

Does spiritual care program affect levels of depression in patients with Leukemia? A randomized clinical trial

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ABSTRACT

Background: Although 25-33% of patients with non-hematological malignancies suffer from depression disorder, some studies have reported the rate among patients with leukemia as high as 50%. Furthermore, based on studies chronic disease such as leukemia increases the patients' spiritual needs and may accelerate the patient problems. Therefore, spirituality has a significant role in adapting to leukemia and coping with its consequent mental disorders such as depression. Owing to the spirituality aspect importance and contradictory results of previous research, this study was hence performed to determine the effects of a spiritual care program on depression of patients with leukemia. **Materials and Methods:** This randomized clinical trial was conducted in specialized cancer treatment center affiliated to Isfahan University of Medical Sciences (Isfahan, Iran). A total of 64 adult patients with leukemia were randomly divided into experiment and control groups. The spiritual care program including supportive presence and support for religious rituals was implemented for 3 days. Depression sub-scale of 42-item depression, anxiety and stress scale-42 was completed before and after the intervention for both groups. Data was analyzed using ANCOVA, Mann-Whitney U-test, Chi-square, in SPSS statistical software (version 18, SPSS Inc., Chicago, IL). **Results:** After the intervention, mean score of depression was significantly lower in the experiment group than in the control group ($P < 0.01$). Comparison the mean score of depression in two groups, revealed the decrees in mean score of depression 11.09 (8.47) after spiritual care program that it was significant ($P < 0.001$). **Conclusion:** Our spiritual care program could successfully decrease depression level in patients with leukemia and nurses have to apply a holistic care approach with emphasis on spiritual care to decrease depression, so paid attention to spiritual aspect of patients accompanying with physical aspects in therapy process is recommended.

Key words: Depression, leukemia, nursing, spirituality

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INTRODUCTION

Leukemia is the most common malignancy in young adults and comprises approximately 8% of all human cancers and is known as the fifth most prevalent cancer in the world.^[1] Considering the number of affected people to the general population, different types of leukemia have shown the highest growth rate during the past 26 years in Iran. They have also been the most common cause of mortality due to cancer among Iranian men.^[2]

According to the America Cancer Society estimated about 52, 380 new cases of leukemia diagnosed and 24, 090 deaths

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from leukemia occurred in 2014.^[13] According to the report of national cancer registration, leukemia, with 3461 cases (4.7%) is known as the Seventh most prevalent cancer among the ten most common cancers in the country based on total Iranian men and women in 2009. Reports indicated high rate of leukemia in Isfahan (a city in central Iran) in comparison with other Iran's provinces. In the year 2010, the prevalence of leukemia among the male and female population in Isfahan was 9.54% and 7.9% respectively and in fact Isfahan has been considered as the third province about Leukemia prevalent after Yazd and Khozestan provinces in Iran.^[14]

Leukemia is a chronic and refractory disease which changes the life of an individual in all its physical, psychological, social, spiritual, economic and family aspects.^[5] Research has indicated that such a diagnosis may cause deep emotional problems such as depression in patient.^[6,7] Hearing the word "cancer" may evoke feelings of shock, phobia, isolation, anger, irritability, confusion and most commonly depression.^[8]

Although the depression has been reported among 25-33% of patients with non-blood cancers, the rates have been estimated to be as high as 50% in patients with leukemia.^[9] A study by Malekian *et al.* had evaluated hospitalized patients with cancer in Isfahan and found the highest prevalence of depression (28.9%) among individuals with leukemia.^[10]

Depression affects not only the psychological status and quality-of-life of patients with cancer, but also the progress of the disease, the efficiency of treatment, the length of hospital stay and even the patients' lifespan.^[11,12] High level of depression in leukemic patients lead to more pain also causes more abandon the treatment process from patients. In addition, findings from a number of studies have indicated a relationship between depression and immune defenses, followed by a decrease defensive elements and the survival of leukemia patients. Montgomery *et al.* in their study have reported depressed mood prior to bone marrow transplantation in patients with acute leukemia is associated with decreased survival after transplantation.^[9]

Moreover, the threatening nature of leukemia significantly increases the spiritual needs of patients^[13] and may produce a sort of spiritual crisis.^[14,15] Studies have suggested that the spirituality-based interventions may reduce depression and is involved in positive health outcomes.^[16] Many studies have shown that spirituality is associated with mental and physical health.^[17] Recently, health workers have to believe that if they want to provide complete and real health care, sensitivity to the spiritual needs of patients are needed.^[18] Spirituality is an important aspect of patient health status and consider as the significant predictor of patient health. Hence combining spirituality with the investigation and intervention in patients as a research agenda, it has remained essential.^[19]

About the relationship between spirituality and mental and physical condition of patients, few studies are available. In the study conducted by Cole *et al.* in the United States as "a

randomized clinical trial of the effects of spiritually focused meditation for people with metastatic melanoma", the results indicated a significant reduction in depressive patients after intervention.^[20] However, on the relationship between spirituality and its effect on depression, findings have been various, different and sometimes contradictory. In fact the relationship between spirituality and depression in patients with cancer has not been always reported positively and remarkable.

The results of the correlation analysis study entitled "effect of spirituality on the level of psychological adjustment of cancer patients" showed there was not statistically significant relationship between spirituality and psychological adjustment in cancer patients.^[21] A study by Mueller, *et al.* also revealed that in review of 24 studies, statistics indicated there was no significant relationship between spirituality and variables such as anxiety and depression. However, some studies even showed inverse relationship between spirituality and such variables.^[22]

Despite the special importance of spiritual health and care, position, history and depth of spirituality in Iran, the penetration of spiritual beliefs into every Iranian's mind and the importance of spiritual care in controlling depression as a common disorder among leukemic patients, we failed to find a similar study in Iran as well as other countries in the available literature. Moreover, cultural and racial factors, spiritual beliefs and customs of every race and nationality can have considerable impacts on the results of studies on depression. Due to the mentioned reasons and contradictory results of previous research, we designed and implemented a spiritual care program and evaluated its effects on depression of patients with leukemia admitted to intensive care unit of Sayyed-Al-Shohada Hospital (Isfahan, Iran) in 2012.

MATERIALS AND METHODS

This study designed as the pre-test post-test randomized clinical trial. Patients admitted to intensive care unit of Sayyed-Al-Shohada Hospital (Isfahan, Iran) were included if they were definitely diagnosed with leukemia by a Haematologist, consented to participate and were Shiite, native Iranian and persian speaker. Patients who were unaware of their disease, had mental retardation, blindness, deafness or active mental diseases or had metastasis were not included. The subjects were excluded in case of unwillingness to continue the study, any troubles that prevented the person from participating or transfer of the patient to another hospital. The participants were randomly allocated to experiment and control groups ($n = 32$ in each) using envelopes containing numbers from a table of random numbers.

Data were collected through a two-part questionnaire. The first part assessed demographic and disease-related data contained age, sex, education, marital status, employment, type of leukemia, type of treatment and elapsed time from diagnosis. The second part comprised the depression subscale from the

42-item depression, anxiety and stress scale (DASS-42). The DASS is a 42-item self-reports that assesses symptoms of depression, anxiety and stress in adults and adolescents. All items are rated on a four-point Likert-type scale from 0 (did not apply to me at all) to 3 (applied to me very much or most of the time) according to how often particular symptoms were experienced in the past week.^[23]

The subscale of depression include statements to measure unhappy mood, Lack of confidence, hopelessness, being worthless of life, lack of interest to engage, lack of enjoyment of life, lack of energy and capability. The total scores of the depression subscale are categorized as normal (0-9), mild (10-13), moderate (14-20), severe (21-27) and extremely severe (over 28).^[23,24]

Afzali, *et al.* stated that Lovibond and Lovibond tested DASS-42 on a non-clinical sample of 2914 patients to measure its psychometric properties. They calculated the reliability of depression subscale as Cronbach's alpha = 0.84.^[23] In a study conducted by Afzali *et al.* in Iran, found depression subscale to have high Cronbach's alpha coefficients (0.94).^[23]

In the study, using questionnaires DASS-42, Depression Inventory (DBI) and the profile of mood states (POMS) on a sample of 190 patients with chronic pain, not only get the good internal consistency of the questionnaire all subscales of DASS-42 (0.72-0.92), but also has demonstrated acceptable credit through concurrent validity of the DASS-42 questionnaire; hence that the correlation between depression subscale of DASS-42 with the Beck DBI test was reported $r = 0.81$ as well as with the depression subscale POMS was reported $r = 0.84$.^[25]

Despite the widespread use of standard DASS-42 in studies and confirm its validity and reliability, at the present study reliability of this questionnaire in leukemic patients was also examined in a pilot study by researcher. Its Pearson correlation coefficient obtained. 975 for depression subscale through test re-test method with a 2-week interval, which showed satisfactory reliability in patients with leukemia.^[26]

Before initializing the study, approvals were obtained from the School of Nursing and Midwifery (Isfahan University of Medical Sciences) and hospital authorities. A researcher (a man for male patients and a woman for females) presented at the bedside of the experiment group and implemented the spiritual care program. The selected subjects were then assured about data confidentiality and their access to final results and asked to sign informed consent forms.

Depression subscale of DASS-42 was completed before the intervention and at the end of the 3rd day by an unaware co-researcher who had been briefed explained by the researcher before the beginning of the study. The planning and implementation of the spiritual care program was closely monitored by the main researcher. Based on a previous study by Moeini *et al.*,^[27] and the average hospital stay of patients

with leukemia, the study subjects in the experiment group received the spiritual care at 16:00-20:00 for 3 days, a total of 12 h per study.

The planned spiritual care program included two major components of supportive presence and support for religious rituals. The researcher supported the patients through encouraging them to express their feelings, needs and concerns through verbal and non-verbal communication, providing them with a detailed description of the disease and its therapeutic process and responding to their questions in this regard, taking their hands while talking and touching them using a supportive approach and using active listening technique. Furthermore, the researcher avoided any prejudgments about the patients' appearance, accent and behavior, particularly at admission. In all stages of the intervention, patients were called with their name to preserve their dignity and respect.^[28-31]

In order to support religious rituals, patients were provided a pack containing a prayer rug and rosary and a veil for women. Patients were also informed about their free access to an MP3 player and earphones to listen to Quran, Prayers and Azan. Reading the Tawasol Prayer and Quran on the patient bedside was also implemented by a clergyman.^[29,30]

Provided completely silent environment and related communicative parasites may be brought to a minimum during the intervention. Associated with cordiality and usage medical simple words about each item the patient was asked to talk about the desired issues (feelings, needs, concerns and uncertainties). If forced to talk about the specialized medical issues, to prevent inferential communicative parasites, unfamiliar words and expressions to the patient were described.

Notes both the experimental and control groups in terms of given treatment and routine care had a similar conditions and except spiritual care program provided for intervention group, not any more intervention for depression done for two groups. Considering the ethical considerations, control group was assured that spiritual intervention would be done for them whether they desired.

The collected data was coded and analyzed by using SPSS statistical software (version 18, SPSS Inc., Chicago, IL) and methods of descriptive statistics (distribution of frequencies, mean and \pm standard deviation) and analytical statistics (ANCOVA, Chi-square test and Mann-Whitney U-test) with 95% confidence.

RESULTS

The mean age of the participants was 41.68 (17.17) years in the experiment group and 41.56 (13.45) years in the control group. The majority of the subjects in the experiment and control groups was male (59.4% and 62.5%, respectively) and married (68.08% and 84.4%, respectively). High school

graduates constituted 46.9% of the experiment group and 50.0% of the control group. The majority of the subjects in the experiment and control groups were acute myeloid leukemia (68.8% and 56.2%, respectively). Time passed from diagnosis average (month) in the experiment group was 24.32 (13.84) and in control group was 18.08 (14.09). The majority of the subjects in both groups had a hospitalized history and all of study subjects had been undergone chemotherapy.

According to the results of the Chi Square test the two groups had no significant difference (statistically both of them were identical) in terms of sex ($P = 0.79$), marital status ($P = 0.14$), employment ($P = 0.43$), type of leukemia ($P = 0.49$) and type of treatment. Mann-Whitney U-test showed the two groups had no significant difference in term of education ($P = 0.86$). Furthermore findings indicated there was no significant difference (statistically both of them were identical) in terms of elapsed time from diagnosis ($P = 0.96$) as well as age ($P = 0.97$).

For comparing the mean scores of depression of the two groups after intervention, ANCOVA applied with control of depression as covariate variable before intervention. According to ANCOVA results, the mean score of depression after intervention (spiritual care program) in the experiment group was fewer than the mean score of depression in the control group statistically significantly ($P < 0.001$, $F = 73.301$) [Table 1].

The spiritual care program made to decrease the mean changes in score of depression to 11.9 (8.47) in the experiment group, which this mean changes in score of depression was statistically significantly ($P < 0.001$).

DISCUSSION

The results obtained showed that using random allocation method, statistically there was no significant difference between the two groups before intervention in terms of demographic characteristics, type of leukemia, type of treatment and terms of elapsed time from diagnosis as well as mean score of depression; and in fact the statistical test also confirmed the random allocation of the study subjects.

According to the findings of the present study, after the spiritual care program, statistically the mean scores of depression in the experiment group difference from control group and in fact the mean scores of depression were significantly lower in the experiment group than in the control group ($P < 0.001$). In confirming the findings of the present

study, study results of Bolhari *et al.* (2012) with the aim to investigate the effectiveness of group therapy with spiritual approach to reducing depression, anxiety and stress in women with breast cancer, ANCOVA showed that in mean scores of depression there was a significant difference between control and experiment group after spiritual therapy.^[32]

In the study conducted by Cole *et al.* in the United States as “a randomized clinical trial of the effects of spiritually focused meditation for people with metastatic melanoma”, the results indicated a significant reduction in depressive patients after intervention ($P = 0.023$).^[20] Consequently spiritually focused meditation led to decrease the depression which supports the present study results.

On the other hand, Liu *et al.*^[33] in term of the effect of spiritual intervention on depression, revealed the different results. Study results of Liu *et al.* with the aim to understand the effects of culturally enriched body–mind–spirit group therapy on anxiety, depression and holistic well-being among women with breast cancer, showed that 2 months after the intervention, even though depression in the intervention group compared with the control group decreased, but the amount of reducing was not significant.

Besides components such as carefully how to implement spiritual interventions, interventions environment, environmental and cultural factors could affect study results, also this difference may be due to the different study populations (in the study of Lee *et al.*, patients with breast cancer and in the present study, leukemic patients participated), difference in the assessment tool of depression (in the study of Lee *et al.*, Beck DBI and DASS-42 in the present study was used), the significant differences in the number of samples (16 patients in the study of Lee *et al.* and 64 patients in this study) and various components of spiritual-based interventions.

Based on the findings of the present study, there was a significant difference between the mean scores of depression before and after the spiritual care program in the experiment group (after spiritual care program the mean scores of depression were significantly reduced in the experiment group) ($P < 0.001$). In line with the results of the present study, study results of Rajagopal *et al.* in Pennsylvania, United States titled as “The effectiveness of a spiritually-based intervention to alleviate subsyndromal anxiety and minor depression among older adults”, revealed that there was a significant difference between the mean scores of depression before and after the spiritual care program as a group in the experiment group ($P = 0.07$).^[34]

Furthermore, our study results were also in accordance with study results of Bolhari *et al.* (2012) which showed the group therapy with spiritual approach reduced the depression of patients with breast cancer ($P < 0.0001$).^[32] Moreover, the results of Musarezaie *et al.* study showed that there was a significant correlation between spiritual well-being and depression in

Table 1: Comparing the mean score of depression in the experiment and control groups after intervention

Statistical test group	Mean score	SD	ANCOVA test	
			F	P value
Experiment	6.03	5.24	73.301	<0.001
Control	15.47	10.43		

ANCOVA=Analysis of covariance, SD=Standard deviation

patients with cancer.^[35] This means that patients with cancer tend to live in spiritual practices, significantly suffering from lower depression, which supports the present study results.

On the contrary, in the study conducted by Delaney *et al.* in the United States titled as "The influence of a spirituality-based intervention on quality-of-life, depression and anxiety in community-dwelling adults with cardiovascular disease," results showed that even though depression in the intervention group compared with the control group decreased, but this change was not significant ($P > 0.05$).^[36]

According to researcher, components such as differences in type of disease (leukemic patients against heart disease), measurement time variable content and various components of spiritual-based interventions (various type of spiritual care program), difference in the assessment tool of depression (in the study of Delaney, Center for Epidemiological Studies Scale [CES-D; Radloff, 1977] and DASS-42 in the present study was used), difference in the study methodology (present study was the two-group clinical trial with pre and post-test design, whereas methodology of Delaney study, was the quasi-experimental one-group without control group) and difference in sample size have been responsible for such an inconsistency.

CONCLUSION

Based on these findings, nurses, spiritual care program, the state of depression in patients with leukemia is effective and convenient method for the control and reduction of depression, so Nurses can use a holistic approach to care, with emphasis on the spiritual dimension of care, patients can help to or reduce the suffering of patients.

The findings of this study are worthless without considering its limitations. Low number of eligible patients with leukemia was the most important limitation of this study. Particular physical and psychological situation of this inadequate number of patients was another major issue the researchers encountered. Short-duration implementation of the intervention (as a student thesis) counted as a third limitation. Implementing interventions with higher number of spiritual care sessions and longer follow-up on a greater number of patients will be lead to more reliable conclusions.

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