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Comparison of the Effectiveness of Life Therapy and Acceptance and Commitment Therapy on Mental Pain and Zest for Life in Patients with Leukemia

Seyedehsaeideh. Ghoreishiseyedmahaleh[1], Ramezan. Hassanzadeh[2*], Asghar. Norouzi[3]

[1] M.A. Student, Department of Psychology, Sari Branch, Islamic Azad University, Sari, Iran.
[2] Professor, Department of Psychology, Sari Branch, Islamic Azad University, Sari, Iran
[3] Assistant Professor, Department of Psychology, Sari Branch, Islamic Azad University, Sari, Iran

*** Corresponding author email address**: rhassanzadehd@yahoo.com

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A B S T R A C T

Cancer is one of the leading causes of disorders, mortality, and disability worldwide and represents a prevalent and increasing disease that demands a significant portion of healthcare efforts. Consequently, this study examines and compares the effectiveness of life therapy and acceptance and commitment therapy on mental pain and zest for life in patients with leukemia. The present study is experimental. The statistical population included all male patients who visited Imam Hospital in Sari in 2023 and had received a confirmed diagnosis of leukemia. From this population, 45 patients with leukemia were selected through non-random convenience sampling and randomly assigned to two experimental groups (life therapy and acceptance and commitment therapy) and one control group (15 participants in each group) using simple random allocation. Data were collected using the Orbach and Mikulincer Mental Pain Questionnaire (OMMP) and the Zest for Life Questionnaire by Hassan Zadeh (HLEQ). Data analysis was performed using SPSS software, version 25. The study findings revealed that both life therapy and acceptance and commitment therapy are effective in reducing mental pain ($P < 0.001$) and increasing zest for life ($P < 0.001$) in patients with leukemia. It can be concluded that life therapy, compared to acceptance and commitment therapy, has a greater impact on reducing mental pain and increasing zest for life in patients with leukemia. Life therapy appears to be more effective in enhancing zest for life and fostering positive emotions among these patients.

Keywords: *Life therapy, Acceptance and commitment therapy, Mental pain, Zest for life, Cancer.*

1. Introduction

Cancer is one of the leading causes of mortality worldwide (Siegel et al., 2022). Cancer represents a large group of diseases that can initiate in almost any organ or tissue in the body when abnormal cells grow uncontrollably, extend beyond their usual boundaries, and invade neighboring parts of the body or spread to other organs (WHO). Globally, cancer is the second leading cause of death after cardiovascular disease and the third leading cause of death in Iran. According to the World Health Organization (WHO), cancer accounted for 1 in 6 deaths in 2022. Mortality rates vary depending on the type of cancer. For instance, in 2020, lung cancer, colorectal cancer, liver cancer, stomach cancer, and breast cancer accounted for 18%, 9.4%, 8.3%, 7.7%, and 6.9% of cancer-related deaths, respectively (Moin et al., 2023). Leukemia comprises approximately 10% of all newly diagnosed cases (Keykhosravi et al., 2021; Koohi et al., 2015).

The psychological stress associated with cancer contributes to mental pain in cancer patients. Shneidman (1999) first used the term "mental pain" to describe unbearable psychological pain. Mental pain encompasses a wide range of subjective experiences characterized by the perception of negative changes in oneself and one's functioning, often accompanied by intense negative emotions. Mental pain arises from the frustration of unmet needs, such as affection, control, support, security, or understanding, resulting in a combination of negative emotions like guilt, shame, humiliation, sadness, and anger (S. Shahidi et al., 2022).

Timulak describes mental pain as the emergence of negative feelings about oneself due to unmet or violated psychological needs (Amiri et al., 2023; Meerwijk et al., 2019). Mental pain is a form of psychological suffering characterized by sensations of brokenness, woundedness, loss of control, and negative self-perception (Ertezaee et al., 2023; Fertuck et al., 2016). In other words, when an individual's psychological needs are unmet, mental pain manifests (Sensky, 2020). Despite being as real and significant as physical pain in different parts of the body, mental pain often receives insufficient attention. The main issue lies in the lack of agreement on its concept, distinguishing features, and operational definition (Changi Ashtiani et al., 2024; Shahin Shahidi et al., 2022).

An essential element for an efficient and effective life is enthusiasm. It serves as the most impactful means of facing life's obstacles. Enthusiasm is not merely about enduring or accepting conditions or the ability to cope but rather embracing experiences, even when they are not enjoyable. Thus, enthusiasm means confronting and welcoming events. Zest for life entails an energetic, lively, spirited, and excited outlook on life. It helps individuals experience psychological and physical dimensions of events, reduces stress, and enhances health (Hassanzadeh, 2021; Hassanzadeh & Talebi, 2023).

Various interventions have been employed to mitigate psychological issues, promote recovery, and improve the mental health of cancer patients. Acceptance and Commitment Therapy (ACT) is one such approach, and researchers have evaluated its impact on psychological problems affecting cancer patients. The results of a study by Moin et al. (2023) indicated that ACT had a significant effect on existential anxiety in women with breast cancer (Moin et al., 2023).

Conversely, life-based therapy or life therapy is a newer therapeutic approach rooted in living. The core of life-based therapy is to help individuals gain insight and awareness about life, its challenges, necessities, and requirements, with a focus on enthusiasm, interest, creativity, and the will to live. It encourages individuals not to waste time and to consider every moment an opportunity for living, being, flourishing, and self-actualization. This approach emphasizes clarifying life domains and pursuing objectives and goals across these areas. The aim is to create a broader life concept for the individual across multiple aspects of life (Hassanzadeh, 2021). Hassanzadeh and Talebi (2023) found that life-based therapy effectively increased zest for life, hope, and quality of life in infertile women over a three-month follow-up period. Research indicates that life-based therapy significantly impacts the psychological health of patients (Hassanzadeh & Talebi, 2023).

Given that both therapeutic approaches have shown positive effects on psychological factors, the researcher seeks to answer the question: What differences exist between the effectiveness of life therapy and Acceptance and Commitment Therapy on mental pain and zest for life in patients with leukemia?

2. Methods and Materials

2.1. Study Design and Participants

The present study employed a quasi-experimental design with a pretest-posttest and a three-month follow-up, utilizing three groups (two experimental groups and one control group). The statistical population included all patients who

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visited Imam Hospital in Sari in 2023 and received a confirmed diagnosis of leukemia. From this population, 45 patients with leukemia were selected using non-random convenience sampling and randomly assigned to two experimental groups (life therapy and Acceptance and Commitment Therapy) and one control group, with 15 participants in each group. The inclusion criteria were: age range between 17 and 35 years, no substance abuse, not participating in psychotherapy sessions in the past six months, not using psychiatric medications in the past six months, and providing informed consent to participate in the study. The exclusion criteria included: having two absences from psychotherapy sessions, a history of severe mental disorder, and substance abuse.

Each experimental group received eight 90-minute sessions of therapy: life therapy and Acceptance and Commitment Therapy. The first session involved a pretest, followed by weekly sessions for the two experimental groups, and a posttest was conducted for all groups (experimental and control) in the final session. A follow-up test was conducted for all participants three months later.

2.2. Measures

2.2.1. Zest for Life

The Zest for Life Questionnaire was developed by Ramazan Hassanzadeh in 2015 and consists of 50 items scored on a five-point Likert scale (ranging from "strongly agree" to "strongly disagree"). Items 8, 11, 13, 16, 19, 27, 33, and 44 are reverse-scored: ("strongly agree" = 1, "agree" = 2, "neutral" = 3, "disagree" = 4, "strongly disagree" = 5). The other items are scored directly: ("strongly agree" = 5, "agree" = 4, "neutral" = 3, "disagree" = 2, "strongly disagree" = 1). The reliability of the questionnaire was calculated using Cronbach's alpha (0.93) and test-retest reliability (0.85). Concurrent validity was reported with the Ryff Psychological Well-being Questionnaire (0.61), Meaning in Life Questionnaire (0.59), Life Orientation Scale (0.68), Life Satisfaction Scale (0.63), and Life Orientation Test (0.70). A high score indicates greater zest for life, while a low score suggests lower zest for life (Hassanzadeh & Talebi, 2023).

2.2.2. Mental Pain

This scale, developed by Orbach et al. (2003), measures the intensity of mental pain and consists of 44 items. The initial validation was conducted on 225 students. Orbach et al.'s exploratory factor analysis identified nine subscales that measure different aspects of mental pain: irreversibility, loss of control, narcissism-worthlessness, emotional turmoil, freeze (stupor), alienation, confusion, social distancing, and emptiness (meaninglessness). In Orbach et al.'s (2003) study, the Cronbach's alpha coefficients for these subscales were: irreversibility (0.95), loss of control (0.95), narcissism-worthlessness (0.93), emotional turmoil (0.93), freeze (stupor) (0.85), alienation (0.79), confusion (0.80), social distancing (0.80), and emptiness (meaninglessness) (0.75). Items 25 and 42 are reverse-scored (Karami et al., 2018). The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.942, and Bartlett's test of sphericity yielded a chi-square value of 11,127.989, which was significant with a degree of freedom of 966. The total variance explained by six factors was 66.404%. The overall reliability coefficient for the Mental Pain Scale was 0.966, with the following values for specific factors: emptiness and worthlessness (0.952), confusion and emotional turmoil (0.893), loss of control (0.877), irreversibility (0.872), social distancing-alienation (0.869), and fear of loneliness (0.617) (S. Shahidi et al., 2022). In this study, the Cronbach's alpha reliability coefficient was 0.82, indicating a positive and significant value.

2.3. Intervention

2.3.1. Acceptance and Commitment Therapy

The Acceptance and Commitment Therapy sessions were conducted over eight 90-minute sessions (Harris, 2019; Hayes et al., 2006; Karimi Baghmolek et al., 2018; Mohammadi et al., 2015; Moin et al., 2023; Royin Tan et al., 2018; S. Shahidi et al., 2022).

Session 1: Introduce group members, establish a therapeutic alliance, conceptualize the presenting problem, familiarize participants with the principles of ACT, and set a treatment and cooperation agreement.

Session 2: Explore and evaluate the patient's coping strategies and discuss their limited and temporary effects, introduce psychological acceptance, clarify personal values, and encourage action aligned with these values.

Session 3: Help the patient identify ineffective control strategies, recognize their futility, and learn to accept painful personal experiences without struggling against them. Use metaphors for illustration, provide feedback, and assign homework.

Session 4: Teach emotion regulation, discuss avoidance of painful experiences and its consequences, explain steps toward acceptance, introduce metaphors and exercises to

change language patterns, practice relaxation techniques, gather feedback, and assign homework.

Session 5: Discuss the relationship between behaviors, emotions, psychological functions, and observable actions. Address efforts to change behavior based on these concepts, provide feedback, and assign homework.

Session 6: Explain the concepts of role and context, facilitate self-observation as context, and establish contact with one's observing self using metaphors. Increase awareness of sensory perceptions and separate them from mental content, provide feedback, and assign homework.

Session 7: Clarify the concept of values, motivate change, and empower the patient for a better life. Practice mindfulness exercises, collect feedback, and assign homework.

Session 8: Teach commitment to action, identify value-driven behavioral plans, create a commitment to follow through, summarize previous sessions, administer the posttest, and practice relaxation techniques using stress-reduction methods for follow-up.

2.3.2. Life Therapy

The life therapy sessions were conducted based on the protocol developed by Hassanzadeh over eight 90-minute sessions (Hassanzadeh, 2021; Hassanzadeh & Talebi, 2023).

Session 1: Establish a therapeutic relationship, introduce participants to the study's objectives, and administer the pretest. Familiarize group members with the therapist and one another, discuss group rules, and provide a general overview of life-related educational content and its outcomes.

Session 2: Present concepts related to psychology and life psychology, discuss views on life and existence. Pose questions about the meaning of life, life goals, and life priorities, instill hope and treatment expectancy, and assign homework on creating a life compass and problem-solving strategies using relevant worksheets.

Session 3: Help participants identify life goals and priorities. Review homework from the previous session, discuss group members' thoughts and feelings, and teach the formulation of specific behavioral and general non-behavioral goals. Explain the Eisenhower Matrix, and assign decision-making and life goals homework using related worksheets.

Session 4: Explain the concept of enthusiasm for life and its role in mental health. Review homework from the previous session, teach the characteristics of enthusiastic individuals, and discuss the psychological benefits of zest for life. Assign homework on strategies for fostering zest for life using relevant worksheets.

Session 5: Discuss the concept of hope as a vital aspect of life. Review homework, explain the roles of hope and hopelessness, describe characteristics of hopeful individuals, and assign homework on methods to cultivate hope using related worksheets.

Session 6: Explain life management and the "wheel of life." Review homework, teach the concept of life management and the wheel of life, and discuss the importance of life balance. Assign homework on creating a life wheel diagram using related worksheets.

Session 7: Present concepts of life satisfaction, positive thinking, and creating a meaningful life space. Review homework, teach the ideas of life satisfaction and positive space creation, and discuss the concept of the life circle. Assign homework on developing a life circle using relevant worksheets.

Session 8: Summarize all sessions and administer the posttest. Review homework, provide feedback to participants, express gratitude for their participation, and conclude the program.

2.4. Data analysis

Data analysis employed both descriptive and inferential statistics. Descriptive statistics, including mean and standard deviation, and inferential statistics, such as univariate analysis of covariance (ANCOVA) and multivariate analysis of covariance (MANCOVA), were utilized. Data analysis was conducted using SPSS software, version 25.

3. Findings and Results

Based on the research results from 30 respondents to the questionnaires, it was found that in the life therapy group, the age of most participants (40%) ranged from 17 to 23 years, while the fewest participants (26.67%) were between 31 to 35 years old. In the Acceptance and Commitment Therapy (ACT) group, most participants (46.67%) were between 31 to 35 years old, and the fewest (20%) were between 17 to 23 years old. In the control group, the majority (53.33%) were aged 24 to 30 years, with the fewest (20%) between 17 to 23 years old.

In terms of education level, most participants in the life therapy group (53.34%) held a bachelor's degree, while the fewest (13.33%) had a master's degree or higher. In the ACT group, most participants (40%) had an associate degree or

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less, and the fewest (26.67%) held a master's degree or higher. In the control group, the majority (46.67%) had an associate degree or less, and the fewest (20%) had a master's degree or higher.

Table 1

Central Tendency and Dispersion Indices for Research Variables in the Experimental and Control Groups

Variable	Group	Pretest Mean	Pretest SD	Posttest Mean	Posttest SD	Follow-up Mean	Follow-up SD
Mental Pain	Life Therapy	164.73	21.52	127.67	21.01	125.75	21.10
	ACT	163.05	22.87	143.50	22.61	144.30	22.77
	Control	164.45	19.61	166.30	20.63	165.25	20.63
Zest for Life	Life Therapy	130.60	10.66	141.07	12.33	143.13	12.97
	ACT	130.40	10.52	136.07	12.12	135.40	12.74
	Control	129.87	10.04	130.73	10.02	130.00	10.26

To examine the significance of differences in mental pain and zest for life scores among the two experimental groups and the control group, repeated measures analysis of variance (ANOVA) was used. The results of the Kolmogorov-Smirnov test indicated that the data were normally distributed. Levene's test for homogeneity of variance confirmed equal variances for the variables across groups at pretest, posttest, and follow-up stages. Mauchly's sphericity test showed that the covariance matrix was not homogeneous across groups, violating the sphericity assumption, necessitating the use of the Greenhouse-Geisser correction.

Multivariate repeated measures ANOVA results for the variables of mental pain and zest for life showed a significant between-subjects effect (group), indicating that at least one group differed significantly from the others in one or both variables. The within-subjects effect (time) was also significant, indicating that the mean scores of at least one variable changed significantly over time from pretest to follow-up.

Table 2

Repeated Measures ANOVA for Mental Pain and Zest for Life Across Pretest, Posttest, and Follow-up Stages

Scale	Source	Sum of Squares	df	Mean Square	F	p-value	Eta Squared
Mental Pain	Time	119.46	1.13	92.71	148.15	0.001	0.84
	Time*Group	93.95	2.26	72.91	116.52	0.001	0.80
	Group	146.94	2	146.94	41.16	0.001	0.59
Zest for Life	Time	400.08	1.13	296.70	261.46	0.001	0.90
	Time*Group	277.06	2.26	205.46	181.07	0.001	0.86
	Group	260.10	2	260.10	4.93	0.035	0.35

Table 2 indicates that the ANOVA for the within-group factor (time) is significant, as is the between-group factor. These results suggest that, even when accounting for group effects, time alone has a significant impact. Additionally, the interaction between group and time is also significant. Bonferroni post hoc tests were used for pairwise comparisons between groups.

Table 3

Bonferroni Post Hoc Test Results for Mental Pain and Zest for Life

Variable	Group 1	Group 2	Mean Difference	p-value
Mental Pain	Life Therapy	ACT	-16.40	0.001
	Life Therapy	Control	-39.05	0.001
	ACT	Control	-23.14	0.001
Zest for Life	Life Therapy	ACT	4.31	0.001
	Life Therapy	Control	8.06	0.001
	ACT	Control	3.75	0.001

Table 3 shows that mental pain and zest for life scores in both the life therapy and ACT groups differ significantly from the control group ($p < 0.01$). Furthermore, comparisons between the life therapy and ACT groups revealed significant differences in mental pain and zest for life ($p < 0.05$), with life therapy showing greater efficacy in increasing zest for life and reducing mental pain.

4. Discussion and Conclusion

The aim of this study was to compare the effectiveness of life therapy and Acceptance and Commitment Therapy (ACT) on mental pain and zest for life in patients with leukemia. A significant difference was found between the effectiveness of life therapy and ACT on mental pain in these patients. The results indicated that the difference in scores for all components of mental pain between the life therapy group and the ACT group was significant. Thus, the eighth hypothesis of the study is confirmed, indicating a significant difference between the effectiveness of life therapy and ACT on distress tolerance in patients with leukemia. The difference in mean scores also suggests that ACT had a better effect compared to life therapy.

The findings of this study are consistent with the results of previous studies (Hassanzadeh & Talebi, 2023; Maher et al., 2017; Sarabadani et al., 2022).

Research has shown that ACT is more effective than life therapy in reducing mental pain and improving the quality of life for patients with leukemia. Leukemia is a chronic and difficult-to-treat disease that can cause severe physical and psychological pain. Mental pain associated with cancer includes feelings such as anxiety, depression, fear of disease recurrence, and fear of death, which negatively impact daily life and quality of life. Using complementary psychotherapy approaches to reduce mental pain and improve the well-being of cancer patients appears essential (Fazli Ghaffouri et al., 2018).

ACT is a therapeutic approach that emphasizes the acceptance of unpleasant thoughts and feelings associated with the disease without judgment or struggle. Techniques such as mindfulness, cognitive defusion, and value-based action help patients accept negative thoughts and emotions and focus on meaningful life activities, leading to reduced mental pain and improved quality of life (S. Shahidi et al., 2022). By emphasizing the acceptance of unchangeable realities and commitment to meaningful life goals, ACT helps patients accept rather than resist or struggle with negative thoughts and feelings related to their illness, thereby alleviating mental pain. Techniques like mindfulness and cognitive defusion create distance between patients and their negative thoughts, reducing mental involvement and, consequently, mental pain. Patients learn to perceive thoughts as "I have negative thoughts" rather than "I am a negative person," decreasing mental engagement. Mindfulness practice helps patients live in the present rather than being consumed by past or future negative thoughts, further reducing mental pain (S. Shahidi et al., 2022).

Unconditionally accepting difficult realities like illness reduces stress and, consequently, mental and psychological pain. Focusing on values and meaningful life goals helps patients avoid being overwhelmed by disease-related distress. The therapeutic alliance built on acceptance and empathy also reduces emotional pain and increases hope in patients. Thus, ACT can effectively alleviate the psychological distress associated with cancer through various mechanisms (Esfahani et al., 2019; Karimi Baghmolek et al., 2018).

On the other hand, life therapy also contributes to reducing mental pain by emphasizing the development of talents and finding meaning in life. However, findings show that life therapy's focus on positivity is less effective in reducing negative thoughts and, consequently, mental pain compared to ACT's direct acceptance of unpleasant realities. Research has demonstrated that ACT significantly reduces anxiety and depression while markedly improving quality of life indices in leukemia patients. In contrast, life therapy primarily enhances patients' positive affect (Hassanzadeh, 2021; Hassanzadeh & Talebi, 2023). ACT, with its emphasis on accepting painful aspects of the illness, appears to be more effective in reducing mental pain. Overall, the research findings indicate that ACT is more effective than life therapy in reducing mental pain and improving quality of life in leukemia patients. However, combining both approaches could yield even better results.

There is a significant difference between the effectiveness of life therapy and ACT on zest for life in leukemia patients. The results show that the difference in zest for life scores between the life therapy group and the ACT group is significant. This indicates that life therapy is more effective than ACT in increasing zest for life in leukemia patients. The findings are in line with the prior results (Fadhil et al., 2022; Hassanzadeh & Talebi, 2023; Royin Tan et al., 2018).

According to the findings, group life therapy is more effective than ACT in improving the psychological status of the studied participants. Leukemia is a life-threatening

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illness that can lead to feelings of hopelessness, disinterest, and decreased motivation. Psychotherapeutic approaches aimed at restoring zest for life and hope in these patients are therefore critical. Life therapy and ACT are two methods that can improve patients' psychological adjustment (Royin Tan et al., 2018).

Life therapy, by emphasizing living in the present and engaging in enjoyable and meaningful activities, helps increase positive emotions and hope in patients. Techniques such as mindfulness, meditation, and focusing on pleasant moments enable patients to enjoy life despite their illness and maintain motivation to live (Maher et al., 2017). As a branch of humanistic psychotherapy, life therapy emphasizes human potential for growth and finding meaning, promoting psychological well-being. Techniques like creating a life timeline, present-moment focus, creative visualization, establishing emotional connections, and setting positive goals improve optimism and hope, leading to enhanced psychological adjustment (Ghadampour et al., 2016). By fostering psychological resilience and purpose, life therapy enhances individuals' ability to withstand difficulties. Creative visualization boosts cognitive flexibility, crucial for mental health, while forming close emotional connections enhances social support and overall mental well-being. Life therapy's focus on self-actualization helps patients feel more capable and motivated (Sarabadani et al., 2022).

In contrast, ACT emphasizes acceptance of reality and commitment to personal values, helping patients cope with illness but focusing less on generating positive emotions and motivation. Research has shown that life therapy significantly increases happiness, life satisfaction, and hope in cancer patients (Mohammadi et al., 2015). Conversely, ACT is more focused on reducing depression and anxiety symptoms. Hence, life therapy seems more effective in fostering zest for life and a positive outlook in cancer patients. Overall, the research suggests that life therapy's emphasis on enjoying life's moments makes it more effective than ACT in enhancing zest for life and positive emotions in leukemia patients (Esfahani et al., 2019).

This study was limited to young male patients, restricting the generalizability of findings to other age and gender groups. Incomplete access to patients' medical and psychological histories made it challenging to analyze the interventions' impact thoroughly. Some patients' physical conditions also limited full participation, potentially affecting the results. Future research should include women with cancer to explore possible gender differences. Controlling variables like disease stage, treatment history, and psychological status before the intervention is recommended for more accurate results. Conducting thorough psychological assessments before interventions can enhance outcomes. Patient education on coping strategies could improve quality of life and stress management. Educational materials such as brochures, videos, and animations may aid understanding of the disease and coping mechanisms. Providing counseling for young patients and their families can offer psychological support and reduce disease-related stress. Training specialists in life therapy and ACT methods could improve intervention quality. Creating guidebooks for leukemia patients to enhance distress tolerance and life quality is suggested. Organizing group workshops and therapy sessions in healthcare centers may leverage the positive effects of group support.

Authors' Contributions

Sayyedeh Saeideh Ghorayshi Seyed Mahalleh: This article is extracted from the first author's master's thesis, and they were responsible for project execution, sample collection, conducting sessions, and data analysis. Ramazan Hassanzadeh: The corresponding author, who supervised the research execution and revised the manuscript. Asghar Nouroozi: Provided guidance on the methodology and assisted with manuscript writing. All authors reviewed and approved the final version of the manuscript.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. This article is derived from the first author's master's thesis. The present study adhered to ethical principles, including obtaining written informed consent from participants, maintaining the confidentiality of participants' information, and allowing participants the freedom to withdraw from the study at any time. The research was approved by the Ethics Committee of Islamic Azad University, Sari Branch, under the ethical code IR.IAU.SARI.REC.1402.302. The study was designed to ensure that no physical or psychological harm was inflicted on the participants.

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