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Impact of Spiritual End-of-Life Support on the Quality of Life for Leukemia Patients

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Abstract

Objective: Patients with leukemia suffer from significant psychological, spiritual, and social symptoms. Therefore, the current research aimed to study the impact of spiritual end-of-life support on the quality of life for leukemia patients.
Method: To this end, the present quasi-experimental research with a pre-test and post-test design was performed. The sample included 60 cancer patients randomly assigned to intervention and control groups through the method of permutation block. The experimental group received spiritual support intervention for eight sessions of 60 minutes, while the control group received no intervention. Patients filled out the questionnaire of World Health Organization Quality of Life. The World Health Organization conducts a three-phase assessment to measure the quality of life. These phases include a pre-test, which is conducted before any intervention takes place. Then comes the post-test, which occurs after the intervention. Finally, there is a follow-up assessment conducted two months after the post-test. The obtained results were analyzed by repeated-measures analysis and independent samples t-test using SPSS software.
Results: The findings from the repeated measures analysis revealed that there was a statistically significant interaction between time and group (P = 0.01). In other words, being compared to the control group, the spiritual support significantly increased the life quality of the patients in the experimental group. The experimental group witnessed a sustained enhancement in the quality of life for a period of two months following the intervention (follow-up, P = 0.01).
Conclusion: Ultimately, the provision of spiritual support has the potential to enhance the overall well-being of individuals approaching the end of their lives, offering solace and aiding them in comprehending the true essence and purpose of their existence.

Key words: *End of Life; Hospice Care; Leukemia; Quality of Life; Spiritual Therapies*

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Cancer is one of the main concerns of the health system in different countries (1) and is the second most important cause of death in the world and the third cause in Iran (2, 3). Over the past few years, there has been a notable rise in the occurrence of cancer (2). In the year 2020 alone, approximately 19.3 million new cases of cancer were reported globally (excluding non-melanoma skin cancers [NMSC], which accounted for 18.1 million cases). Additionally, the number of cancer-related deaths reached a staggering 10 million (excluding NMSC, which accounted for 9.9 million deaths) (3). According to a recent study conducted in Iran, it was uncovered that there is an anticipated rise in the overall count of individuals diagnosed with cancer from 112,000 in 2016 to 160,000 cases in 2025, indicating a growth rate of 42.6% (4). Leukemia stands as a prevalent form of cancer, with its mortality rate holding the 15th rank worldwide (1). The highest increase in new cases of leukemia in Iran indicates a growth of 24% by 2025 (4).

Having leukemia is one of the most challenging situations in life (5). Due to its threatening nature, the mental framework of most patients from the beginning of the disease diagnosis, during treatment, or in the final stage of their disease is disturbed. There are various reasons for this mental disturbance, including common beliefs about cancer disease, uncertainty of the effect of treatment, failure to provide early palliative medicine along with the medical treatments given to the patient, fear of death, etc. Such patients unconsciously experience fear, worriness, stress, anxiety, loss of hope, purpose and meaning of life (6-10). Often this condition is associated with depression and a feeling of extreme helplessness. Most of these patients experience a range of negative emotions such as aggression, anger, guilt, and fear; these emotions affect their self-esteem and identity (11, 12) and reduce their level of quality of life (QoL) (13).

As individuals near the end of their life's journey often experience a profound spiritual anguish, seeking to discover significance and purpose in both their existence and the inevitability of death as well as the mysteries lying beyond it (14). Spirituality means believing, being related to everything that can be internal and external, being connected with the superhuman and a force that gives individuals the power to perceive the meaning of the current and future life (15). Richards and Bergin posit that spirituality encompasses an individual's perception of their own identity and value in connection with a higher power, as well as their position within the vast expanse of the universe (16). If people can find spiritual beliefs, namely belief in life after death and sources of peace, they can be released from anxiety; and spiritual and religious faith creates a kind of worldview interrelated with optimism and hope, thereby improving the level of quality of the life of the patients with cancer at the end of their life's journey (14).

The notion of quality of life (QoL) is multifaceted, personal, and intricate, reflecting a holistic and adaptable journey that encompasses every facet of individuals' existence (17, 18). Based on the World Health Organization's definition, QoL shapes one's overall outlook on life, encompassing beliefs, aspirations, objectives, benchmarks, and passions (19).

In the past few years, significant advancements have occurred in the techniques used for cancer treatment and prevention. Various approaches such as chemotherapy, radiation therapy, and innovative procedures such as brain and bone transplants have been implemented successfully. These measures have not only contributed to reducing mortality rates but also remarkably improved the chances of survival for cancer patients (20, 21). However, the long-term use of aggressive treatments in many cases deprives patients of enjoying life and this increases their spiritual needs (22), puts them at risk of spiritual distress (23), makes them suffer from lack of purpose, value, and meaning in life (24); thus, they end up having a low level of life quality. The quality of life (QoL) in these individuals is not only influenced by the treatment and its accompanying adverse effects, but also by their self-awareness as holistic beings involving their physical, emotional, and mental aspects (25).

A comprehensive analysis of 21 studies investigating the impact of blood cancers on individuals' quality of life revealed that hematological cancer significantly alters various dimensions of well-being. Specifically, physical, functional, cognitive, psychological, social, and sexual aspects of quality of life are found to be exacerbated by certain types of hematological malignancies as well as associated treatment side effects (26).

In order to effectively address the challenges arising after the disease and attain a sense of spiritual well-being, individuals facing cancer necessitate holistic support encompassing palliative care principles (27-28). WHO emphasizes the significance of the effect of holistic support with a palliative support approach on the well-being of both patients and their families, who face various difficulties, and that their overall quality of life (physical, mental, social, or spiritual) is greatly influenced by life-threatening diseases (29). Holistic care primarily revolves around acknowledging and addressing the spiritual aspect of human existence (30, 31).

Studies have indicated that achieving a superior standard living is unattainable without spiritual well-being. Neglecting one's spiritual health hampers the proper functioning and realization of utmost potential in an individual's biological, psychological, and social dimensions (32).

Research conducted in the realm of spirituality and quality of life among individuals battling cancer has divulged that Spiritual Support (SS) plays a pivotal role in enhancing the overall well-being of cancer patients. Moreover, spirituality emerges as a significant element

in aiding individuals to cope with the immense stress brought about by chronic illnesses (33-37).

In their path analysis study, Lima *et al*. indicated that spirituality has a direct impact on the quality of mental life, with an indirect influence on the well-being of patients which in turn affects the overall quality of their physical existence (38).

SS is a type of care that explores the spiritual needs of patients and pays attention to them. During the course of providing SS, after identifying the spiritual challenges of the patients, a precise and comprehensive meaning is given to them, as their conflict with God is also resolved. The process of giving meaning to the disease helps patients accept the conditions, improves the treatment process, and enhances the quality of patients' four aspects of relationship with God, self, people, and creation (39). This meaning and resolution of conflict occurs through SS, which makes life valuable and death meaningful by constructing a system of belief and action in the process of closeness to God (40), and is considered as an effective source to deal with physical and psychological responses (41). In addition, it is considered as one of the important resources in making people adaptable under stressful life conditions (42). Based on this method, spirituality can enhance patients' quality of life (43). Hence, it can be stated that SS encompasses the profound journey of discovering and attributing significance to the four interconnected relationships between individuals and the divine, self, people, and creation (39). In the realm of healthcare, particularly in the field of oncology/hematology, the significance of enhancing the quality of life has emerged as a crucial concern in recent times (44).

A review of investigations performed in the field of spirituality and cancer demonstrated that spirituality has enhanced the level of mental well-being, mental health, resilience, and quality of life of patients (45-48). Research conducted on a group of 60 leukemia patients revealed that offering SS to individuals diagnosed with leukemia effectively alleviated physical symptoms, anxiety, sleep disorders, depression, and social functioning issues. Furthermore, it significantly improved the overall health and well-being of the patients (50), and it enhanced the well-being of individuals afflicted with cancer (51).

The results of another study done on 63 Arab Muslim survivors who had received hematopoietic stem cell transplantation as a treatment for blood malignancies revealed that bolstering their belief in God and placing more reliance on religious or spiritual activities assisted these patients in dealing with the challenging and distressing aspects of their illness (36).

In Iran's healthcare system, the incorporation of SS within the context of holistic and palliative care being the objective of this task has not found its real position in the clinical field. Additionally, the review of studies also shows that there is no research related to the effectiveness of spirituality on the quality of life of patients with leukemia. It is noteworthy that over 90% of Iran's population is Muslim, and religion plays a crucial role for Iranians; they believe that death is not only the disconnection of the complex chain of biochemical processes but also a transition to another life, as the soul continues its life beyond death (52). Furthermore, based on the local and religious culture, when Iranian people are sick, they turn to spirituality and feel God's presence in their lives even more. The present study can be useful in producing research-based evidence for macro policies in the healthcare system, mitigating treatment and care costs, enhancing the well-being and psychological welfare of individuals approaching the end of their lives, namely patients with leukemia.

Thus, this study was performed to investigate the effectiveness of spiritual care on the quality of life of end-of-life patients with leukemia. The hypothesis of the present research is as follows: spiritual care improves the quality of life of patients at the end of life due to blood cancer.

Materials and Methods

Participants and the Study Setting

The present research is a single-blind randomized clinical trial (1N20210513051282IRCT). The study population included all patients with leukemia who are in the last stage of life and were hospitalized in the hematology/oncology ward of Imam Reza (AS) Hospital in Mashhad, Iran, from May 22, 2021 to September 23, 2021. In the conducted power analysis, it was determined that the sample size should consist of 68 patients, with 34 participants assigned to each group. The calculation accounted for a margin of error of 0.05, an effect size of 0.4, and a power of 0.98 to represent the population. However, eight participants were missed in the course of the study; therefore, the sample size led to 60 participants who were selected using a permutation block sampling method in which patients were randomly assigned to either the intervention group or the control group.

Inclusion and Exclusion Criteria

The inclusion criteria for patients in the study entailed the diagnosis of leukemia in their medical record, being in the last stages of life regarding medical parameters, being over 18 years old, having a minimum education level of high school diploma, having a consciousness level above 8, giving permission to take part in the research, and being a devout adherent of the Islamic faith. Exclusion criteria included drug abuse during the intervention, the presence of severe psychiatric disorders/delirium/dementia, having a consciousness level below 8 during the experiment for four consecutive days, being in disagreement with the treatment protocol, and patient death during the study. To observe the ethical considerations, the objectives of the research were explained to the subjects in a calm atmosphere, and prior to conducting the study, explicit permission was acquired from the participants in a

written form. Moreover, the participants were guaranteed the preservation of their personal information in strict confidentiality.

Instrument

The World Health Organization's Quality of Life Questionnaire

To evaluate the quality of life among participants, the researchers employed the World Health Organization Quality of Life (WHOQOL-BREF) questionnaire (1996). The original version of the questionnaire had 100 items (19); however, the revised version was reduced to a 26-item questionnaire. This questionnaire assesses the general life quality of the individuals by addressing the physical health (consisting of seven items), psychological health (comprising of six items), social relations (comprising of three items), and environment (consisting of eight items). This evaluation employs Likert scales, where participants rate each item on a scale ranging from 1 to 5. It is worth mentioning that the total score range of an individual is within the range of 0-100 (49). This questionnaire was formerly validated in the Iranian society (37). The reliability achieved through the utilization of Cronbach's alpha method and intra-cluster correlation was determined to be 0.70 across all domains, with the exception of social relation which exhibited a reliability of 0.55 through Cronbach's alpha. In 83% of cases, the correlation between each question and its corresponding main domain exceeded that of the other domains (42, 51).

Spiritual Care Intervention Package

In the present study, the educational package of spiritual care was designed based on the spiritual model of Richards and Bergin (52). Richards and Bergin presents a type of spiritual strategy that encompasses the psychological/spiritual components including self-awareness, listening to the inner voice, communication with God, divine wisdom, trusting and appealing to God, prayer, patience and tolerance, forgiveness and ignoring anger, and expressing gratitude (52). Since Richards and Bergin use scriptures in their protocol and due to the important role of culture and religious teachings in spiritual care (53) and the lack of access to the native protocol, the protocol of Richards and Bergin was adopted. Moreover, the content of the spiritual model of Richards and Bergin was matched with Islamic teachings and the Iranian culture by religious experts and knowledgeable educators from Mashhad University of Medical Sciences and Ferdowsi University of Mashhad. The content validity of the changes in the protocol was verified by the religious experts affiliated with Mashhad University of Medical Sciences. In the present study, SS was provided by a trained cleric.

Therefore, this intervention was conducted in eight sessions, each of 60-minute duration, by a spiritual caregiver. Spiritual support was exclusively provided to the intervention group, while no intervention was offered to the control group. They only received their routine treatments. Unfortunately, due to the loss of patients in the intervention process, it was not possible to present the intervention after the follow-up phase. The description of spiritual care intervention sessions is displayed in Table 1.

Procedure

The study began in May and ended in October 2021. After obtaining the consent, the objective of the study was clearly communicated to the patients, and sampling was performed. According to the randomized permutation block sampling method, patients were placed in quadruple blocks and were randomly assigned. Before the formation of the intervention and control groups, every participant from both groups participated in a pre-test. In the next step, those patients in the intervention group underwent a series of eight spiritual intervention sessions (60 minutes per each). It should be noted that the control group received the standard routine treatments without any SS sessions. The intervention sessions lasted about two months, then the post-test was conducted. After two months, to assess the combined influence of time and spiritual intervention, a subsequent phase was carried out (Figure 1).

Statistical Analysis

The data was analyzed in SPSS software version 20. Descriptive statistics (frequency/percentage, mean, and standard deviation) were used to describe the personal/social characteristics of the participants. To investigate the effectiveness of SS on the life quality of patients over time, variance analysis was employed with a repeated measurement. The significance level in this study was considered as $P < 0.05$.

Table 1. Description of Spiritual Care Sessions by Richards and Bergin (2005) in Accordance with Islamic Teachings

Session	Purposes	Strategies	Task
First	1. Acquaintance of the members with each other, knowing the reasons for forming the group. 2. Knowing the rules of the group. 3. Discussion of spirituality and religion and their effects on one's life.	1. The members of the group get familiar with each other and the spiritual care team; the rules of the group in accordance with respecting each other's opinions and tolerance of different views were stated; the number and time of the meetings were determined; the significance of continuous attendance until the finalization of the therapy was also discussed. 2. The discussion encompassed the concept of "spiritual care", its necessity in life, the role of self-belief and self-acceptance, as well as the difference between religion and healthy spirituality.	
Second	Self-awareness and connection with self	1. Identifying and understanding emotions and controlling them using guided imagery techniques, awareness of other people's emotions, identifying needs, and finding a way to achieve them. 2. The issues of spiritual freedom in accordance with the acceptance of God and man's mission in life and his responsibility and planning for today and the future were also discussed. Talking and expressing emotions on a daily basis with a roommate present in the group about common points and building a an empathic relationship.	Discussing and stating emotions daily with one's roommate in the group regarding common points and creating an empathic relationship
Third	1. Conceptualization of the problem by the spiritual caregiver and raising it in the group. 2. Discovering the patient's belief challenges that lead to raising the question of "why me?" for the patient. 3. The patient can focus on the divine wisdom for the reason of suffering by the aid of Quranic verses.	1. Taking a spiritual history (identifying the patient's spiritual and psychological problems and needs). 2. Considering the patients' attitude toward the disease. Changing the patient's attitude towards the good and evil of affairs based on the content of the noble verse 216 of Surah Al-Baqarah[1] but you may hate a thing although it is good for you, and may love a thing although it is evil for you. allah knows, and you do not.	Remembering and writing down the events that happened in the past where we relied on divine wisdom in facing them throughout our lives.
Fourth	1. Getting familiar with the concepts of trust using the concepts in prayers. 2. Discussing the role of trust and appeal in achieving the best result.	1. Creating the morale of trust and appeal by the prayers in Sahife Sajjadie namely Prayer 15.	Real prayers in a group in the worship room. Reading the prayers 15 of Sahife Sajjadie.
Fifth	1. Getting familiar with the concept of patience in the verses and tradition. 2. Great reward for patience against diseases and sufferings.	1. Using spiritual care techniques in three cognitive, emotional, behavioral areas in order to enhance resilience and patience against one's illness. Performing exercises that are recommended based on cognitive, emotional, behavioral techniques.	Doing exercises based on the recommended cognitive, emotional and behavioral techniques.
Sixth	Making models based on the religious elements and characters in case of sufferings.	1. Using the techniques of spiritual care in three cognitive, behavioral and emotional areas of the tradition of prophet and his family.	Introducing books

Seventh	1. Knowing the place of forgiveness in creating peace. 2. Giving meaning to the pain and suffering of disease by understanding the divine forgiveness.	1. Getting familiar with how to forgive self and others. 2. Getting familiar and exercising the results of forgiveness. 3. Getting familiar with the role of forgiveness in improving the emotional states.	The members share what they have learnt, how they have changed and how they use what they have learnt.
Eights	1. Solving spiritual and religious problems. 2. Gratitude and thanksgiving.	1. Identifying the problems and dealing with the problem solving styles. 2. The ability of expressing positive feelings.	The members talk about the methods of problem solving and expressing their positive feelings of their spiritual problem solving.

1. عَسَىٰ أَنْ تَكْرَهُوا شَيْئًا وَهُوَ خَيْرٌ لَكُمْ ۖ وَعَسَىٰ أَنْ تُحِبُّوا شَيْئًا وَهُوَ شَرٌّ لَكُمْ

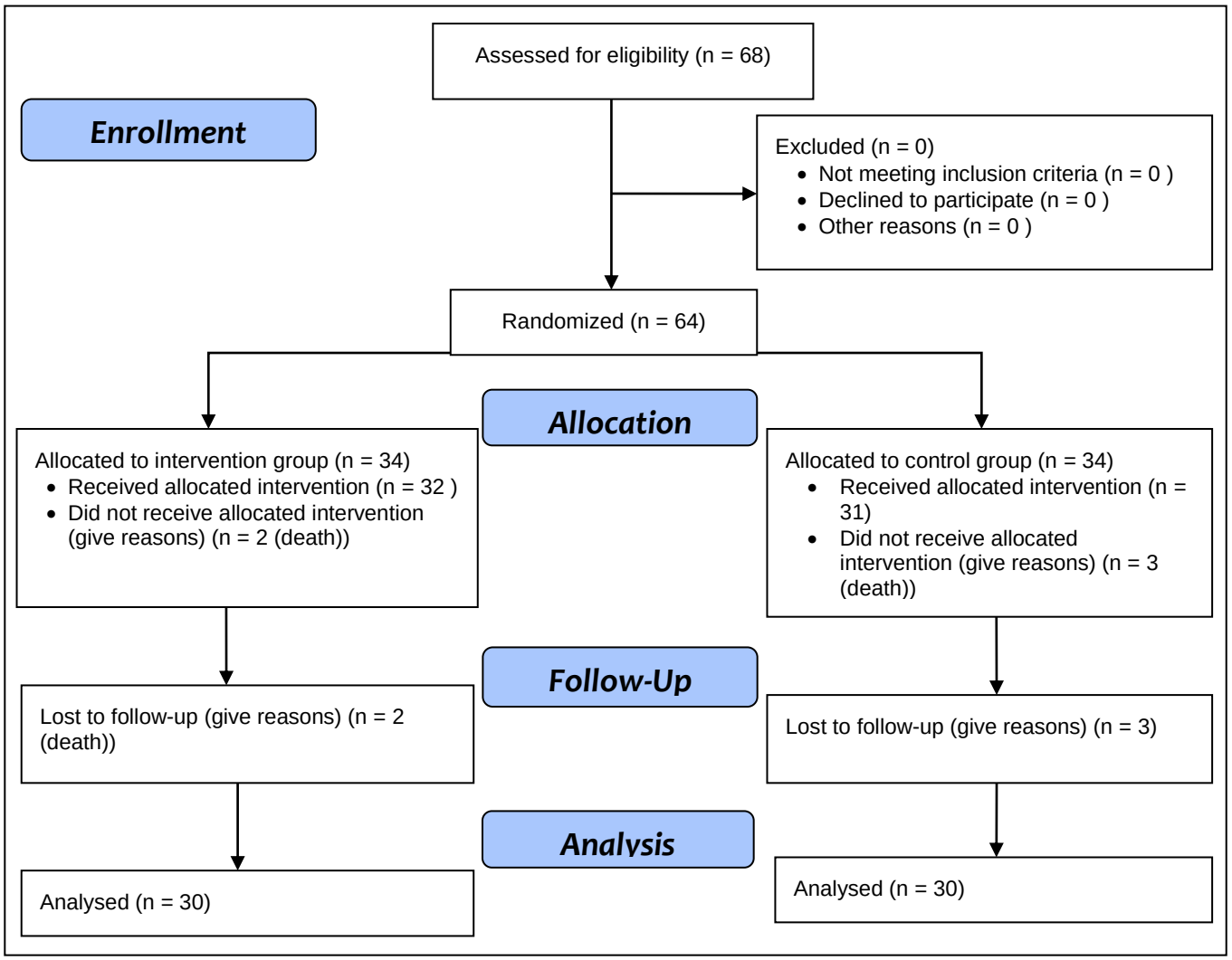

Figure 1. CONSORT Flowchart Illustrating the Recruitment of Patients for the Present Randomized Controlled Trial

Results

The present study included 68 participants within both the intervention and control groups (34 people in each group); however, eight patients were excluded from the intervention and control groups because they passed away during the study (Figure 1). Table 2 displays the demographic attributes of the patients. According to the

results, the intervention and control groups did not differ significantly in terms of gender, age, education, and marital status. Moreover, the mean quality of life of the intervention group was not significantly different from that of the control group in the pre-test phase ($P > 0.05$).

Table 2. A Comprehensive Analysis of Demographic Variables in both the Intervention and Control Groups by Utilizing Descriptive Statistics such as Frequency, Percentage, Mean, and Standard Deviation

	Intervention Group (n=30)	Control Group (n=30)	P-Value
Gender			0.795
Male	17 (28.3)	16 (26.7)	
Female	13 (21.7)	14 (23.3)	
Age	35.53 + 12.09	39.20 + 9.94	0.205
18-27	8 (13.3)	5 (8.3)	
28-37	7 (11.7)	7 (11.7)	
38-47	10 (16.7)	13 (21.7)	
48 and older	5 (8.3)	5 (8.3)	
Education			
Illiterate	0	1 (1.7)	0.108
Primary	3 (5.0)	2 (3.3)	
Middle school	9 (15.0)	15 (25.0)	
High school	11 (18.3)	9 (15.0)	
Bachelor	6 (10.0)	3 (5.0)	
Masters or more	1 (1.7)	0	
Marital status			
Single	10 (16.7)	6 (10.0)	0.243
Married	20 (33.3)	24 (40.0)	

Descriptive statistics (mean and standard deviation) for quality-of-life variables in three stages of pre-test, post-test, and follow-up for the experimental and control groups are presented in Table 3. As can be seen, the mean quality of life for the experimental group was 64.033 in the pre-test, which increased to 72.93 in the post-test and reached 72.40 in the follow-up. In the control group, the mean quality of life was 72.70, which did not change in the post-test (72.70) and decreased to 66.53 in the follow-up.

Table 3. The Average (Mean) and Variability (Standard Deviation) of the Quality of Life Scores for both the Intervention and Control Groups During the Pre-Test, Post-Test, and Follow-up Stages

	Pre-test		Post-test		Follow-up	
Groups	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Intervention	64.03	13.79	72.93	16.82	72.40	13.41
Control	72.70	8.84	72.70	8.84	66.53	8.68

To evaluate the effectiveness of SC on the life quality of patients during the final phase of their lifespan, statistical analysis was employed to assess the variability with the repeated measures. Before using repeated measures for the test of variance analysis, the Kalmograph-Smirnov test was conducted to verify the hypothesis of normal distribution. The test results indicated that the distribution of life quality scores in the pre-test, post-test, and follow-up stages was normal ($p > 0.05$). Moreover, based on Mauchly's Test of Sphericity, the equality of variances was found to be statistically significant. Consequently, the assumption that the variances have a spherical shape remained unviolated ($W_{(2)} = 0.521$, $X^2 = 18.239$, $P < 0.01$).

The results of repeated measures analysis of variance indicated that the effect of measurement time on the quality of life scores was significant ($F_{(1.352,\ 39.210)} = 6.742$, $P < 0.01$, $\eta^2 = 0.189$). Thus, it can be stated that regardless of the experimental group, the mean quality-of-life scores differed significantly in the pre-test, post-

test, and follow-up. The interaction effect of time and group was also significant ($F_{(1.352,\ 39.210)}$ = 16.920, P < 0.01, η^2 = 0.368). As a result, it can be said that the difference in the mean scores of quality of life at different times of measurement varies according to the levels of the group variable.

Table 4. Results of Repeated-Measure Analysis to Determine the Impact of Spiritual Support on Quality of Life for Leukemia Patients

Variable			SS	df	MS	F	sig	ES
Quality of life	Within subject effect	Time	644.700	1.352	476.831	6.742	0.008	0.189
		Time*group	1610.811	1.352	1190.942	16.920	0.0001	0.368
		Error	2772.967	39.210				
	Between groups	Group	887468.450	1	887468.450	2532.285	0.0001	0.988
		Error	10163.383	29	101163.383			

As shown in Table 4, the effect of the group on quality-of-life scores was significant ($F_{(1,\ 29)}$ = 2532.285, P < 0.01, η^2 = 0.988). It is evident that there existed a notable difference in the average scores of the quality of life between the experimental and control groups, irrespective of the time of measurement. Since the interaction effect between the intragroup factor of the measurement time and the intergroup factor of the group was significant, the simple effect of the intergroup concerning the intragroup factor levels was investigated using Bonferroni correction (Table 5).

Table 5. Ben Foroni Post Hoc Test for in Pair Comparison in Time Series

A	B	Mean Difference (A-B)	Sig
Pre-test	Post-test	-4.450	0.001*
	Follow-up	-1.100	1.000
Post-test	Follow-up	3.350	0.089

As presented in Table 5, the average quality of life in the experimental group displayed a notable disparity between the pre-test and post-test phases, as opposed to the control group (P < 0.05). Therefore, it can be concluded that SC could significantly increase the mean life quality of the experimental group, compared to the control group in the post-test phase. The data presented in Table 5 indicates that the average scores reflecting the quality of life during the follow-up phase have shown improvement when compared to the initial assessment. However, it is important to note that this improvement was not statistically significant (P > 0.05). As Figure 2 illustrates, both groups had similar levels of quality of life during the initial assessment; however, after receiving the intervention in the post-test, the quality of life of the experimental group increased and this increase was relatively maintained in the follow-up phase (slightly decreased). While descriptive statistics revealed that during the follow-up phase, the average scores of the participants experienced a slight decrease, the repeated measure indicated this difference was not significant; thus, the effect of the intervention was preserved. In relation to the control group, no noteworthy alteration was observed from the initial assessment to the subsequent assessment and the subsequent follow-up.

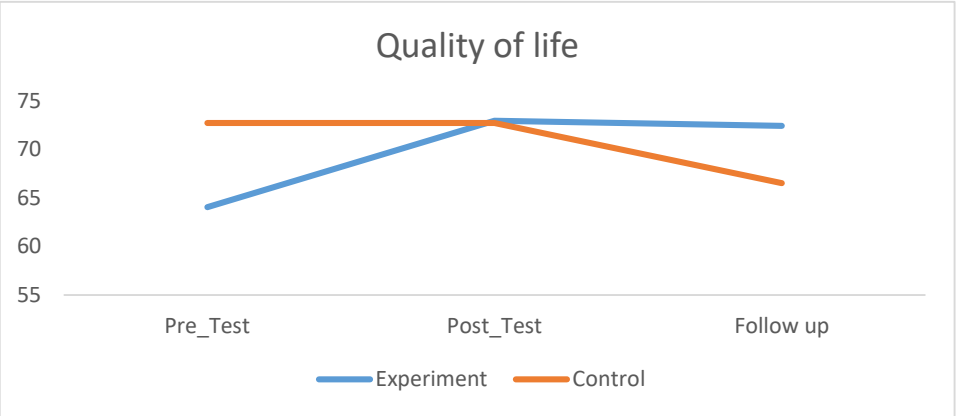

Figure 2. Distribution of Quality of Life during the pre-Test, post-Test, and Follow-up for the Experimental and Control Groups

Discussion

The primary objective of this study was to assess the impact of SS on the overall well-being and life satisfaction of leukemia patients during their final stages of life. The obtained results of the study indicated that SC significantly increased the mean quality of life of participants in the intervention group, compared to the control group in the post-test. Moreover, the research revealed that the improvement in the overall well-being resulting from the intervention remained consistent during the follow-up period after the post-test phase. This indicates that the influence of time had a noteworthy impact. In other words, SS could increase the quality of life of patients for at least two months. This result was in line with the results of other studies on the significant role of religious and spiritual beliefs in improving the quality of life of cancer patients (54, 55). In another study on 72 patients with breast cancer, it was indicated that support-based SS could heighten hope in patients (1). SS for patients with advanced cancer could improve their spiritual health and quality of life and reduce negative mental health symptoms (56). Another study revealed that SS could increase the overall well-being experienced by individuals suffering from severe and incurable diseases during their final stages of life (57, 58). Research has also discovered that spiritual assistance has the potential to enhance the overall health and quality of life for women who are battling breast cancer. This form of intervention can effectively elevate their functional abilities, social connections, and physical well-being (56).

The impact of spiritual care SS on one's quality of life can be elucidated through the concepts of hope and meaningfulness. This is due to the significant influence that spirituality exerts in helping individuals cope with the challenges posed by chronic and incapacitating illnesses, as well as the subsequent stress they generate. As a result, the most important special effect of SS can be considered in changing the attitude and interpretation of the person towards illness and life. This change in beliefs affects a person's cognitive assessments and manages negative events as well as the resulting stress in a logical way. The patient achieves a stronger sense of security through communication with God and spiritual resources and effective improvement in his ability to adapt to the mental and physical problems caused by the disease. Spirituality, as a safe haven, gives meaning to the patient's life, which is the main aim of most therapists. Increased resilience, hope, and consequently mental and physical strength are important results of living in light of spirituality. Individuals who have experienced the existential benefits of the spiritual approach have achieved a high quality of life (43).

The effectiveness of SS on quality of life can be explained on the basis of neuropsychological research (psychoneuroimmunology) since SS focuses on strengthening the patient's spiritual beliefs related to their quality of life. As a result, strengthening this spiritual belief can affect the patient's spiritual beliefs and consequently the challenged cells. One of the most important neuropsychological discoveries of immunology is the presence of a variety of auxiliary messenger molecules called neuropeptides. These molecules can be regulated not only by the brain but also by any other organ in the body. Therefore, the immune system acts like a circulating nervous system that is strongly influenced by individuals' thoughts and emotions. In this regard, scientific evidence demonstrates that the feeling of loss or dissatisfaction can seriously impair the immune system functionality, causing various chronic diseases. Therefore, since SS deals with our belief system and thoughts (the primary objective of this care is to enhance and fortify the patient's spiritual convictions), and our belief system affects our physical condition, thus SS is associated with physical health and can improve that (59, 60).

Spiritual beliefs provide individuals with a deeper understanding of life's true purpose, and they serve as a consolation in painful and threatening situations. Therefore, unexpected and life-challenging incidences

are perceived by individuals as less threatening, and they accept unchangeable events. From this point of view, individuals perform better when they are connected to divine power and have higher goals and values (61).

As a result, spiritual interventions in treating cancer patients include the ability to use their capital and spiritual resources to solve physical and psychological problems and live a better life through environmental mastery, goal-setting, and self-acceptance. Meaning and purpose in life contribute to psychological adjustment in acute stages and outcomes of treatment (62). Therefore, religious and spiritual convictions and engagements have the potential to alleviate the burdens of life and enhance the overall quality of life for individuals in their final stages of existence. Such beliefs and activities provide solace, empowerment, and a sense of purpose, thereby reducing the stress experienced during this time (63, 64). Thus, the motivation behind the present study was to pave the way for future studies in the field of spiritual care to demonstrate its effectiveness in the lives of chronic patients, especially those with leukemia, and help improve the position of spiritual care in palliative medicine.

Limitation

In the current study, some limitations should be acknowledged. First, the study population included only leukemia patients, which prevents its generalization to patients suffering from other types of cancer. In the future, there will be a need to explore the impact of spiritual care on individuals who suffer from different ailments, with the objective of examining how it can alleviate the distress caused by their traumatic encounters. Moreover, the follow-up phase of this study was performed at a two-month interval and the study lacked long-term follow-up (6-12 months) due to patient mortality. In the future, such a study can provide more detailed findings.

Conclusion

Enhancing the emotional and spiritual well-being of individuals nearing the end of their lives and grappling with cancer has been linked to improving their overall quality of life. Additionally, this responds to their spiritual needs, enabling them to foster a strong bond with the divine. As they get close to their God, they can control their pain, express and discover the spiritual dimensions of approaching the End-of-Life, and finally achieve spiritual peace.

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Conflict of Interest

None.

References

1. Khezri E, Bagheri-Saveh MI, Kalhor MM, Rahnama M, Roshani D, Salehi K. Nursing care based on the Support-Based Spiritual Care Model increases hope among women with breast cancer in Iran. Support Care Cancer. 2022;30(1):423-9.
2. Rassouli M, Sajjadi M. Palliative Care in Iran: Moving Toward the Development of Palliative Care for Cancer. Am J Hosp Palliat Care. 2016;33(3):240-4.
3. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. CA Cancer J Clin. 2021;71(3):209-49.
4. Roshandel G, Ferlay J, Ghanbari-Motlagh A, Partovipour E, Salavati F, Aryan K, et al. Cancer in Iran 2008 to 2025: Recent incidence trends and short-term predictions of the future burden. Int J Cancer. 2021;149(3):594-605.
5. Gillilan R, Qawi S, Weymiller AJ, Puchalski C. Spiritual distress and spiritual care in advanced heart failure. Heart Fail Rev. 2017;22(5):581-91.
6. Balboni TA, Paulk ME, Balboni MJ, Phelps AC, Loggers ET, Wright AA, et al. Provision of spiritual care to patients with advanced cancer: associations with medical care and quality of life near death. J Clin Oncol. 2010;28(3):445-52.
7. Vallurupalli M, Lauderdale K, Balboni MJ, Phelps AC, Block SD, Ng AK, et al. The role of spirituality and religious coping in the quality of life of patients with advanced cancer receiving palliative radiation therapy. J Support Oncol. 2012;10(2):81-7.
8. Pittet V, Vaucher C, Froehlich F, Burnand B, Michetti P, Maillard MH. Patient self-reported concerns in inflammatory bowel diseases: A gender-specific subjective quality-of-life indicator. PLoS One. 2017;12(2): e0171864.
9. Rashid YA, Ghafoor ZA, Masood N, Mehmood T, Awan S, Ansar T, et al. Psychosocial impact of cancer on adult patients. J Pak Med Assoc. 2012;62(9):905-9.
10. Sadat Aghahosseini S, Rahmani A, Abdollahzadeh F, Asvadi Kermani I. The Relation between Awareness of Cancer Diagnosis and Spiritual Health among Cancer Patients. J Caring Sci. 2012;1(2):67-72.
11. Jones JM, Cohen SR, Zimmermann C, Rodin G. Quality of life and symptom burden in cancer patients admitted to an acute palliative care unit. J Palliat Care. 2010;26(2):94-102.

12. Thuné-Boyle IC, Stygall JA, Keshtgar MR, Newman SP. Do religious/spiritual coping strategies affect illness adjustment in patients with cancer? A systematic review of the literature. Soc Sci Med. 2006;63(1):151-64.
13. Brady MJ, Peterman AH, Fitchett G, Mo M, Cella D. A case for including spirituality in quality of life measurement in oncology. Psychooncology. 1999;8(5):417-28.
14. McClain-Jacobson C, Rosenfeld B, Kosinski A, Pessin H, Cimino JE, Breitbart W. Belief in an afterlife, spiritual well-being and end-of-life despair in patients with advanced cancer. Gen Hosp Psychiatry. 2004;26(6):484-6.
15. Wong KF, Yau SY. Nurses' experiences in spirituality and spiritual care in Hong Kong. Appl Nurs Res. 2010;23(4):242-4.
16. Miller G. Incorporating spirituality in counseling and psychotherapy: Theory and technique: JWS; 2003.
17. Theofilou P. Quality of life: definition and measurement. Eur J Psychol. 2013;9(1):150-162.
18. Organization WH. The World Health Organization quality of life (WHOQOL)-BREF. Geneva: WHO; 2004.
19. The World Health Organization Quality of Life assessment (WHOQOL): position paper from the World Health Organization. Soc Sci Med. 1995;41(10):1403-9.
20. Fang CY, Schnoll RA. Impact of psychological distress on outcomes in cancer patients. Expert Rev Pharmacoecon Outcomes Res. 2002;2(5):495-506.
21. Fischbeck S, Maier BO, Reinholz U, Nehring C, Schwab R, Beutel ME, et al. Assessing somatic, psychosocial, and spiritual distress of patients with advanced cancer: development of the Advanced Cancer Patients' Distress Scale. Am J Hosp Palliat Care. 2013;30(4):339-46.
22. Pearce MJ, Coan AD, Herndon JE, 2nd, Koenig HG, Abernethy AP. Unmet spiritual care needs impact emotional and spiritual well-being in advanced cancer patients. Support Care Cancer. 2012;20(10):2269-76.
23. Skalla K, McCoy JP. Spiritual assessment of patients with cancer: the moral authority, vocational, aesthetic, social, and transcendent model. Oncol Nurs Forum. 2006;33(4):745-51.
24. Noguchi W, Morita S, Ohno T, Aihara O, Tsujii H, Shimozuma K, et al. Spiritual needs in cancer patients and spiritual care based on logotherapy. Support Care Cancer. 2006;14(1):65-70.
25. Rapley M. Quality of life research. Quality of Life Research. 2003:1-286.
26. Allart-Vorelli P, Porro B, Baguet F, Michel A, Cousson-Gélie F. Haematological cancer and quality of life: a systematic literature review. Blood Cancer J. 2015;5(4): e305.
27. Damsma-Bakker A, van Leeuwen R. An Online Competency-Based Spiritual Care Education Tool for Oncology Nurses. Semin Oncol Nurs. 2021;37(5):151210.
28. Gijsberts MHE, Liefbroer AI, Otten R, Olsman E. Spiritual Care in Palliative Care: A Systematic Review of the Recent European Literature. Med Sci (Basel). 2019;7(2).
29. Chen J, Lin Y, Yan J, Wu Y, Hu R. The effects of spiritual care on quality of life and spiritual well-being among patients with terminal illness: a systematic review. Palliative medicine. 2018 Jul;32(7):1167-79.
30. Saunders C, Summers DH, Teller N. Hospice: the living idea. 1981.
31. Saunders C. The management of terminal illness, 1967. SW. 1958; 2004:91-114.
32. Afshar M, Sadat Z, Bagheri M. The Effect of Spiritual Counseling on Hope in Patients with Multiple Sclerosis: A Randomized Clinical Trial. Int J Community Based Nurs Midwifery. 2021;9(4):313-24.
33. Hojjati H. On the relationship between prayer frequency and spiritual health in patients under hemodialysis therapy. J Fundam. 2010;12(46):21-514.
34. Ghazipoor G, Ahmadian H, Goudarzi M, Amirifard N. Causal Model of Overcoming Death Anxiety by Cognitive Regulation of Emotion and Spirituality and the Mediation Role of Resilience in Patients Diagnosed with Cancer: Provide Suggestions to Improve Psychiatric Nursing Services. JCRPS.2021;10(2).
35. Asgari S, Shafiee H. Prediction of elderly quality of life based on internal coherence, mindfulness and spiritual intelligence. Positive Psychology Research. 2017;3(3):61-74.
36. Alaloul F, Schreiber JA, Al Nusairat TS, Andrykowski MA. Spirituality in Arab Muslim Hematopoietic Stem Cell Transplantation Survivors: A Qualitative Approach. Cancer Nurs. 2016;39(5): E39-47.
37. Kalfoss MH, Low G, Molzahn AE. The suitability of the WHOQOL-BREF for Canadian and Norwegian older adults. Eur J Ageing. 2008;5(1):77.
38. Lima S, Teixeira L, Esteves R, Ribeiro F, Pereira F, Teixeira A, et al. Spirituality and quality of life in older adults: a path analysis model. BMC Geriatr. 2020;20(1):259.
39. McClain CS, Rosenfeld B, Breitbart W. Effect of spiritual well-being on end-of-life despair in terminally-ill cancer patients. Lancet. 2003;361(9369):1603-7.
40. Kaplar ME, Wachholtz AB, O'brien WH. The effect of religious and spiritual interventions on the biological, psychological, and spiritual outcomes of oncology patients: A meta-analytic review. J Psychosoc Oncol. 2004;22(1):39-49.
41. Vazifeh Doust M, Hojjati H, Farhangi H. Effect of Spiritual Care Based on Ghalbe Salim on Anxiety in Adolescent with Cancer. J Relig Health. 2020;59(6):2857-65.
42. Livneh H, Lott S, Antonak R. Patterns of psychosocial adaptation to chronic illness and disability: A cluster analytic approach. Psychol Health Med. 2004;9(4):411-30.

43. Jafari N, Farajzadegan Z, Zamani A, Bahrami F, Emami H, Loghmani A, et al. Spiritual therapy to improve the spiritual well-being of Iranian women with breast cancer: a randomized controlled trial. Evid Based Complement Alternat Med. 2013; 2013:353262.
44. Mullis MD, Fisher CL, Kastrinos AL, Sae-Hau M, Weiss ES, Rajotte M, et al. Survivorship transitions in blood cancer: Identifying experiences and supportive care needs for caregivers. J Cancer Surviv. 2023.
45. Sinclair S, McConnell S, Raffin Bouchal S, Ager N, Booker R, Enns B, et al. Patient and healthcare perspectives on the importance and efficacy of addressing spiritual issues within an interdisciplinary bone marrow transplant clinic: a qualitative study. BMJ Open. 2015;5(11): e009392.
46. Kamper R, Van Cleve L, Savedra M. Children with advanced cancer: responses to a spiritual quality of life interview. J Spec Pediatr Nurs. 2010;15(4):301-6.
47. Scobie G, Caddell C. Quality of life at end of life: Spirituality and coping mechanisms in terminally ill patients. Internet J Pain Symptom Control Palliat Care. 2005;4(1).
48. Zhang B, Nilsson ME, Prigerson HG. Factors important to patients' quality of life at the end of life. Arch Intern Med. 2012;172(15):1133-42.
49. Kruizinga R, Hartog ID, Jacobs M, Daams JG, Scherer-Rath M, Schilderman JB, et al. The effect of spiritual interventions addressing existential themes using a narrative approach on quality of life of cancer patients: a systematic review and meta-analysis. Psychooncology. 2016;25(3):253-65.
50. Cheraghi MA, Payne S, Salsali M. Spiritual aspects of end-of-life care for Muslim patients: experiences from Iran. Int J Palliat Nurs. 2005;11(9):468-74.
51. Nedjat S, Montazeri A, Holakouie K, Mohammad K, Majdzadeh R. Psychometric properties of the Iranian interview-administered version of the World Health Organization's Quality of Life Questionnaire (WHOQOL-BREF): a population-based study. BMC Health Serv Res. 2008; 8:61.
52. Richards PS, Bergin AE. A spiritual strategy for counseling and psychotherapy. 1997.
53. Miller G. Incorporating spirituality in counseling and psychotherapy: Theory and technique: JWS; 2003.
54. Cook CC. Spirituality, religion & mental health: exploring the boundaries. Mental Health, Religion & Culture. 2020;23(5):363-74.
55. Shah R, Kulhara P, Grover S, Kumar S, Malhotra R, Tyagi S. Relationship between spirituality/religiousness and coping in patients with residual schizophrenia. Qual Life Res. 2011;20(7):1053-60.
56. Sun XH, Liu X, Zhang B, Wang YM, Fan L. Impact of spiritual care on the spiritual and mental health and quality of life of patients with advanced cancer. World J Psychiatry. 2021;11(8):449-62.
57. El Nawawi NM, Balboni MJ, Balboni TA. Palliative care and spiritual care: the crucial role of spiritual care in the care of patients with advanced illness. Curr Opin Support Palliat Care. 2012;6(2):269-74.
58. Sankhe A, Dalal K, Agarwal V, Sarve P. Spiritual Care Therapy on Quality of Life in Cancer Patients and Their Caregivers: A Prospective Non-Randomized Single-Cohort Study. J Relig Health. 2017;56(2):725-31.
59. Husain S. Role of mind in designing a meaningful guided imagery of higher power in psychoneuroimmunology. NeuroQuantology. 2016;14(3):597-601.
60. Koenig HG, Cohen HJ. The link between religion and health: Psychoneuroimmunology and the faith factor: Oxford University Press; 2002.
61. De Waele I, Van Loon J, Van Hove G, Schalock RL. Quality of life versus quality of care: Implications for people and programs. JPPID. 2005;2(3-4):229-39.
62. Purnell JQ, Andersen BL, Wilmot JP. Religious Practice and Spirituality in the Psychological Adjustment of Survivors of Breast Cancer. Couns Values. 2009;53(3):165.
63. Mytko JJ, Knight SJ. Body, mind and spirit: towards the integration of religiosity and spirituality in cancer quality of life research. Psychooncology. 1999;8(5):439-50.
64. A cross-cultural study of spirituality, religion, and personal beliefs as components of quality of life. Soc Sci Med. 2006;62(6):1486-97.