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The effect of spirituality-based education on the meaning of life in cancer patients: a quasi-experimental study

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ABSTRACT

Introduction. Patients with cancer face challenges in finding the meaning of life. This study aimed to examine the effect of spirituality-based education on the meaning of life of cancer patients.

Material and methods. This quasi-experimental study was conducted using a pretest and posttest design with two groups. The data were collected by using personal information forms and the meaning-of-life questionnaire. Patients in Iran were selected via convenience sampling and were divided into the experimental (n = 85) and control groups (n = 84) based on nonrandom allocation. The experimental group received six sessions of mobile spirituality-based education in three weeks. One month after the pretest and at the end of the spirituality-based education, the posttest was conducted. The collected data were analyzed using descriptive statistics and inferential statistics with SPSS software.

Results. A comparison of the scores of the patients in the two groups after the intervention suggested a significant increase in the scores for the presence of meaning, search for meaning, and meaning of life for the patients in the experimental group ($p = 0.001$).

Conclusions. The results of this study indicated that spirituality-based education can be one of the useful, effective, and applicable educational techniques to improve the meaning of life of cancer patients.

Key words: cancer, education, meaning of life, patient, spirituality

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Introduction

Global cancer statistics indicate that in 2020, 22.8% of all cancers occurred in Europe and 20.9% in the USA. In the same year, 58.3% of cancer deaths occurred in Asia [1]. Cancer is the third leading cause of death in Iran, and it is predicted that 184481 new patients will be diagnosed with cancer in Iran by 2035 [2]. Cancer as a social phenomenon disrupts the daily functioning and social activities of affected patients and influences the individual's ability to perform social roles and take on social responsibility as well as overall meaning of their life [3]. Due to these problems, cancer patients face challenges in finding meaning in their lives, which puts their mental health at risk [4].

As soon as a person is diagnosed with cancer, the meaning of life is threatened and consequently, they are overwhelmed with feelings of powerlessness [5] while having a sense of meaning in life promotes the physical health of cancer patients [6] and contributes to the development of a positive outlook on life [7]. Having a positive sense of meaning in life reduces general anxiety and death anxiety in those patients and, thus, improves their life satisfaction. The meaning of

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life in cancer patients relieves them of spiritual distress and reduces their fear of death [8]. In fact, cancer patients are less likely to experience end-of-life worries by enjoying the meaning of life [9]. Those patients develop firm spiritual beliefs and are empowered to cope with possible death [10]. In other words, when cancer patients understand the meaning of their life, they learn to face death and try harder to fight the disease [11]. On the other hand, cancer patients in Iran have some spiritual problems.

Numerous studies have addressed the meaning of life for cancer patients in the world. A study in Turkey showed that cancer patients with a greater belief in the meaning of life have higher levels of psychological resilience and experience less suffering in life [12]. Another study in Korea suggested that people with cancer seek positive meaning in life by promoting positive emotions and improving their lifestyles, and this gives them hope [13]. The results of a study showed that the meaning of life for cancer patients in Iran induces their personal growth [14]. Another study found that the meaning of life for cancer patients in Portugal improved their relationships with others and their functioning [15]. A study in the United States showed that the meaning of life for cancer patients improved their connection with friends and family members and strengthened their faith in God [16].

Previous studies have highlighted the importance of promoting meaning of life for cancer patients because it is associated with many positive outcomes as detailed above. One of the interventions that can contribute to promoting meaning in life is spirituality-based education. Objectives of spirituality-based education interventions for cancer patients include happiness, hope, and positivity, facilitating and developing coping styles, increased self-motivation and vitality, changing defective motivations, creating a sense of control over the self and environment, creating a sense of being seen by God, reducing emotional problems and stress, and improving resilience to life problems [17]. Thus, the implementation of spirituality-based education for cancer patients, in addition to improving their physical health and reducing the severity of their physical pain [18], also helps to promote their spiritual health [19]. Accordingly, considering the educational role of nurses and a research gap in this field, this study aimed to examine the effect of spirituality-based education on the meaning of life in cancer patients.

Material and methods

This quasi-experimental study was conducted by using a pretest and posttest design with two groups from July to September 2021.

The research population included all outpatient cancer patients who had medical records in Firoozgar and Rasoul Akram hospitals affiliated with the Iran University of Medical Sciences. The sample size was estimated at least 76 persons at the 95% confidence level and test power 80% and assuming that the difference in the effect of spirituality-based education on the meaning in life for the patients in the experimental group compared to the control group must be three points so that this effect is considered statistically significant. However, considering a 10% dropout rate, the sample size was estimated as 85 persons in each group. Then, one patient in the control group left the study. Thus, there were 85 participants in the experimental group from Firoozgar Hospital and 84 participants in the control group from Rasoul Akram Hospital. The study groups were selected from different locations to decrease the risk of information leakage. Patients were referred to the hospital for outpatient chemotherapy and were not hospitalized. The inclusion criteria were having cancer diagnosed by an oncologist. The exclusion criteria were self-reported underlying diseases including heart disease, mental illness, and diabetes. Patients were 18 to 65 years old; they all had smartphones and could easily use the application. The patients in the two groups were selected through convenience sampling and then, were assigned to the experimental and control groups via nonrandom allocation.

The data were collected using personal information forms and the Meaning of Life Questionnaire (MLQ). The personal information form was filled out to record the patients' age, gender, marital status, economic status, level of education, history of cancer surgery, family history of cancer, and type and stage of cancer. The MLQ [20] is a 10-item measure of the Presence of Meaning in Life (items 1, 4, 5, 6, and 9) and the Search for Meaning in Life (items 2, 3, 7, 8, and 10). The items are scored using a seven-point Likert scale ranging from 1 ('absolutely untrue') to 7 ('absolutely true') with item 9 reverse scored. The total score on each dimension varied from 5 to 35, with a higher score for the meaning of life and its dimensions indicating more meaning of life and its dimensions, and vice versa. The validity of the questionnaire was assessed by 5 professors at the Department of Nursing of Iran University of Medical Sciences. To this end, the Persian and English versions were reviewed by the professors, and the content of the Persian version was revised based on their feedback. The developers of the questionnaire assessed its reliability using Cronbach's alpha, and the corresponding values for the presence and search dimensions were 86% and 87%, respectively. The psychometric properties of the questionnaire were assessed for use in Iran and its reliability was evaluated using Cronbach's alpha, and the corresponding values for the presence and search dimensions

were 82% and 88%, respectively [21]. In the present study, the questionnaire was administered to a pilot sample of 15 people who matched the participants in the research sample and the Cronbach's alpha values for the presence and search dimensions were 84% and 86%, respectively, confirming the high reliability of the questionnaire.

Upon receiving the necessary permits to conduct the study, the researcher started the sampling process. Due to concurrence of the study with the COVID-19 pandemic, it was not possible to conduct the spirituality-based education in person, and it was conducted online. To this end, the researcher obtained the patients' phone numbers recorded in their medical records upon making arrangements with the hospitals where the study was to be conducted. The researcher explained the objectives of the study to the patients meeting the inclusion criteria and invited them to participate in the study. Next, an online spirituality-based education group was created on WhatsApp, and the participants were added to the group. The participants had direct access to the researcher. After completing the informed consent form, questionnaires were provided to the patients to be completed for the pretest. One month after the pretest and after the spirituality-based education, the patients completed the questionnaires as the posttest on the WhatsApp social group. The participants in the experimental group received the spirituality-based education online in six 60-minute sessions for three weeks in the form of recorded audio files, PowerPoint, PDF files, and video clips uploaded to the WhatsApp group by the first author. During the spirituality-based education, the patients had access to the members of the research team to ask for help with any ambiguity or problem. Feedback was obtained from the patients after the sessions, and they were asked to do some assignments at the end of each session. The participants also answered questions asked by the researcher online in the interval between the subsequent sessions and provided their opinions and feedback. Feedback was obtained during the presentation of the content and exercises. These exercises were presented at the end of the sessions. They gave and received the necessary feedback from him. In this study, the control group members after the posttest were provided with an electronic booklet containing educational content.

The educational content was prepared following relevant studies published in the literature on spirituality-based education [17, 19, 22–28] and the researcher's personal experiences. The main titles of the educational content can be seen in Table 1. To achieve the validity of the educational content, we had it reviewed by seven faculty members of the Iran University of Medical Sciences who confirmed the content validity. These persons had experience in spirituality-based studies, and their suggestions were applied to the educational content. The collected data were analyzed using descriptive statistics (frequency, percentage, mean, and standard deviation) and inferential statistics (independent samples t-test and paired samples t-test) with SPSS software (version 16) at the significance level of 0.05 ($p < 0.050$).

This study was approved under number IR.IUMS.REC.1399.999 by the ethics committee of Iran University of Medical Sciences. The patients were told that they could leave the study at any time. Furthermore, written consent was obtained from the patients. They were told that the information they provided would remain anonymous and confidential, and there was no compulsion to participate in the study.

Table 1. Main topics of educational sessions

Session	Content
1	Introduction Providing information about the cancer, prevalence, common symptoms, and causes of cancer Introducing the concept of the meaning of life
2	Introspection and self-awareness as well as the importance of spirituality in self-awareness
3	Sources of fear and anxiety and coping with them, ways to gain peace, the role of trust in gaining peace, achievements, outcomes, and consequences of trusting God
4	Good and bad heritage left by individuals and how to take care of good heritage (A person is remembered by others based on the inheritance he/she leaves behind. So one has to choose whether he/she wants to continue good behavior or bad behavior. For example, we should exhibit behavior such as active listening, support, and respect and avoid bad behavior including insults, punishment, humiliation, blame, aggression, and neglect.)
5	Understanding forgiveness
6	Controlling anger and solving problems using a spiritual approach Conclusion

Table 2. Demographic characteristics of the experimental and control groups

Variable		Experimental group (n = 85)		Control group (n = 84)		p value
		n	[%]	n	[%]	
Age [years]	Less than 40	26	30.9	35	41.2	p = 0.929
	40–49	30	35.7	18	21.2	t* = 0.089
	More than 50	28	33.3	32	37.6	
Gender	Male	47	56	53	62.4	p = 0.397
	Female	37	44	32	37.6	$\chi^{2**} = 0.716$
Marital status	Married	72	9.5	64	75.3	p = 0.346
	Single	8	85.7	14	16.5	$\chi^2 = 1.275$
	Divorced/widow	4	4.8	7	8.3	
Economic situation	Weak	31	36.9	25	29.4	p = 0.098
	Good	49	58.3	48	56.5	$\chi^2 = 4.647$
	Average	4	4.8	12	14.1	
Level of education	Less than diploma	28	33.3	20	23.5	p = 0.36
	Diploma	20	23.8	22	25.9	$\chi^2 = 2.043$
	University	36	42.9	43	50.6	
History of cancer surgery	Yes	30	35.3	24	28.6	p = 0.714
	No	55	64.7	60	71.4	$\chi^2 = 0.008$
Family history of cancer	Yes	49	58.3	49	57.6	p = 0.928
	No	35	41.7	36	42.4	$\chi^2 = 0.008$
Type of cancer	Stomach	22	26.2	23	27.1	p = 0.897
	Colorectal	45	35.6	46	54.1	$\chi^2 = 1.082$
	Breast	13	15.5	10	11.8	
	Liver	14	4.8	6	7.1	
Stage of cancer	First	3	3.6	5	5.9	p = 0.928
	Second	43	51.2	50	58.8	$\chi^2 = 0.008$
	Third	37	44	30	35.3	
	Forth	1	1.2	0	0	

*Independent t-test; **Chi-squared test

Results

According to the Kolmogorov-Smirnov test, quantitative variables had a normal distribution. Table 2 shows the participants' demographic characteristics in both groups. As can be seen, the patients in both groups were homogeneous in terms of age (using an independent-samples t-test), gender, marital status, economic status, level of education, history of cancer surgery, family history of cancer, and type and stage of cancer (using a Chi-squared test; $p > 0.05$). A comparison of the pretest scores on the presence of meaning, search for meaning, and meaning in life using the independent samples t-test (Tab. 3) indicated no statistically significant difference between both groups before the spirituality-based education. However, a comparison of the scores of the patients in both groups after the education suggested a significant increase in the scores of the presence of meaning, search for meaning, and meaning in life for the patients in the experimental group ($p = 0.001$). Furthermore, the results of paired samples t-test presented in Table 3 showed no statistically significant difference in the scores for the presence of meaning, search for meaning, and meaning in life for the patients in the control group one month after the education compared to their pre-education scores. In contrast, there were significant differences in the scores for the three variables for the patients in the experimental group one month after the education compared to their pre-education scores ($p = 0.001$).

Table 3. Comparison of the meaning-of-life scores in the experimental and control groups

Subscales		Pretest		Posttest		p value (paired t-test)
		Mean	Standard Deviation	Mean	Standard Deviation	
Presence	Experimental group	21.73	2.51	28.66	3.86	t = 15.74; df = 83; p = 0.001
	Control group	24.34	3.79	24.35	3.62	t = 0.06; df = 84; p = 0.947
	p value (independent t-test)	t = 5.25; df = 167; p = 0.492		t = 6.02; df = 167; p = 0.001		
Search	Experimental group	23.28	3.9	28.58	3.69	t = 11.69; df = 83; p = 0.001
	Control group	23.14	3.32	23.48	3.17	t = 2.33; df = 84; p = 0.022
	p value (independent t-test)	t = 1.42; df = 167; p = 0.796		t = 4.12; df = 167; p = 0.001		
Total score for meaning in life	Experimental group	45.02	5.56	57.25	7.33	t = 15.49; df = 83; p = 0.001
	Control group	47.48	6.58	47.83	6.1	t = 1.28; df = 84; p = 0.202
	p value (independent t-test)	t = 2.62; df = 167; p = 0.374		t = 6.22; df = 167; p = 0.001		

Discussion

The results of the present study confirmed the hypothesis that the implementation of spirituality-based education for cancer patients leads to improved meaning in their lives. Since cancer is a life-threatening disease, cancer patients have spiritual needs that must be met [29]. Accordingly, a study in Brazil showed that cancer changes the meaning of a person's life, and patients' meaningful values can form the basis for spiritual interventions for them [30].

In this study, spirituality-based education for cancer patients improved the presence of meaning in their lives. The presence of meaning in life for a person is characterized by having a clear and satisfying purpose in life, having a good sense of what makes life meaningful, and understanding the meaning of life for the person. However, the presence of meaning in life for cancer patients can fluctuate for a variety of reasons. For instance, a study in Oman showed that patients experience disrupted meaning in their lives after being diagnosed with cancer, and as a result, the presence of meaning in their lives is impaired [31]. Furthermore, a study in Spain also showed that whenever cancer patients experience a lot of stress, they have trouble finding meaning in their lives [32]. Another study in Turkey showed that when cancer patients have problems with the presence of meaning in life, their psychological capacity decreases [33]. In these circumstances, nurses must perform spirituality-based education. In a similar vein, the results of a systematic review indicated that nursing interventions can reduce the spiritual distress of people with cancer and improve the presence of meaning in their lives [25].

The data in the present study demonstrated that the implementation of a spirituality-based education for cancer patients led to an improvement in their search for meaning in life. In fact, striving to find meaning in life is one of the spiritual needs of cancer patients [34] because it helps them to answer questions about why they live and why they should live happily [35]. Accordingly, research has shown the benefits of seeking meaning in life for cancer patients. The results of a study in Italy showed that cancer patients who sought meaning in their lives experienced lower levels of psychological distress. In fact, they experienced lower levels of anxiety and depression and had better religious orientation [36]. The results of a study in Korea also found that whenever cancer patients searched for the meaning of a better life, their spiritual well-being and coping skills improved accordingly [37]. Thus, as the search for meaning is important for cancer patients, it needs to be promoted through spirituality-based education.

In addition, the results of the present study showed that the implementation of spirituality-based education for cancer patients improves the overall meaning of life for them. It seems that spirituality-based education by emphasizing concepts such as spiritual self-awareness, ways to deal with fear and anxiety, ways to gain peace,

trusting God, how to take care of good heritage, forgiveness, and use of problem-solving skills with a spiritual approach, has been able to improve the meaning of life of cancer patients. Given that cancer can affect the meaning of life in patients [38], the implementation of spirituality-based education to promote the meaning of life in these vulnerable people is necessary because the meaning of life can contribute to enhancing their mental health. Accordingly, a study in Lithuania showed that the meaning of life increases cancer patients' ability to cope with psychological distress [39]. Furthermore, the implementation of spiritual interventions while improving the meaning of life of cancer patients, which was confirmed in this study, can bring other positive effects for these patients. A study in Nigeria indicated that spiritual education could increase the quality of life of cancer patients. The educational content includes the need for spirituality, use of spiritual coping with health challenges, communication and relationships based on trust, spiritual support, and resilience to overcome adversity [22]. In that study, in line with our research, use of spiritual coping with health challenges has led to a positive effect on education. In Indonesia, coping and spiritual well-being of cancer patients increased after receiving spiritual education. The educational content included relaxation for anxiety reduction, the role of God in conflict resolution in life, self-control, and prayer therapy [24]. In that study, in line with what we found, overcoming anxiety through a spiritual approach has led to a positive effect on education. In Iran, spiritual education could promote hope and spiritual well-being of cancer patients. The educational content included the relationship with God, meaning of life, self-actualization, hope, and forgiveness [23]. In the above study, similar to our findings, relationship with God, meaning of life, and forgiveness have led to a positive effect on education. However, the results of some systematic review studies have reported that spirituality-based education has no effect on improving the psychological adjustment of cancer patients [26], and the implementation of spiritual education for people with chronic diseases, including cancer, has little effect on improving their quality of life [27]. Such contradictions warrant the need for further studies in this field.

Given that the spirituality-based education in this study promoted the meaning of life in different dimensions for cancer patients and had other benefits in other mentioned studies, it seems that such education affects participants and is effective.

The cancer patients in the control group participating in this study did not report improvement in their sense of meaning of life due to a lack of spirituality-based education. Similarly, systematic reviews of spiritual interventions for cancer patients showed no improvement in the control groups [17, 25]. Considering the benefits of spirituality-based education, more extensive programs need to be delivered for more cancer patients in this field so that all of them can benefit from this type of education.

This study was conducted with some limitations. For instance, the mental states of individuals could affect their responses to the questionnaire, which was beyond the control of the researcher. In addition, due to the COVID-19 outbreak, it was not possible to conduct the intervention in person for hospitalized patients. In this study, spirituality-based education was conducted online, which was one of the innovations of this study due to the flexibility of this method. However, similar studies need to be performed with the participation of hospitalized cancer patients.

Conclusions

The results of this study indicated that spirituality-based education can be one of useful, effective, and applicable educational techniques to improve the meaning of life in cancer patients. As mentioned, cancer patients have problems finding meaning in their lives and are spiritually harmed. Thus, the findings of this study can be a step towards the implementation of spirituality-based education for people with cancer to improve their sense of meaning in life, their search for meaning in life, and the meaning in life in general. Following these findings, nurses working in oncology wards need to get familiar with the content of spirituality-based education for patients so that they can deliver it to patients in clinical settings if needed.

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Ethics statement

The study was conducted according to the criteria set by the declaration of Helsinki.

Author contributions

All authors contributed to this project and article equally.

All authors read and approved the final version of the manuscript.

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Conflict of interest

Authors declare no conflict of interest.

Supplementary material

None.

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