 3.043) and mediated the relationship between resilience and psychological well-being (indirect effect: β = 0.19, t=2.609). The structural equation model explained 42% of the variance in psychological well-being and 36% in self-compassion, indicating a robust model fit.

Conclusion: The study concludes that resilience positively influences the psychological well-being of cancer patients by fostering self-compassion. These findings highlight the importance of integrating resilience-building strategies into cancer care to enhance patients' mental health. However, limitations include the homogeneity of the sample from public hospitals in Tehran and reliance on self-reported measures, suggesting the need for further research.

Keywords: Resilience, Self-Compassion, Psychological Well-Being, Cancer Patients.

Introduction

Cancer represents one of the most formidable challenges in modern healthcare, not only due to its rising incidence but also because of its profound impact on the lives of patients and their families. Among various diseases, cancer generates some of the highest levels of stress and emotional distress, affecting various aspects of an individual's life—physical, emotional, spiritual, social, and economic. In Iran, cancer is increasingly prevalent, posing significant threats to the mental and physical health of those affected while imposing considerable financial burdens on families and healthcare systems alike. Despite advancements in cancer therapies and an increasing number of survivors, the emotional toll of cancer remains substantial, often evoking feelings of helplessness and deep fear (Fortin et al., 2021).

Research indicates that cancer patients frequently experience a markedly diminished quality of life, which adversely impacts their well-being in multiple dimensions, including physical health, psychological functioning, and social interactions (De Jaeghere et al., 2022). Notably, the psychological struggles faced by cancer patients underscore the need for effective coping mechanisms (Davoudi-Monfared et al., 2023). Therefore, this study seeks to investigate how resilience influences the psychological well-being of individuals diagnosed with cancer, with self-compassion posited as a mediating factor.

Understanding resilience and self-compassion is particularly relevant in the context of cancer due to their potential transformative effects on psychological well-being. Resilience, defined as the ability to adapt to adverse conditions, allows individuals to navigate the complexities of cancer treatment and the accompanying emotional upheaval (Nazemi et al., 2023; Ozonder Unal & Ordu, 2023). This adaptability can enhance a patient's ability to cope with the stressors associated with their diagnosis, treatment, and recovery. Meanwhile, self-compassion offers a protective buffer against the harsh self-judgments that often accompany chronic illness. By fostering a non-judgmental attitude towards one's struggles, self-compassion can mitigate feelings of inadequacy and promote emotional healing. Thus, examining these constructs provides valuable insights into enhancing the mental health of cancer patients and improving their overall quality of life (Karimi Dastaki & Mahmudi, 2024; Wang et al., 2023).

Psychological well-being encompasses positive psychological characteristics, including self-acceptance, autonomy, and positive relationships (Novak & Suomi, 2016; Ryff & Singer, 1998). It not only reflects the absence of psychological distress but also signifies the presence of positive emotions and a sense of purpose. Key components of psychological well-being are especially relevant for cancer patients (Fava & Ruini, 2014). For instance, self-acceptance—an understanding and acceptance of one's circumstances—can be crucial during the tumultuous journey of cancer treatment. Similarly, positive interpersonal relationships can provide essential support, fostering a sense of belonging and reducing feelings of isolation.

Research has shown that cancer patients face unique emotional and existential challenges, including anxiety about prognosis, fear of recurrence, and emotional distress stemming from treatment side effects (Giri, 2023). These challenges can diminish psychological well-being, leading to increased rates of depression and anxiety (Godinić & Obrenovic, 2020). Therefore, it is essential to identify and understand the factors that promote psychological well-being in this population. Resilience and self-compassion emerge as critical elements that can positively influence psychological health during these challenging times.

Resilience is broadly defined as the capacity to endure difficulties and effectively navigate life's challenges (Charney, 2004). It involves a dynamic process of adaptation to adverse conditions (McGeary, 2011; Zhou et al., 2022) and is characterized by maintaining biopsychosocial balance even in the face of threats (Connor & Davidson, 2003). Resilience enables individuals to return to a state of equilibrium or even achieve a higher level of functioning following adversity (Kumpfer, 2002). Within the context of cancer, resilience is not merely the absence of distress; rather, it is an active engagement with one's environment that facilitates recovery and promotes emotional, cognitive, and psychological benefits (Chung et al., 2021). Evidence suggests that resilience significantly contributes to psychological well-being, helping individuals cope with the stressors associated with their illness (Padmanabhanunni et al., 2023; Ratter & Holdschlag, 2012).

Self-compassion, on the other hand, is characterized by kindness and understanding towards oneself in times of suffering. It involves recognizing one's struggles as part of the shared human experience, which can be particularly beneficial for cancer patients facing feelings of isolation and self-blame (Neff, 2003, 2011; Neff et al., 2007). Self-compassion encompasses three core components: self-kindness, common humanity, and mindfulness (Neff, 2011). By fostering a compassionate internal dialogue, individuals can better navigate their emotional responses to distressing situations without falling prey to self-criticism. Research indicates that self-compassion serves as a significant protective factor in promoting psychological well-being, particularly in chronic illness populations (Mendes et al., 2023; Voon et al., 2022).

The interplay between resilience and self-compassion is particularly noteworthy. Resilience may enhance one's capacity for self-compassion by fostering adaptive coping strategies and emotional regulation (Abedini & Joibari, 2022). Conversely, self-compassion can bolster resilience by providing emotional support and reducing the impact of stressors, allowing individuals to face challenges with a more positive outlook. Thus, understanding how these constructs influence each other can offer vital insights into enhancing the psychological well-being of cancer patients.

Despite the compelling theoretical framework and emerging empirical evidence highlighting the significance of resilience and self-compassion, there remains a notable gap in the literature. Specifically, few studies have examined how resilience influences the psychological well-being of cancer patients, particularly with self-compassion serving as a mediating factor. Existing research has primarily focused on the individual effects of resilience and self-compassion on mental health outcomes, leaving a critical void in understanding their combined impact in the context of chronic illness. This study aims to address this gap by exploring the interaction between resilience and self-compassion and their collective influence on the psychological well-being of cancer patients.

This study aims to explore the role of resilience in enhancing psychological well-being among cancer patients, with self-compassion proposed as a potential mediating factor. The research hypotheses are structured as follows:

H1: Resilience has an impact on the psychological well-being of cancer patients.

H2: Resilience affects self-compassion.

H3: Self-compassion impacts the psychological well-being of cancer patients.

H4: Self-compassion plays a mediating role in the effect of resilience on the psychological well-being of cancer patients.

Methods and Materials

Study Design and Participants

The current research employs a descriptive-correlational design, underpinned by structural equation modeling (SEM) techniques. SEM is particularly suited for this study as it allows for the analysis of both direct and indirect relationships among the variables of interest—resilience, self-compassion, and psychological well-being. The analysis was conducted using AMOS software, facilitating the evaluation of the hypothesized relationships within the conceptual model.

The population for this research consisted of patients diagnosed with various types of cancer who were undergoing chemotherapy and receiving treatment at public hospitals in Tehran. A total of 250 questionnaires were initially distributed to eligible participants. After excluding incomplete responses, the final sample comprised 221 individuals. The sample size was determined through a power analysis, which indicated that a minimum of 200 participants would be required to achieve sufficient statistical power (0.80) for detecting medium effect sizes in SEM analysis.

To protect participant anonymity, all data were anonymized using unique identification codes, ensuring that no identifying information was retained during analysis. The research was designed to uphold confidentiality; access to the data was restricted solely to the research team, and data were securely stored in encrypted files. Additionally, we offered psychological support resources for participants who might experience emotional distress during the study, ensuring a compassionate approach to their participation. The study adhered to the ethical guidelines set forth in the Declaration of Helsinki and complied with relevant national regulations to minimize potential harm and promote respectful engagement throughout the process.

Instruments

Data were collected using a structured questionnaire, which was administered to participants in a single session to maintain consistency and reduce variability in responses. The questionnaires were provided in a quiet and private setting within the hospital to ensure participants' comfort and confidentiality. Participants completed the questionnaires independently, although trained research assistants were available to provide assistance if needed, given the sensitive nature of the subject matter. Each session lasted approximately 30-45 minutes, allowing sufficient time for participants to reflect on and respond to the questions thoughtfully.

Resilience: To assess resilience, the study utilized the Connor and Davidson Resilience Scale (CD-RISC) developed by Connor and Davidson (2003). This scale consists of 25 items rated on a Likert scale from zero (strongly disagree) to five (strongly agree). The CD-RISC encompasses five dimensions: Personal Competence (8 items), Negative Emotional Tolerance (7 items), Positive Acceptance of Change and Safe Relationships (5 items), Control (3 items), and Spiritual Influences (2 items). The scale has demonstrated strong psychometric properties, with Connor and Davidson reporting a Cronbach's alpha of 0.89 and a test-retest reliability of 0.87 over a four-week period. In the current study, the resilience questionnaire yielded a Cronbach's alpha coefficient of 0.92. The CD-RISC has been validated for use in cancer populations, indicating its suitability for assessing resilience among cancer patients (Connor & Davidson, 2003; Singha, 2024).

Self-Compassion: Developed by Neff (2003), the Self-Compassion Scale is a self-report questionnaire consisting of 26 items designed to evaluate both positive and negative aspects of self-compassion. This scale measures three primary dimensions: self-kindness (5 items), common humanity (4 items), and mindfulness (4 items), alongside their negative counterparts: self-judgment (5 items), isolation (4 items), and over-identification (4 items). Respondents rate their agreement with each item on a 5-point Likert scale. The overall self-compassion score is derived by averaging the scores from these six components, adjusting for reverse-scored items. Neff's original research reported a Cronbach's alpha of 0.92, indicating high internal consistency. In the current study, the self-compassion

questionnaire demonstrated a Cronbach's alpha of 0.88. Research has also established the reliability and validity of the Self-Compassion Scale specifically within cancer patient populations, supporting its use in this demographic. (Kayalar & Hiçdurmaz, 2024; Mendes et al., 2023; Neff, 2003, 2011; Neff et al., 2007)

Psychological Well-Being: To assess psychological well-being, we utilized the Ryff Psychological Well-Being Scale (1995). This instrument consists of 18 items evaluating six dimensions: autonomy, personal growth, positive relationships with others, sense of purpose in life, self-acceptance, and environmental mastery. Respondents answer each item using a six-point Likert scale. Ryff's original research reported Cronbach's alpha values for the various dimensions, including: self-acceptance (0.93), positive relationships (0.91), autonomy (0.86), environmental mastery (0.90), purpose in life (0.90), and personal growth (0.87). The scale has been validated in various populations, including cancer patients, confirming its reliability and relevance for this group. In the current research, the Cronbach's alpha for the psychological well-being questionnaire was calculated to be 0.91, indicating strong internal consistency (Mendes et al., 2023; Ryff, 1995; Singha, 2024).

Data Analysis

SEM is particularly suited for this study as it allows for the analysis of both direct and indirect relationships among the variables of interest—resilience, self-compassion, and psychological well-being. The analysis was conducted using AMOS software, facilitating the evaluation of the hypothesized relationships within the conceptual model.

Findings and Results

The current research utilized a descriptive-correlational method supported by SEM to analyze the relationships among resilience, self-compassion, and psychological well-being in cancer patients. SEM was chosen for its ability to simultaneously assess both direct and indirect relationships among these variables, providing a comprehensive understanding of how resilience influences psychological well-being through self-compassion.

Table 1 outlines the descriptive statistics for the study variables. The computed skewness and kurtosis values are all below one, thereby confirming that the normality assumption required for causal modeling is satisfied.

Table 1

Descriptive Statistics

Variables	Mean	SD	Skewness	Kurtosis
Resilience	71.6	12.86	-0.223	-0.964
Self-Compassion	84.52	13.72	-0.611	-0.192
Psychological Well-Being	69.2	10.09	0.371	-0.474

The correlation matrix for the research variables is presented in Table 2. As indicated, all correlation coefficients among the variables demonstrate positive and statistically significant relationships at the 0.01 level.

Table 2

Correlation matrix

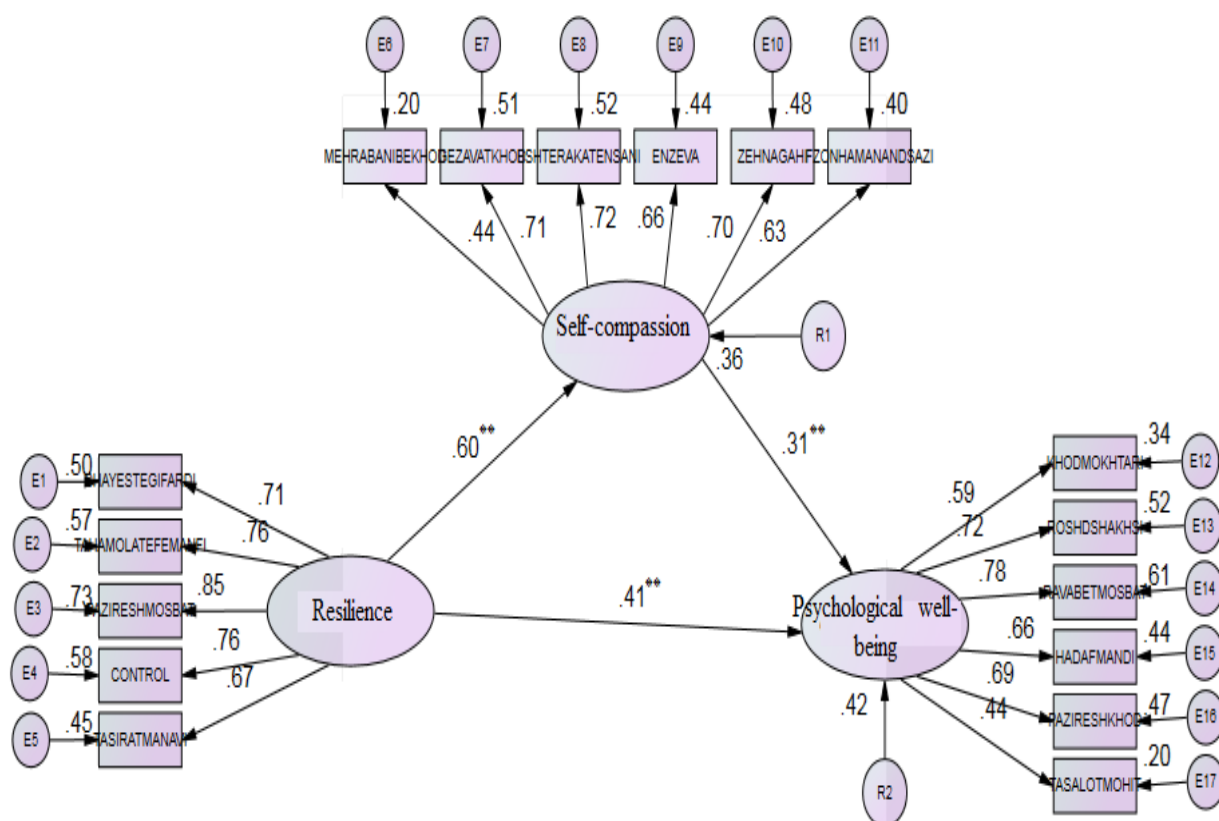| Variables	Resilience	Self-compassion	Psychological Well-being Resilience
Resilience	1		
Self-compassion	0.591**	1	
Psychological Well-being Resilience	0.499**	0.436**	1

**P<0.01

Figure 1 illustrates the research model that was tested, displaying the standardized values for each pathway. The pathways indicate that resilience positively and significantly impacts both self-compassion and psychological well-being. Additionally, self-compassion also has a significant positive effect on psychological well-being.

Figure 1

The tested model

The analysis presented in Table 3 indicates a significant positive relationship between resilience and both self-compassion and psychological well-being. Furthermore, self-compassion is shown to positively impact psychological well-being, with its mediating role between resilience and psychological well-being also demonstrating a significant positive effect. The research model accounts for 42% of the variance in psychological well-being and 36% in self-compassion.

Table 3

Results Related to Direct and Indirect Effects

Paths	Direct Coefficient	Indirect Coefficient	Explained Variance
On psychological well-being from:			0.42
Self-compassion	0.31**(3.043)	-	
Resilience	0.41**(4.017)	0.19**(2.609)	
Towards self-compassion from:			0.36
Resilience	0.60**(5.074)	-	

**P<0.01

To assess the adequacy of the model, Table 4 presents the fit indices of SEM. The results indicate that all obtained fit indices are at an adequate level, demonstrating a good fit between the data and the factorial structure of this model.

Table 4

Goodness of Fit Indices for the Tested Model

Type
Absolute Fit Indices

Index	GFI	AGFI	SRMR
Obtained Value	0.95	0.93	0.042
Acceptable Threshold	>0.9	>0.8	<0.05
Comparative Fit Indices			
Index	CFI	NFI	NNFI
Obtained Value	0.98	0.97	0.95
Acceptable Threshold	>0.9	>0.9	>0.9
Adjusted Fit Indices			
Index	χ^2/df	PNFI	RMSEA
Obtained Value	1.68	0.78	0.056
Acceptable Threshold	<3	>0.6	<0.08

These results reinforce the validity of the model and highlight the importance of resilience and self-compassion in enhancing the psychological well-being of cancer patients.

Discussion and Conclusion

The purpose of this study was to examine how resilience influences the psychological well-being of cancer patients, while considering the mediating effect of self-compassion, through the application of structural equation modeling. Our findings revealed that the model presented in this study demonstrates a satisfactory fit with the data, accounting for 42% of the variance in psychological well-being and 36% of the variance in self-compassion. These results underscore the importance of resilience and self-compassion as critical components in enhancing the psychological health of individuals undergoing cancer treatment.

The results indicated a significant positive relationship between resilience and psychological well-being in cancer patients. This finding suggests that higher resilience contributes to improved psychological health in this vulnerable group. Resilience, defined as the capacity to adapt and recover from adversity (Connor & Davidson, 2003), encompasses various psychological mechanisms that may foster this positive impact. Specifically, resilience facilitates emotional regulation, enabling individuals to manage stress and anxiety more effectively. As posited by the Stress-Buffering Hypothesis, resilient individuals are better equipped to navigate stressful situations, which can mitigate the psychological distress often associated with cancer diagnoses and treatments (Lam, 2024). Furthermore, resilience promotes adaptive coping strategies, such as problem-solving and seeking social support, which are crucial during the cancer journey.

The findings also revealed a significant positive relationship between resilience and self-compassion in cancer patients, indicating that higher levels of resilience correspond with enhanced self-compassion. This observation aligns with previous research (Kayalar & Hiçdurmaz, 2024; Padmanabhanunni et al., 2023) and suggests that resilient individuals possess a greater capacity to manage their emotions and approach challenges with a constructive mindset. This capability may foster self-compassion by allowing individuals to recognize their human imperfections and shortcomings without harsh self-judgment (Neff, 2003). The integration of theories such as self-determination theory can elucidate this relationship further; self-compassion may enhance intrinsic motivation, facilitating a greater willingness to engage in self-care practices that contribute to emotional resilience.

Moreover, our findings revealed a significant and positive impact of self-compassion on the psychological well-being of cancer patients. This suggests that self-compassion contributes to enhanced psychological health, consistent with previous research (Mendes et al., 2023; Voon et al., 2022). Self-compassion enables individuals to face their struggles with kindness and understanding, fostering a sense of shared humanity that alleviates feelings of isolation and distress (Neff, 2011). By cultivating self-compassion, cancer patients can better navigate their emotional landscape, ultimately leading to improved psychological well-being.

While our study aligns with existing literature on resilience and self-compassion, it also contributes new insights to the field. For instance, previous studies have established the importance of resilience in enhancing psychological well-being among cancer patients (Padmanabhanunni et al., 2023). However, our research uniquely highlights the mediating role of self-compassion, suggesting that interventions targeting self-compassion may serve as effective strategies for enhancing resilience and psychological well-being in this population. Additionally, some studies have reported

mixed results regarding the strength of the relationship between resilience and psychological well-being, potentially due to contextual factors such as cultural attitudes towards resilience and self-compassion in cancer care (Chung et al., 2021). Future research should explore these contextual factors further to understand their implications on resilience and psychological well-being.

Our findings carry significant implications for clinical practice and interventions aimed at supporting cancer patients. Firstly, healthcare providers and psychological counselors should consider integrating resilience-based interventions into cancer care to enhance patients' mental health. Interventions such as mindfulness training, resilience-building programs, and cognitive-behavioral approaches can be effective in fostering resilience and coping strategies among cancer patients. For instance, mindfulness practices can improve emotional regulation and stress tolerance, essential components of resilience (Singha, 2024).

Moreover, self-compassion exercises, such as self-compassionate journaling and guided meditations, can be practical tools for helping patients cope with the emotional toll of their illness. These exercises encourage patients to treat themselves with the same kindness and understanding they would offer to a friend, fostering a supportive internal dialogue during challenging times (Neff, 2003). Tailoring these interventions to address the unique psychological needs of cancer patients can help them process difficult emotions and enhance their overall quality of life.

This study contributed significantly to the understanding of the interplay between resilience, self-compassion, and psychological well-being in cancer patients. The findings revealed that resilience not only had a direct positive impact on psychological well-being but also fosterd self-compassion, which served as a crucial mediator in this relationship. This highlighted the theoretical importance of both resilience and self-compassion in promoting mental health among individuals undergoing cancer treatment.

Practically, these insights suggest that integrating resilience-building and self-compassion training into cancer care programs could enhance the psychological well-being and quality of life of patients. By implementing such interventions, healthcare providers can better support cancer patients in navigating the emotional challenges associated with their illness, ultimately leading to improved patient outcomes.

However, it is important to note the limitations of this study, including the homogeneity of the sample drawn exclusively from public hospitals in Tehran, which may restrict the generalizability of the findings to broader populations. Additionally, the reliance on self-reported measures introduces potential biases, such as social desirability bias, that could influence the results related to resilience and self-compassion. Lastly, limitations in the statistical analysis, including unmeasured variables and assumptions in structural equation modeling, may impact the robustness of the findings.

For future research, it is recommended to conduct longitudinal studies to explore how resilience and self-compassion develop over time in cancer patients and whether changes in these factors correlate with improvements in psychological well-being. Furthermore, investigating other potential mediators, such as social support and mindfulness, could provide a more comprehensive understanding of the resilience–well-being relationship. Cross-cultural studies are also suggested to examine how cultural differences may influence the effects of resilience and self-compassion on psychological well-being, enhancing the generalizability of the findings.

Acknowledgments

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.

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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