Original Article

The effect of group logotherapy on spirituality and preoperative anxiety in patients seeking open heart surgery referring to Tehran Heart Center in 2020

Fatemehsadat Alavi[1], Seyed Hossein Ahmadi Tafti[2], Farshid Alaeddini[3], Zainab Ebrahimyan[4], Atieh Ebrahimyan[5], Morteza Mansourian[6]

Abstract:

BACKGROUND AND PURPOSE: Most patients experience anxiety before heart surgery. On the other hand, spiritual health can improve the candidate patient's adaptation to surgery. Therefore, this study aimed to investigate the effect of group logotherapy on spirituality and anxiety of patients undergoing cardiac surgery.

MATERIALS AND METHODS: In this quasi-experimental study, 60 hospitalized candidates for cardiac surgery were randomly assigned to two groups (30 in the experimental group, 30 in the control group). To measure anxiety and relationship with God, Beck Anxiety Questionnaire and the researcher-made scale about relationship with God (reconstruction of Lawrence's scale of perception of God) were used, respectively. In the intervention group, in addition to drug therapy, individuals received two sessions of group discussion and spiritual skills training using the behavioral-cognitive method with emphasis on spiritual thoughts and problem-solving methods, but the control group received only drug therapy. Data were analyzed using SPSS software.

RESULTS: In the experimental group, the anxiety scores mean in the posttest and follow-up were significantly lower than the pretest ($P < 0.05$), while the mean anxiety in the control group in the posttest stage was not significantly different, but at the follow-up stage, it was significantly lower than the pretest, but the decrease in mean anxiety in the experimental group was greater ($P < 0.05$). The mean subscales of relationship with god (influence, divine providence, acceptance, presence, challenge, benevolence) were significantly higher in the experimental and control groups in the follow-up stage than the pretest, but the increase in the mean of these variables was more in the experimental group in the follow-up stage ($P < 0.05$).

CONCLUSION: Findings showed that the components of relationship with God are a good predictor of pre-surgery anxiety, so by focusing on spiritual training of patients who are candidates for surgery, the incidence or severity of anxiety can be reduced.

Keywords:
Anxiety, coronary artery diseases, logotherapy, meaning therapy, one's image of god

[1]MSc of Health Education, Iran University of Medical Sciences, Tehran, Iran, [2]Professor of cardiothoracic surgery Tehran heart center Tehran university of medical science, Tehran, Iran, [3]MD, PhD, Epidemiology, Tehran Heart Center, Tehran University of Medical Sciences, Tehran, Iran, [4]Master of Animation, Tarbiat Modares University, Tehran, Iran, [5]Master of Nanophysics, Al-Zahra University, Tehran, Iran, [6]Associate Professor, Health Promotion Research Centre, Iran University of Medical Sciences, Tehran, Iran

Address for correspondence:
Dr. Morteza Mansourian, Iran university of Medical Sciences, Hemat Highway, Tehran,Iran.
E-mail: mansourian55@gmail.com

Introduction

Cardiovascular diseases are one of the most common causes of death today due to the existing stresses and rapid lifestyle changes.[1] One in four dies due to cardiovascular diseases.[2] In Iran, cardiovascular disease is a health and social problem that is increasing; it takes the lives of more than 90 thousand people

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annually.[3] Patients admitted to intensive care units and candidates for surgery suffer from a variety of distresses[4] and experience a wide range of negative emotions such as anxiety, anger, and depression, especially when the disease leads to a reduction or disorder in the patient's valuable roles and activities and changes in social relationships.[5,6] Although open heart surgery is a successful intervention technique in the care and treatment of heart disease, hospitalization is a stressful and life-threatening experience with fear and anxiety for patients and their families.[7] Anxiety is one of the most common psychosocial factors in heart diseases.[8,9] Constant stress in a person's life causes anxiety, fear, and lack of control over life, which in turn causes anxiety[10] and also makes this defective cycle more severe. Fear of death, uncertainty of future life situation, and unawareness of care methods cause obvious anxiety in these patients.[11] Although anxiety is considered an adaptive response to life events and stimuli,[12] it is one of the factors that can affect the quality of life.[13] Despite the major impact of stress management method, it is observed that in some cases in the long run, this method cannot be useful. Despite the emphasis on irrational thoughts and replacing them with effective cognitions, one cannot understand the philosophy of life due to lack of meaning in his life; as a result, feeling insecure brings about negative thoughts for the person.[14] In recent years, spirituality has entered the theoretical and research literature as an important component to increase coping power and promote mental health.[15,16]

According to research, one of the factors influencing stress and anxiety is religion and religious beliefs because religion affects a person's attitude, cognition, and behavior.[17] Pargament considered spirituality as the search and endeavor of man to receive the holy world, with which man seeks to identify and communicate with its spiritual dimension. Through this dimension, the spiritual man realizes the truths of existence. Facts that show that man is a being beyond the material body and belongs to another world.[18] Research has shown that levels of belief in God affect people's attitudes toward life concepts and different behaviors such as choosing a friend and partner, use of substances,[19] and the development of psychological disorders and social deviations. According to research, religious attitudes and self-concept are predictors of anxiety.[20,21] Vance stated that at present, meeting spiritual needs is a desirable goal in medical care.[22] According to Frankel, the founder of logotherapy, the spiritual dimension is specific to man and superior to the physical and mental dimensions, and the type of human attitude to events, including health and illness and his interpretations, determines his mental health and mental comfort.[23] The World Health Organization classifies the dimensions of human existence into four dimensions: physical, mental,

social, and spiritual, due to the increasing attention of psychologists and mental health professionals to the spiritual dimension of human beings (2001), McLean and Barzan found that people with spiritual beliefs have better physical and mental health.[24] Research has also shown that patients undergoing coronary artery bypass graft surgery experience high levels of surgical anxiety and that women have higher levels of anxiety than men.[25] The meaning of life in this study does not mean optimism and the feeling of superficial satisfaction of life, but it means purposefulness of life and strengthening the human relationship with the merciful Creator, which ultimately brings a feeling of optimism and deep peace of mind for human beings. The aim of this study was to evaluate the application of group logotherapy intervention on the spirituality and anxiety of patients who were cardiac surgery candidates referring to Tehran Heart Center Hospital.

Materials and Methods

This study is a clinical trial conducted in November and December 2016. The study environment was the cardiac surgery wards of Tehran Heart Center Hospital. The number of samples was 30 in each group. Samples were selected at the beginning of the study by simple sampling method. Then, the samples were assigned to the control and test groups by random allocation method. After obtaining informed written consent from the samples and having the inclusion criteria (consent to enter the study, having physical and mental ability to participate in the study, speaking Persian language, lack of clinical instability, and severe physical and mental disabilities), samples entered the study. The data collection tool included a three-part questionnaire. The first part was related to patients' demographic information; the second part was related to the researcher-made relationship with God questionnaire (reconstruction of Lawrence's God Image Scale), and the third part was related to Beck anxiety questionnaire. The relationship with God questionnaire is a reconstruction of Lawrence's 72-point scale. Lawrence (1997) constructed this scale as a subset and abbreviated form of the God Image Scale.[26]

In 1991 (quoted at Hall and Sourence, 1999),[27] the researcher administered and standardized a 156-item God Image Scale with eight scales for a sample of 1580 American adults. The reliability and validity of this scale and the internal correlation of subscales have been reported satisfactory in several studies (Lawrence, 1997; Hall and Sourence, 1999). Manock obtained the reliability of this scale 0.82 by Cronbach's alpha coefficient.[28]

The God Image Scale has six main scales: "Influence," "Divine Providence," "Presence," "Challenge," "Acceptance," and "Benevolence," each of which

contains a brief description of how one imagines God. After reading each sentence, the subjects determined the degree to which it corresponded to their moods and experiences regarding the image of God on a 5-point scale from strongly disagree to strongly agree. For each subscale, the higher the calculated score, the better one's image of God in that subscale, and overall, the more positive one's image of God.

To obtain the validity of the 33-item scale, after translating and re-translating the Lawrence scale, the content validity method was used in several steps. Content validity index and content validity ratio of questions were measured in the next stage of translation by Forward-Backward method by two independent translators, based on the opinions of 15 experts (health education and health promotion, psychologists, and level four of theological seminary). It is noteworthy that the initial questions of the checklist were designed according to Islamic teachings, 41 questions in six subscales (presence, challenge, acceptance, benevolence, influence, and divine providence). Questions with content validity ratio and content validity index lower than 0.49 and 0.78 were omitted.[29,30]

The face validity of the checklist questions was also assessed. This scale was then performed on 30 randomly selected patients and its reliability was evaluated. Furthermore, in the preliminary administration, the qualitative analysis of the questionnaire was performed on the target population. With the help of the opinions of five professors and experts (three psychology professors, two professors of level four of theological seminary), the content validity index and the content validity ratio of the questions were re-measured and the necessary corrections were made. At this stage, questions with a content validity ratio of <0.99 were removed from the checklist.[29] Questions with a content validity index higher than 0.79 remained in the checklist.[30]

Then, the reliability of the checklist questions was evaluated using the Kappa Cohen agreement coefficient by two independent evaluators (for 30 patients who were candidates for surgery). The coefficient of agreement between the evaluators (Kappa Cohen) was equal to 0.89 ($P < 0.0001$), which was acceptable and indicating an almost complete agreement between the evaluators.[31] Cronbach's alpha was also obtained 0.92 for the sample size of 60 patients.

The Beck Anxiety Inventory consists of 21 items (four-point Likert's scale). Scores range from 0 to 63. The questionnaire emphasizes the physiological aspects of anxiety. Three items are related to anxious person's attitude, and three are related to fear. Other items measure movement stress symptoms.

Beck and Glark (1988) reported the internal consistency of this scale as 0.93 and its retest reliability 0.75. In Iran, its internal stability was reported 0.92 by Cronbach's alpha method, its test and retest reliability was 0.83, and its validity (intra-class correlation) was 0.83.[32] After selecting and assigning the samples to the experimental and control groups, first three scales (demographic questionnaire, Beck Anxiety Inventory, relationship with God questionnaire) were completed by patients or by interview (pre-test). Then, the subjects in the experimental group were divided into groups of five to eight people.

For the people in the intervention group, in addition to drug therapy, two separate 1.5–1 h group discussion sessions were held for two consecutive days using behavioral-cognitive methods with emphasis on spiritual thoughts and problem-solving methods and Frankel's books. The control group did not receive any intervention. At the end of two sessions, questionnaires were completed again for both groups (post-test); also, 1 month after heart surgery, in the follow-up phase, the questionnaires were completed by telephone call.

SPSS software version 24 was used to analyze the data. Independent *t*-test was used to compare the two groups with quantitative variable, and Chi-square test was used to compare the two groups with qualitative variable. Paired *t*-test was used to compare the level of anxiety between the groups before and after the intervention, and independent *t*-test was used to compare the level of anxiety between the two groups. Repeated measurement ANOVA was used to test the hypotheses, which were a comparison of changes in indicators at different times. Significance level was considered <0.05.

Results

The participants' age was 29–77 years and the highest frequency was in the age groups of 53 and 64 years. The mean age of the samples in the experimental and control groups was 12.6 ± 53.5 and 12.5 ± 54.5 years, respectively. Most patients were male (experimental group 56.7 and control group 63.3), married (experimental group 90.0 and control group 73.3), undergraduate education (experimental group 66.7 and control group 63.3), had a history of surgery (experimental group 60.0 and control group 56.7), no smoking (experimental group 0.90 and control group 7.86), no drug use (experimental group 7.86 and control group 0.90), and had a personal house (experimental group 66.7 and control group 66.7). The results of *t*-test and Chi-square test showed no significant difference between the two groups in terms of age, marital status, level of education, history of surgery,

nonsmoking, nondrug use, and lack of a personal house (P < 0.05), i.e., the two groups are homogenous.

Comparison of contextual variables also showed that the mean score of anxiety in the experimental group was 17.2 ± 10.0 and 17.2 ± 10.6 in the control group. The mean score of influence in the experimental group was 20.5 ± 4.0 and 19.9 ± 3.8 in the control group. The mean score of divine providence in the experimental group was 21.9 ± 2.7 and in the control group was 20.8 ± 2.9. The mean score of acceptance in the experimental group was 25.2 ± 3.4 and 22.9 ± 3.4 in the control group. The mean score of presence in the experimental group was 32.5 1 4.1 and 31.2 ± 4.7 in the control group. The mean score of challenge in the experimental group was 22.8 ± 3.0 and 21.6 ± 4.2 in the control group. The mean score of benevolence in the experimental group was 22.2 ± 3.5 and 21.5 ± 4.3 in the control group. The total mean score of logotherapy therapy in the experimental group was 145.1 ± 16.6 and 137.8. 19.6 in the control group. The results of independent *t*-test showed that the mean of quantitative variables in the two groups was not significantly different (P < 0.05).

Table 1 shows the comparison of the mean and standard deviation of the variables of influence, divine providence, acceptance, presence, challenge, benevolence, total score of logotherapy therapy, and anxiety in the experimental and control groups in the pretest, posttest, and follow-up stages.

The results of the above table show that in the experimental group, in the pretest, in the variable of complete image score (mean: 145.1, standard deviation: 16.6); in the posttest, in the variable of complete image score (mean: 146.1, standard deviation: 16.5), and in the follow-up stage, in the variable of complete image score (mean: 161.2, standard deviation: 4.7).

In the control group, in the pretest, in the variable of complete image score (mean: 137.8, standard deviation: 19.6), in the posttest, in the variable of complete image score (mean: 138.1, standard deviation: 19.5), and in the follow-up stage, in the variable of complete image score (mean: 142.2, standard deviation: 15.5).

In the experimental group, in the pretest, in the anxiety variable (mean: 17.2, standard deviation: 10.0); in the posttest, in the anxiety variable (mean: 11.5, standard deviation: 11.1), and in the follow-up stage, in the anxiety variable (mean: 4.1, standard deviation: 4.1). In the control group, in the pretest, the anxiety variable (mean: 17.2, standard deviation: 10.6); in the posttest, the anxiety variable (mean: 17.1, standard deviation: 10.6), and in the follow-up stage, the anxiety variable (mean: 12.1, standard deviation: 6.9).

As the above results show, the mean of anxiety in the experimental group in the posttest and follow-up stages is less than the pretest. Furthermore, data analysis showed that in the control group, the mean of anxiety in the follow-up is less than the pretest, but the important point is that the decrease in mean anxiety in the experimental group was in two stages and had a more severe downward trend (pv = 0.047).

On the other hand, the comparison of the means of complete image score (pv = 0.006) in the control and experimental groups in the follow-up phase shows an increase, but the increase in the experimental group was significant. Figure 1 shows the relationship between anxiety scores in the experimental and control groups in the pretest, posttest, and follow-up stages.

As can be seen, the anxiety score in the experimental group decreased more in the posttest stage and especially in the follow-up stage than the control group.

Figure 2 shows the relationship between the complete score of God image in the experimental and control groups in the pretest, posttest, and follow-up stages.

As can be seen, the complete score of image in the experimental group in the post-test phase and especially

Table 1: Descriptive statistics of control and experimental groups in the variables of effectiveness, divine providence, acceptance, presence, challenge, benevolence, total score of logotherapy therapy, and anxiety

|	Mean±SD						PV
	Case			Control			
	Before	Follow up 1	Follow up 2	Before	Follow up 1	Follow up 2	
Tacirgozari-stat	20.5±4.0	21.0±4.0	23.9±1.6	19.9±3.8	19.9±3.9	20.4±4.0	0.051
Mashiiateelahi-stat	21.9±2.7	22.1±2.7	24.6±1.0	20.8±2.9	20.9±2.9	21.5±2.6	0.006
Pazirandegi-stat	25.2±3.4	24.7±4.1	29.0±1.4	22.9±3.4	22.9±3.5	23.7±3.3	0.000
Hozoor-stat	32.5±4.1	33.0±3.6	34.8±0.6	31.2±4.7	31.2±4.7	32.1±3.7	0.036
Chaleshi-stat	22.8±3.0	23.0±2.7	24.8±0.5	21.6±4.2	21.6±4.2	22.3±3.0	0.029
Kheirkhahi-stat	22.2±3.5	22.2±3.2	24.0±1.4	21.5±4.3	21.5±4.3	21.9±3.8	0.173
Nomremanadarmani	145.1±16.6	146.1±16.5	161.2±4.7	137.8±19.6	138.1±19.5	142.2±15.5	0.006
Nomreanxiety	17.2±10.0	11.5±11.1	4.1±4.1	17.2±10.6	17.1±10.6	12.1±6.9	0.047

SD=Standard deviation, PVP-Value
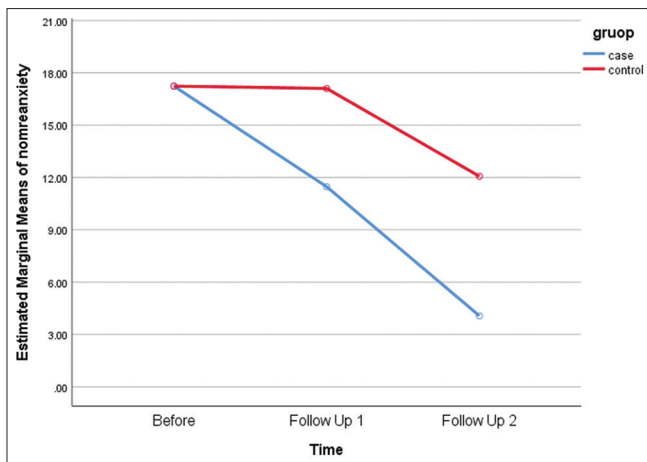
Figure 1: Relationship between anxiety score in two groups in the pretest and posttest
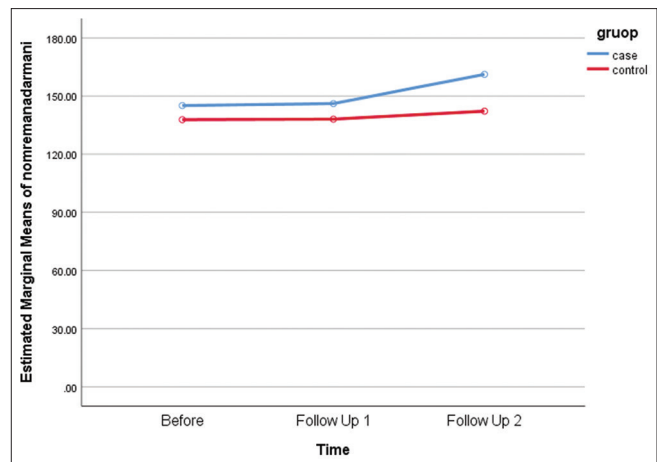

Figure 2: Relationship of complete image score in two groups in the pretest and posttest

in the follow-up phase increased more than the control group.

Discussion

The analysis of research findings showed that group intervention of logotherapy is significantly effective in reducing anxiety and increasing the subscales of relationship with God (influence, divine providence, acceptance, presence, challenge, and benevolence). Relationship with God seems to be effective in controlling emotions and feelings, especially anxiety management, or perhaps it can be said that these two variables are positively correlated. The study of basic variables in this study showed that the mean of anxiety of each group before the intervention was higher than the median score and mode before the intervention. This raises the need for intervention to control anxiety in patients undergoing surgery so that patients recover more quickly after surgery.

Patients with coronary artery disease experience a number of problems such as pain, intolerance of activity, maladaptation to the disease, anxiety, and severe psychological manifestations. Despite these problems, the recovery process is delayed, and their mortality may increase in the 1st month.[33] Research has shown that this condition causes the patient to feel uncomfortable, i.e., he feels that there is no future for him.[34]

The results also showed that logotherapy reduced the mean score of anxiety in the experimental group in the posttest and follow-up stages more than the control group. This finding is in line with the results of Golmohammadian *et al*. on the effectiveness of group logotherapy on death anxiety and social adjustment in the elderly based[35] and Tang *et al*. on the effectiveness of logotherapy on the rate of death anxiety in cancer patients.[36] Joe *et al*. examined the effect of factors such as marital status, religious activities, health status,

mental happiness, and family cohesion on death anxiety in Korean elderly. The results showed that all factors reduce the rate of death anxiety.[37] Momeni *et al*. showed that the spiritual care program reduces the anxiety of cardiac ischemic patients admitted to the intensive care unit.[33] Most patients at this stage of life are looking for a source to reduce suffering and negative emotions[6] and to find meaning in their lives.[34] As we mentioned in the introduction, the meaning of life in this study does not mean optimism and a sense of superficial satisfaction with life, but it means purposefulness of life and strengthening the relationship between man and God Almighty, which ultimately bring about optimism and deep peace of mind. In fact, in group logotherapy sessions, patients are helped to strengthen their heart connection with God and to recall their previous successful spiritual experiences.

Imam Ali (AS) says: God Almighty made remembrance the enlightenment of hearts.[38] In Surah Ra'd, verse 28, it is stated that "except in the remembrance of God, the hearts are reassured." God Almighty says in this verse that hearts are calmed by the remembrance of God.[39] Islamic psychology considers the remembrance of God as the basic cure for mental disorders such as worry and anxiety because in the ups and downs of life and in the face of sufferings, the remembrance of God gives peace and reassurance to the hearts.[40] Meditation and relaxation techniques have been used for centuries to reduce stress and anxiety.[41] Studies have shown that praying alone reduces anxiety and depression, increases optimism, and more adaptability to problems.[42] Furthermore, Sharifi *et al*. showed a positive and significant relationship between spiritual intelligence and death anxiety after controlling the effects of age, level of education, and disability, but a negative relationship between spiritual well-being and death anxiety.[43]

Furthermore, the results showed that group logotherapy increased the individual's perception of God in the experimental group more than the control group in the follow-up stage. Faraji *et al*. studied the effect of group logotherapy on spirituality and death anxiety in cancer patients and showed that the mean score of death anxiety in both groups was high (more than 8) because the two groups were similar in terms of death anxiety and spirituality before logotherapy, but after logotherapy, there was a significant difference in death anxiety scores between the groups ($P < 0.05$).[44] There was also a statistically significant difference between the mean score of spirituality in the intervention group before and after logotherapy ($P < 0.05$), but in the control group, it was not significant, indicating that group logotherapy is effective in increasing the score of spirituality and reducing death anxiety.

Hedayatizadeh *et al*. showed that the level of death anxiety of patients had the highest correlation with the dimension of spiritual activities and the lowest correlation with the dimension of spiritual needs, i.e., with increasing the score of spiritual activities, the level of death anxiety of patients decreased.[45] It may be concluded that spiritual-based interventions promote a sense of secure and positive attachment to God in human beings, which in turn can reduce anxiety levels and increase adjustment in life.

The present study also showed that in the follow-up phase in the control group, the subscales of God image increased slightly. Research shows that most people experience certain heart perceptions in living with God. Kasmo *et al*., in a study of 1800 men and women of different ethnicities and groups aged 18–50 in Malaysia on the issue of belief in God and religion, found that respondents generally believed strongly in religion and God, but according to ethnic groups, the findings showed a significant difference between the power of belief between different ethnic groups.[46]

Various studies have also shown that patients with physical injuries tend to follow religious beliefs because religion helps them to bear the pain and suffering caused by the disease more easily.[47] Religion reduces depression and mental illnesses and increases adaptation and longevity.[48] The very promotion of man's relationship with God Almighty enriches the cognitive and behavioral treasury in the face of subsequent problems, and the person perceives a higher stage of the spiritual dimension.

However, due to the postevent nature of the present study, it is not possible to determine exactly whether the problems of life lead to a higher perception of God or those basic perceptions that are in the human mind, either subconsciously or acquired in earlier stages of life when faced with painful life events, lead to higher perceptions of God. Longitudinal research is needed to clarify the anteriority and priority of these two variables.

In short, having a meaning for every moment of life is a motivation to continue life and enliven human life. This motivation is strong enough to overshadow other motivations. People feel empty and meaningless when they have no purpose.

In fact, it means giving a person courage, to be, and to become and helping him manage and reduce the anxieties of his life. When a patient is asked: "Why do you live?" The answer to this question is what it shows meaning. Therefore, the only way for man to escape from emptiness and the feeling of despair and hopelessness and to increase his hope is to create meaning for every moment of life and to perform a duty for that meaning.

In fact, by dealing with everyday problems and experiencing a new understanding of life, one achieves higher spiritual growth. It is natural that this focus on the purpose and meaning of life and doing group activities in group logotherapy increases patients' hope and helps them to manage emotions and control anxiety and solve their problems.

One of the important tasks of nurses is to control and moderate the consequences of the disease, including psychological consequences.[49] Nurses and the treatment team often use medication to control these consequences. Spiritual care and spiritualism is a unique aspect of care that cannot be replaced by psychosocial care and is the center of human existence.[50,51] Shirahama *et al*. argued that spiritual care answers fundamental human questions such as the meaning of life, pain, suffering, and death. To provide appropriate spiritual care, it is recommended that therapists, especially nurses, develop their knowledge and understanding of different aspects of spirituality, integrate spirituality and medical care, and improve relationship with patients and their families.[52] Therefore, in comprehensive cares, it is necessary to pay attention to the fact that spirituality plays an obvious role in the process of recovery.[53-55]

Conclusion

Findings showed that the components of relationship with God are a good predictor of preoperative anxiety, so by focusing on spiritual trainings for surgery candidates, the incidence or severity of anxiety can be reduced, and better results and rapid recovery trend after surgery can be witnessed.

Conflicts of interest

There are no conflicts of interest.

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