



Research Paper

Effect of Spiritual Care on Anxiety and Care Burden in Mothers of Children With Cancer



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ABSTRACT

Background and Objectives: This study aimed to determine the effect of spiritual care based on the sound heart model on anxiety and care burden in mothers of children with cancer.

Methods: Eighty-six mothers of children with cancer participated in this quasi-experimental study. Sequential sampling was used, and participants were allocated into intervention (n=43) and control (n=43) groups. Spiritual care was provided to the intervention group over eight consecutive days within one week. Both groups completed the questionnaire before, after, and one month after the intervention. The Beck anxiety questionnaire and the Zarit burden of care questionnaire were utilized for data collection. Data were analyzed using the chi-square test, independent t-test, and repeated measures ANOVA.

Results: No significant difference was found in the mean scores of anxiety (P=0.68) and burden of care (P=0.94) between the two groups before the intervention. However, there was a statistically significant difference in the mean scores of anxiety (P<0.001) and burden of care (P=0.003) between the two groups after the intervention and one month later.

Conclusion: Spiritual care based on the sound heart model reduced the mean scores of anxiety and burden of care in mothers of children with cancer. However, there was a statistically significant difference in the mean scores of anxiety (P<0.001) and the burden of care (P=0.003) between the two groups after the intervention and one month later.

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Introduction

Cancer in children is a highly stressful event for both young patients and their families, leading to various challenges [1]. Families dealing with childhood cancer face issues, such as uncertainty about the disease, a decreased quality of life (QoL) due to distress, disruptions in social and family connections, financial struggles, and emotional turmoil, including anxiety, depression, guilt, and anger [2-4]. Children with cancer often experience a range of physical and mental symptoms, which further involve their families in coping with the challenges of the disease [5]. Research shows that mothers of children with cancer often experience high levels of anxiety and caregiving burden [6, 7].

Anxiety among caregivers, particularly mothers who are the primary caregivers, is linked to increased caregiver burden and can negatively affect the family's overall well-being [8]. The constant stress, anxiety, and long-term burden of care can exhaust mothers, leading to changes in family dynamics, energy levels, and decision-making processes related to the child's treatment [9, 10].

It is crucial to prioritize the mental health of mothers to ensure the continuity of care and reduce their psychological issues, such as anxiety and caregiver burden. Spirituality plays a significant role in promoting hope and mental well-being. It involves connecting with a larger reality that gives life meaning, often experienced through religious traditions or other practices, like meditation, nature, or art. Research indicates that culture and spirituality are intertwined concepts in pediatric care [11]. While religion and spirituality are not mutually exclusive, they represent different aspects of seeking meaning and connection [12]. In traditional societies, religion is deeply ingrained in culture and influences personal connections and life experiences. Planning for spiritual care in such settings must consider the region's religion and culture to be effective. Religion is more than just a formal practice for these individuals; it shapes their lives and relationships [13].

In Iran, where the majority of the population is Shi'a Muslim, Islam is not just a formal religion but a dominant belief system deeply ingrained in society. This strong religious influence impacts the communication and coping strategies of patients and their families, making spiritual care an integral part of their care [13, 14]. Religious coping methods are commonly used by cancer patients in Iran. Studies have highlighted the importance of religion and culture in helping patients and their fami-

lies cope with cancer [13, 15-17]. However, a study in Iran found that applying Richard Bergin's spiritual interventions without modification did not have a significant impact on reducing stress, anxiety, and depression in women with cancer [18].

Providing spiritual care is one of the important responsibilities of nurses, and developing and implementing culturally appropriate and effective care models is another duty of nurses. One of the spiritual care models in Iran is the sound heart model. The spiritual care, sound heart model in Iran aims to help patients and their families navigate difficult situations and cope with challenges by fostering a harmonious relationship with the religious culture of the Muslim Iranian people [19]. This model focuses on achieving a sound heart and improving communication with God, self, others, and nature through faith therapy techniques, such as prayer, remembrance of God, and healing touch. It encourages the development of courage, optimism, and hope in facing health crises, as well as self-spiritual awareness through daily emotional check-ins [20]. The model also promotes forgiveness, charity, and appreciation of nature to enhance relationships and well-being. By instilling relaxation, confidence, trust, hope, and contentment, the model leverages family members' strengths and beliefs [21]. It educates families about the disease, treatment, and potential outcomes in alignment with their religious convictions, addressing perceived threats and bolstering faith in divine power [22]. Additionally, the model includes spiritual self-care and home-care empowerment programs for active family participation [20].

The sound heart model has recently been created, and its effectiveness in providing spiritual care to mothers of children with cancer is not yet clear. Hence, this study aimed to determine the effect of spiritual care based on the sound heart model on the anxiety and burden of care in Iranian mothers of children with cancer.

Methods

In this quasi-experimental study, we used a sequential sampling method to select participants from the oncology wards of two pediatric governmental hospitals in Tehran (Aliasghar Hospital and Children's Medical Center) to collect the data. To prevent information exchange between the intervention and the control groups, mothers in the intervention group were selected from one hospital and those in the control group were selected from the other.

According to the inclusion criteria, none of the participants reported a mental illness, all were aware of their child's disease, and none were under any stressful conditions other than the child's illness over the past year. They had not participated in similar courses and did not have another critically ill child. Finally, they had experienced their child's hospitalization and presence in the ward for at least ten days, and their child had been diagnosed with cancer at least six months prior.

Sample size

Based on a medium effect size, a 95% confidence level, an 80% power, and $d=0.1$, the sample size in each group was calculated to be 39 mothers. However, the final sample size was set at 43 mothers in each group to account for a 10% possibility of sample attrition.

Intervention

After receiving approval from the Ethics Committee of the [Iran University of Medical Sciences](#) and coordinating with the hospitals involved in the study, we conducted sampling using the sequential method, adhering to specific inclusion criteria. Following the mothers' provision of written consent, we initiated the educational intervention based on the sound heart model for the intervention group.

To avoid interfering with the hospital's visiting hours and physicians' consultation times, we scheduled the training sessions between 5 and 6 PM during the hospitalization of children. The intervention group was divided into small groups of 3-4 mothers, who attended the course in a room next to the entrance of the oncology ward in two children's hospitals in Tehran. We held eight training sessions for each small group (11 small groups total) over 8 consecutive days, with each session lasting about 20-30 minutes. It took six months to gather the data, from the first day until the end of the data collection process. [Table 1](#) shows an educational booklet, taken from the book "spiritual counseling: Based on a sound heart model," that mothers received in the first session [20]. Furthermore, they were asked to listen to recordings of the Quran and rain sounds, saved as audio files on their mobile phones or tablets, using headphones or hands-free devices every night before going to bed. At the beginning of each session, one of the researchers asked the participants if they had studied the booklet and listened to the recordings. They were then encouraged to continue these practices.

The mothers completed the questionnaire on the first day (before the intervention), the eighth day (the last session of the intervention), and one month later. To complete the questionnaire one month after the intervention, we called the mothers to fill it out when they visited the clinic or the oncology ward. However, we sent the questionnaire via email or post because ten mothers lived in other cities and did not visit the hospital.

Mothers in the control group received routine care (provided by nurses and physicians who looked after chemotherapy patients) and completed the questionnaire at similar intervals to the intervention group. However, we sent the questionnaires via post or email to 12 members of the control group who did not visit the hospital; we received the completed ones. At the end of the study, the booklet was given to the mothers in the control group.

One of the researchers working in the children's oncology ward set up the program. She had six years of clinical experience in that ward and held a certificate for providing spiritual care, recognized by the model developer. Since she was a nurse in that ward, all the mothers in the intervention group knew her, which allowed her to communicate with them easily.

Tools

There questionnaires used in the study consisted of three parts. The demographic information checklist gathered data on the mothers and children, including age, sex, marital status, education level, and employment status. The second scale was the Beck anxiety inventory (BAI), which assessed anxiety levels using a scale of 21 symptoms rated from 0 to 3, with higher scores indicating higher anxiety levels. Scores on the BAI were interpreted as minimal (0-7), mild (8-15) moderate (16-25), or severe anxiety (26-63). We also used the Zarit burden interview (ZBI), a 22-item scale that evaluated caregivers' perceived psychological pressure on a five-point scale, with higher scores indicating greater caregiving burden. The total scores of 0-30, 31-60 and 61-88 indicate mild, moderate, and severe caregiving burdens, respectively [23, 24]. The internal consistency of the BAI was 0.92 [22, 23], and its test re-test reliability with a one-week interval was 0.75 [25]. Moreover, the reliability and internal consistency of the original version of the ZBI were 0.71 (test re-test) and 0.91 (Cronbach's α), respectively [26]. In this study, ten mothers completed the Zarit and BAI questionnaires, and we obtained an internal consistency of 0.881 for the BAI and 0.826 for the ZBI.

Table 1. Demographic characteristics of the mothers and children in the intervention and control groups (n=86)

Demographic Variables Mothers and Children		No.(%)/Mean±SD		Test Results	
		Control (n=43)	Intervention (n=43)		
Mothers	Educational level	Under diploma	11(25.6)	13(30.9)	$\chi^2=0.429$ P=0.934
		Diploma	14(32.6)	13(31)	
		Higher education	18(41.8)	16(38.1)	
	Marital status	Married	42(97.7)	40(93)	$\chi^2=1.095$ P=0.616
		Single parents	1(2.3)	3(7)	
	Number of children	One	6(40)	3(37.5)	$\chi^2=1.046$ P=0.748
		Two	6(40)	2(25)	
		Three	3(20)	3(37.5)	
	Occupation	Self-employed	2(4.7)	4(9.3)	$\chi^2=0.899$ P=0.14 (Fisher's exact test)
		Housewife	31(72.1)	31(72.1)	
Employee		10(23.3)	8(18.6)		
Age (y)	15-25	7(17.9)	10(24.4)	Unpaired t-test $\chi^2=-0.53$ P=0.603	
	26-35	20(48.8)	22(56.5)		
	36-46	11(26.8)	10(25.6)		
	Mean	31.41±6.58	30.63±6.69		
Gender	Female	17(39.5)	18(41.9)	$\chi^2=0.48$ Df=1 P=0.826	
	Male	26(60.5)	25(58.1)		
Children	Age (y)	6-8	28(65.1)	25(58.1)	Mann-Whitney U test=868.5 P=0.625
		8-10	15(34.9)	16(37.2)	
		10-12	0(0)	2(4.6)	
	Mean	4.79±1.51	5.41±2.96		
Duration of cancer (month)	6-8	27(62.8)	22(51.2)	Mann-Whitney U test=831 P=0.416	
	8-10	13(30)	20(46.5)		
	10-12	3(7)	1(2.3)		
	Mean	4.66±3.54	5.11±3.27		

χ^2 =Chi-squared test

Notes: Participants in the control group were, on average, 31.41±6.58 years old, while participants in the intervention group were, on average, 30.63±6.69 years old.

Table 2. Level of anxiety and burden of care before, after and one month after the intervention in two groups (n=86)

Time	Level	No. (%)	
		Control Group (n=43)	Intervention Group (n=43)
Before the intervention	Mild <16	0(0)	0(0)
	Moderate (16-25)	1(2.3)	0(0)
	High (26-63)	42(97.7)	43(100)
One week after the intervention	Mild < 16	0(0)	0(0)
	Moderate (16-25)	1(2.3)	1(2.3)
	High (26-63)	42(97.7)	42(97.7)
One month after the intervention	Mild <16	0(0)	0(0)
	Moderate (16-25)	0(0)	1(2.3)
	High (26-63)	3(100)	42(97.7)
Burden of care	(<30)		
	Mild	0(0)	1(2.3)
Before the intervention	Moderate (31-60)	23(53.5)	18(4.9)
	High (61-88)	20(46.5)	24(58.8)
	Mild (<30)	0(0)	1(2.3)
One week after the intervention	Moderate (31-60)	20(46.5)	32(71.1)
	High (61-88)	23(53.5)	8(18.6)
	Mild (<30)	0(0)	0(0)
One month after the intervention	Moderate (31-60)	14(32.6)	34(79.1)
	High (61-88)	29(67.4)	9(20.9)

Data analysis

Data were analyzed with SPSS software, version 16 and descriptive statistics, including frequency, Mean±SD, and inferential statistics, including Fisher's exact test, chi-square test, and repeated measure ANOVA, were employed for data analysis with a significance level of 0.05.

Results

The participants were 86 mothers of children with cancer. The findings revealed that 69.8% of the children in the intervention group and 76.7% in the control group had leukemia. Most children in both groups were boys (%58.1 of the intervention group and %60.5 of the con-

trol group). The results showed no significant differences between the two groups in the demographic characteristics of the mothers and children (Table 1).

According to the results presented in Table 2, most mothers in both groups suffered from high anxiety before the intervention. The two groups did not show a statistically significant difference in mean scores of anxiety ($P=0.796$) and burden of care ($P=0.447$) before the intervention. The levels of anxiety and burden of care in the two groups are shown in Table 3 at three time points (before, after, and one month after the intervention). Additionally, the results of the differences between the means and standard deviations of anxiety and burden of care in the two groups, as measured by an independent t-test, are also presented in Table 3.

Table 3. Mean±SD of anxiety and burden of care before, after, and one month after the intervention in two groups (n=86)

Time	Mean±SD		Test results	
	Control (n=43)	Intervention Group (n=43)		
Anxiety	Before the intervention	50.26±11.31	50.84±9.34	T=0.26 P=0.796
	One week after the intervention	50.40±9.34	40.95±9.14	T=-4.264 P≤0.001
	One month after the intervention	52±10.27	41.9±41.9	T=-5.277 P≤0.001*
Burden of care	Before the intervention	60.81±12.85	62±11.7	T=-0.447 P=0.656
	One week after the intervention	62.02±12.36	53.09±9.37	T=-3.776 P≤0.001
	One month after the intervention	65.51±12.04	52.98±9.74	T=-5.309 P≤0.001

T: T-test, *Independent t-test.



The repeated measures ANOVA showed that the mean anxiety scores in the intervention group after the intervention and one month later were lower than those before the intervention. The mean score was 50.26±9.34 before the intervention, declining to 40.95±9.14 after the intervention, with a slight rise to 41.9±8.84 one month later. Furthermore, the difference between the mean score of the burden of care before and after the intervention was significant, showing a decreasing trend; the lowest score was recorded one month after the intervention. We can infer that the trend is group-dependent; in other words, the levels of anxiety and burden of care have not been

similar in both groups over time due to the decreasing trend in the mean scores of anxiety and burden of care and the significance of the carryover effect between time and group (Table 4).

Discussion

Having a child with cancer affects the mental health of the family, especially the mothers of these children. Evidence shows that mothers of children with cancer experience high levels of anxiety and burden of care [27, 28]. Psychological factors and emotional and religious

Table 4. Mean±SD of anxiety and burden of care before, after, and one month after the intervention in two groups

Time	Meant±SD		P		
	Control	Interventional	Group	Time	Group×Time Interaction
Anxiety	Before	50.26±11.31	50.84±9.34		
	After	50.4±11.29	40.95±9.14	0.002	<0.001
	One month after the intervention	52±10.27	41.9±8.84		
Burden of care	Before	60.81±12.85	62±11.74		
	After	62.02±12.36	53.09±9.37	0.005	<0.001
	One month after the intervention	65.55±12.04	52.98±9.74		



presumptions affect their commitment and responsibility to care for cancer patients [27, 29].

According to the results, spiritual care based on the sound heart model decreased anxiety and the burden of care in mothers of children with cancer. Other studies have shown the positive effect of spiritual care based on the sound heart model on the stress, anxiety, and depression of parents of children with cancer [21], as well as on the anxiety of adolescents with cancer [30].

Several studies have also shown the positive effects of the sound heart model in empowering the families of children with cancer [31], enhancing the spiritual health of patients with acute myocardial infarction [32], improving the QoL in hemodialysis patients [33] and enriching the spiritual experiences of hemodialysis patients [34]. Nevertheless, these studies differ from ours concerning the participants, frequency of sessions, approximate time, and intervals between sessions.

Consistent with our results, some studies in other countries have shown that spiritual care based on Western models positively reduces anxiety [35] and the burden of care [36] in mothers of children with cancer from different cultures. However, the use of Richard Bergin's spiritual interventions, without any modifications for Iran, had no significant effect on the stress, anxiety, and depression of women with cancer. Additionally, other studies conducted in Iran have indicated that educational packages based on Western models have been modified by religious experts and professors to align with Iran's culture and Islam [37]. Emphasis has been placed on focusing on the religious and cultural makeup of Iran when planning spiritual care in other articles on this topic [17, 38].

Although our study found that spiritual care based on the sound heart model positively decreased anxiety and burden of care in mothers of children with cancer, the levels in both groups of mothers remained high immediately after the intervention and one month later. We could not compare our findings with those of other studies because they did not report the anxiety and burden of care levels in mothers before and after the intervention. It should also be noted that the mothers' anxiety and burden of care levels are influenced by various factors, such as economic status, family structure, and access to social support services, and their improvement requires constant, inter-professional, and comprehensive services [39].

Since addressing the spiritual needs of children and their families is crucially important, there is a need for a regular and long-term spiritual care program. However, nurses cannot implement spiritual care due to a lack of time [40, 41]. Therefore, we recommend implementing spiritual care based on the sound heart model, as it can be conducted individually or in small groups, and the steps are clear. Moreover, clients can utilize packages that include educational books and recordings of nature sounds and the Quran. According to the needs of the patients, a nurse can choose one or more spiritual interventions, such as active listening, reciting the Quran and supplications, teaching hope, poetry therapy, meditation, memory therapy, and studying the life stories of the Imams [19, 42].

We suggest that other researchers conduct a similar study with a longer time interval after the intervention to assess the anxiety and the burden of care levels in mothers of children with cancer. In addition, they can investigate the effect of spiritual care based on the sound heart model on other family members, such as fathers and siblings. Moreover, another study could examine the impact of this model on other aspects of the physiological effects of cancer on child caregivers.

Conclusion

In conclusion, the implementation of spiritual care utilizing the sound heart model has proven to be a valuable approach to addressing the spiritual needs of mothers caring for children with cancer in the Iranian context. This model not only helps reduce the burden of care and anxiety among these mothers but also holds promise for similarly benefiting mothers in other traditional communities with Islamic religious backgrounds. The positive impact of this spiritual care model transcends cultural boundaries and offers a holistic approach to supporting caregivers in challenging circumstances.

Limitations

This study was subject to some limitations. First, the mothers were concerned about their children's condition during the class. To address this limitation, we scheduled the meeting times and spiritual care sessions daily, whenever it was possible for the child and mother. Another limitation of this study was that we did not measure the spiritual distress of mothers before and after the intervention. However, studies have indicated a high level of spiritual distress in this group of mothers, which limits the generalizability of the findings.

Ethical Considerations

Compliance with ethical guidelines

Before initiating the study, the study was registered by us at the [Iranian Registry of Clinical Trials \(IRCT20160119026104N7\)](#). Moreover, the Ethics Committee of the [Iran University of Medical Sciences](#) approved this research (IR.IUMS.REC.1397.525). Written consent was obtained from all the mothers in both groups.

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Authors' contributions

Conceptualization: Mahnaz Shoghi and Somayeh Esmaeilian; Methodology: Minoo Asadzandi; Writing the original draft: Somayeh Esmaeilian; Review, editing and supervision: Mahnaz Shoghi; Project Administration: Mahnaz Shoghi and Minoo Asadzandi.

Conflict of interest

The authors declared no conflict of interest.

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