Original Article

The Effect of Two Methods of Relaxation and Prayer Therapy on Anxiety and Hope in Patients with Coronary Artery Disease: A Quasi-Experimental Study

Soudabeh Sadeghimoghaddam[1], Mousa Alavi[2], Tayebeh Mehrabi[3], AmirHosein Bankpoor-fard[4]

[1]Student Research Center, Faculty of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran, [2]Nursing and Midwifery Care Research Center, Faculty of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran, [3]Department of Psychiatric Nursing, Faculty of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran, [4]Department of Quranic and Ahl Al-bayt Knowledge, University of Isfahan, Isfahan, Iran

Abstract

Background: Mental health problems such as anxiety and disappointment are common in patients with heart disease, resulting in poor outcomes. The purpose of this study was to compare the effectiveness of two methods of relaxation and prayer therapy on anxiety and hope in patients with coronary artery disease (CAD). **Materials and Methods:** A quasi-experimental study was conducted in three groups of 25 subjects (i.e., two groups of relaxation and prayer therapy and one control group) and two stages (i.e., pretest and posttest) in hospitals affiliated to Isfahan University of Medical Sciences, Iran. Data collection instrument consisted of three parts: (a) demographic and individual characteristics of the subjects, (b) Beck Anxiety Inventory, and (c) Snyder's Hope Scale. The interventions consisted of Benson's relaxation and prayer therapy. Data were analyzed using descriptive and inferential statistics. **Results:** The results showed that there was a significant difference between the mean score of anxiety after intervention in the three groups which was related to each of the relaxation and prayer therapy group with the control group. Also, the result of analysis of covariance with controlling the effect of pretest revealed significant between-subject effects of interventions on posttest scores of hope ($F(2, 71) = 8.55$, $p = 0.012$, $\eta p^2 = 0.12$) and anxiety ($F(2, 71) = 4.71$, $p < 0.001$, $\eta p^2 = 0.19$). **Conclusions:** Both relaxation and prayer therapy interventions are effective in promoting hope and reducing anxiety in patients with CAD and provide optimal, short-term, and easy-to-follow options for the health team.

Keywords: *Anxiety, coronary disease, hope, relaxation, religion*

Background

Nowadays, cardiovascular diseases are at the head of the most common diseases in industrialized and developing countries.[1,2] Cardiovascular diseases are among the most common cause of disability and death in most countries of the world. According to the predictions of the World Health Organization, this class of diseases is considered to be the leading cause of death worldwide by 2020. Official statistics from the Ministry of Health and Medical Education of Iran show that more than 40% of all deaths in the country are because of heart disease.[3]

Patients with coronary artery disease (CAD) are at risk of various mental health problems for various reasons, including impaired function in various areas of life. Some evidence suggests that the process of disease and its complications along with the need for aggressive therapies in some cases lead the patients to mental health problems such as anxiety.[4,5] Anxiety symptoms are reported in 90% of patients admitted to the heart departments, and about 20% of these patients suffer from fatigue and depression, which is associated with symptoms such as disappointment.[6] Anxiety and disappointment result in different outcomes in these patients which include reduced job performance, disruptions in family and social relationships, and noncompliance with treatment regimens,[6] all of which lead to recurrence of cardiac events and increased risk of death.[5]

Comprehensive rehabilitation programs are considered as an appropriate way to prevent and overcome the physical and mental health problems of patients with CAD.[7] Moreover, psychological therapies and their beneficial effects on improving the mental health of patients with CAD

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Address for correspondence:
Dr. Mousa Alavi,
Nursing and Midwifery Care Research Center, Faculty of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran.
E-mail: m_alavi@nm.mui.ac.ir

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have been supported.[8,9] However, implementation of these interventions has been reported to face challenges such as obstacles to program implementation and adherence to these programs.[10] In this regard, the focus is on interventions based on which patients can, after receiving education, easily and with minimum professional assistance benefit from them. Therefore, the use of complementary therapies and nonmedical methods including relaxation techniques[11] and prayer therapy[12] is expanding.

The relaxation techniques include a series of physical (i.e., respiratory and muscular) and mental exercises being made to reduce stress and increase calmness.[11] Benson's relaxation technique[13] is an easy-to-use relaxation technique which is effective on the pulse rate, respiratory function, and heart workload.[14] The results of some studies have supported positive effects of relaxation techniques in promoting mental health.[15,16] The effect of this intervention has also been supported in reducing the stress and anxiety of hemodialysis patients[17] as well as reducing anxiety in patients undergoing cardiac catheterization[18] and reducing anxiety and increasing hope in women with breast cancer.[19] However, patients' adherence to such interventions has been identified among inhibiting factors.[20] A more common and easy-to-use alternative[21] to relaxation techniques is prayer therapy.

Praying is defined as a deep human instinct of humanity where one becomes aware of his connection with the source of life.[22] The association between the use of prayer therapy and decreasing anxiety in patients with cancer[23] and increased hope of them[22] has already been supported. Despite supporting evidences, the effectiveness of prayer therapy depends on context-specific determinants such as culture and believes.[24]

Overall, the results of the studies showed that the relaxation and development of spirituality, especially using prayer, may be an important predictor of mental health in chronic diseases; however, the special effect of using these interventions to reduce anxiety and increase hope has not specially attracted attention in patients with CAD. A review of studies also shows that the effect of using both relaxation and prayer methods, especially on the anxiety and hope of patients with CAD, has not been considered comparatively. Therefore, the purpose of this study was to compare the effectiveness of two methods of Benson's relaxation technique and prayer therapy on anxiety and hope in patients with CAD.

Materials and Methods

This quasi-experimental study was carried out in three groups (two intervention groups and one control group) and two stages of pretest and posttest in 2017. The study population included patients with CAD in the heart and cardiac care unit (CCU) wards of hospitals affiliated to Isfahan University of Medical Sciences (IUMS). First, the researcher (first author in this article) followed the coordination with the introduction of a written letter from the university. The author then referred to the research environment, presented the description of the goals and process of research, and attracted the opinion of the assistance and cooperation of the authorities. After self-introduction to the patients and describing the goal of the research, the patients who meet the inclusion criteria were invited to participate in the study. Inclusion criteria were being Iranian citizenship and adherence to Islam, lack of chronic mental illness, willingness and possibility to participate in the study because of physical condition, not getting discharged earlier than 3 days after the beginning of the study, nonuse of anxiolytic and hypnotic drugs, lack of visual and auditory problems affecting participation in the study, and lack of experience in similar researches. After the introduction of the research, its goals, and the role of the participants, a written consent was obtained from them, and then the study instruments were completed.

Power analysis for a one-way analysis of variance (ANOVA) with three groups was conducted in G*Power software to determine a sufficient sample size using an alpha of 0.05, a power of 0.80, and an effect size ($f = 0.40$). Based on the aforementioned assumptions, the desired sample size was obtained as 66. The effect size used to calculate sample size was estimated based on studies that examined the effect of relaxation[18] and prayer[25] on the mental health status of chronic patients. With respect to probability of attrition, 10% were added to the sample size; it was considered as 75 people for all groups. The samples were randomly allocated to three groups of 25 people (two groups of relaxation and prayer therapy intervention and a control group). SPSS software was used to allocate subjects as randomly as possible to control and intervention groups. First, a list of numbers from 1 to 75 was prepared and divided into three random groups of numbers. The patients were assigned a number in the order they were recruited into the study, and therefore were entered into an intervention or control group. However, practically we had to made few changes in group assignments to avoid contamination bias. Therefore, we had no real randomization, and hence the study design is quasi-experimental. The flow diagram of the study is presented in Figure 1. For the first group, Benson's relaxation technique[26] was performed during six sessions twice a day (9 am and 6 am) for 3 consecutive days. Each session lasted 30 min and covered the following steps: sitting in a comfortable position, closing the eyes, deeply relaxing all the muscles, beginning at the feet and progressing up to the face, breathing through nose while becoming aware of one's own breathing, continuing this practice for 20 min, and finally sitting quietly for several minutes, at first with closed eyes and later with eyes open. The second group (i.e., prayer therapy) underwent the same timeframe for the intervention and

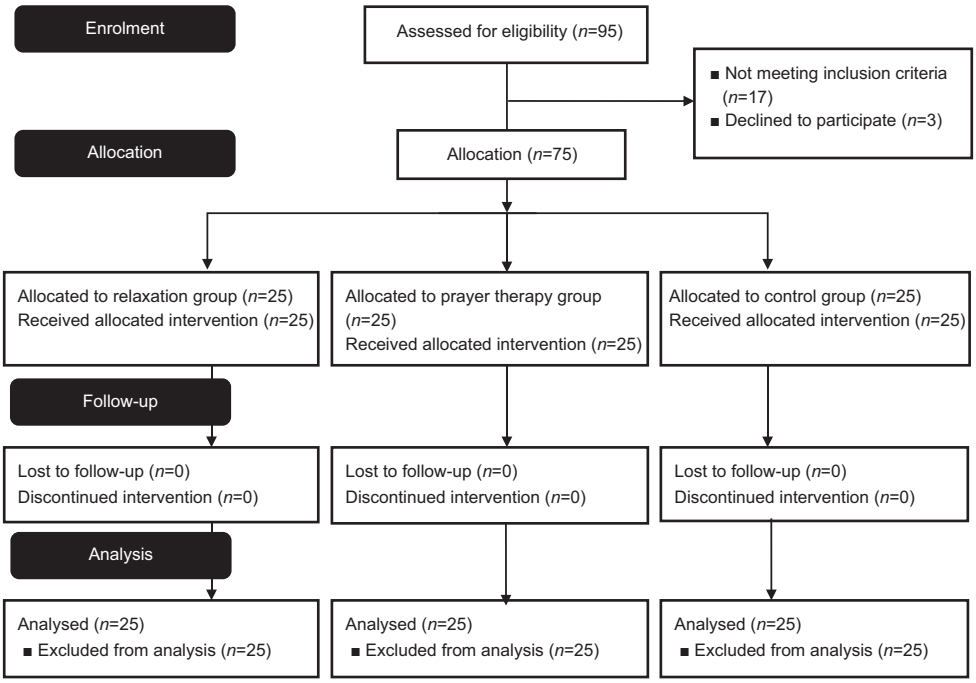

Figure 1: Flow diagram for the study

covered the following steps: humility which is admission of limitations of our personal power and believing on a greater power that can restore us to health; alignment which is aligning the body, mind, and spirit with the help of deep breathing and visualization; stating our purpose or the situation we want to achieve; offering which means giving something to get something else and can consist of leaving the things that make us angry and dependent; gratitude that is expression of appreciation in advanced of fulfillment; reception that consisted of creating enough time and space to receive whatever we were asking for and for example included asking for all the guidance we want; and finally, realization and fulfillment that consisted of being open to change, to receive, and to fulfillment. Both interventions were performed in groups of three to five patients in patients' rooms by the first author (SS) under the supervision of the corresponding author. After the interventions, a posttest was performed for each group by an independent person (i.e., a nurse) who was unaware of the kind of interventions on each group. The interval between pre- and posttest for the control group was similar to that of intervention groups.

Data were collected by an instrument consisting of three parts: (a) demographic and individual characteristics of the samples, (b) Beck Anxiety Inventory (BAI),[27] and (c) Snyder's State Hope Scale (SHS).[28] BAI is a 21-item 4-point Likert scale from 0 to 3 with a total score of 0–63. The validity of the Persian version of this scale was evaluated in an Iranian research, and its acceptable reliability (r = 0.72, p < 0.001) and internal consistency (alpha = 0.92) have been reported.[29] The SHS questionnaire has 12 items with the 5-point Likert scale from 1 to 5 (i.e., completely disagree to completely agree). The internal consistency of the Persian version of the BAI and SHS was evaluated on a pilot sample of patients with CAD (n = 20) which were 0.9 and 0.71, respectively.

To analyze the data, descriptive (i.e., central tendency statistics) and inferential statistics were used. Inferential statistics were used to compare the groups using ANOVA, analysis of covariance (ANCOVA), and chi-squire tests. Statistical analysis was performed using SPSS software version 18 (SPSS Inc., Chicago, IL, USA) and considering the significance level of less than 0.05.

Ethical considerations

In this research, respecting the ethics of the research became possible by explaining the purpose of the research to the hospital authorities, explaining the purpose of the research to the patients, explaining sufficiently the freedom of patients to participate in the study, observing moral principles in the publication of the results, obtaining informed and written consent of the subjects under study, and getting the code of ethics (MUI. REC. 1396030) from Isfahan University of Medical Sciences, Iran.

Results

The demographic and individual characteristics of the samples were compared between the three groups. The results showed that there is no significant difference between the experimental control groups in terms of demographic and individual characteristics [such as age, length of disease (years), gender, education level, marital status, number of children, job status, income, accommodation status, and previous hospitalization because of CAD].

Table 1: Comparison of mean of anxiety and hope scores before and after intervention

Group Variable statistic indices	Relaxation Mean (SD)	Prayer therapy Mean (SD)	Control Mean (SD)	Statistics	
				F	*p*
Anxiety					
Pretest	11.08 (12.53)	13.04 (11.73)	17.72 (11.60)	2.03	0.14¥
Posttest	6.36 (4.75)	7.60 (4.42)	12.52 (5.70)	10.65	<0.001¥
Posttest controlling for pretest effect				4.71	<0.001¥
Hope					
Pretest	33.24 (4.65)	29.56 (6.30)	29.56 (6.30)	3.35	0.04¥
Posttest	36.64 (6.53)	33.92 (8.10)	29.68 (6.40)	6.18	0.003¥
Posttest controlling for pretest effect				8.55	0.012¥

SD: Standard deviation. ¥ANOVA statistics, ¥ANCOVA statistics

Table 2: ANOVA *post hoc* comparisons of scores on hope from three groups of intervention and control

(I) Group	(J) Group	Mean difference (I-J)	Std. error	*p*	95% Confidence interval	
					Lower bound	Upper bound
Posttest anxiety						
Relaxation	Prayer	−1.24	1.41	0.66	−4.62	2.14
	Control	−6.16*	1.41	<0.001	−9.54	−2.78
Prayer therapy	Control	−4.92*	1.41	0.002	−8.30	−1.54

ANOVA: Analysis of variance

To ensure assumption of equality of variances, required to perform ANOVA to make an intergroup comparison of the main variables (i.e., anxiety and hope), using variance analysis, the anxiety variables (p = 0.95) and hope (p = 0.26) were supported using Levene's test.

Baseline comparison of the mean anxiety scores did not support the existence of the difference between the three – relaxation, prayer therapy, and control groups [Table 1]. The results showed that there was a significant difference between the mean score of anxiety after intervention in the three groups [Table 1]. The results of *post hoc* test (i.e., Tukey) showed that this significant difference was related to the relation of each group of relaxation and prayer therapy groups with control group, and there was no significant difference between the relaxation and prayer therapy groups themselves [Table 2]. To control the effect of pretest score of anxiety variables, ANCOVA was performed. The statistics is shown in Table 1.

Because the difference of the mean at baseline (pretest) scores of hope between the three groups of relaxation, prayer therapy, and control was significant, the report of mean scores of this variable in the posttest level was avoided, and to control the effect of the pretest scores, the ANCOVA was done. The statistics is shown in Table 1.

Discussion

The aim of this study was to compare the effectiveness of two interventions of Benson's relaxation and prayer therapy on anxiety and hope in patients with CAD admitted to the heart and CCU departments of hospitals affiliated to IUMS. The results of this study showed that Benson's relaxation intervention had an effect on reducing the anxiety of patients with CAD, and this result has been reported in some other similar studies despite conducting on different populations. The results of the study by Otaghi *et al*.,[30] who investigated the effect of Benson's relaxation on anxiety and stress in patients undergoing hemodialysis, showed that the anxiety and stress levels of patients after intervention significantly decreased. Also, the results of the study by Mahdavi *et al*.[17] supported the positive effect of Benson's relaxation on the perceived stress and anxiety in hemodialysis patients.

According to the findings of this study, relaxation has led to an increase in hope in these patients, which was also supported by some studies on people other than patients with heart disease. For example, in the study by Hamid, who examined the effect of relaxation intervention on the hope of women with breast cancer, the results supported such an effect.

The results of this study also showed that prayer therapy reduced anxiety in patients with CAD. In line with this result, however, in subjects other than patients with heart disease, Boelens *et al*.[31] also supported the positive influence of prayer therapy on anxiety, and some other evidences have also supported the relationship between religious activities and positive health outcomes.[32]

In addition, the results of this study supported the effect of prayer therapy on the hope of patients with heart disease. Similar to the results of this study, some other evidences have also supported the desired impact of approaches based on promotion of spirituality on hope, although these studies

have been conducted on people other than cardiac patients. In a study by Nadi and Ghahremani,[33] the important role of religion/spirituality to enhance hope of hospitalized patients has been supported, and in another study a significant relationship between spirituality and sense of hope of patients with chronic kidney disease was found.[34]

The results of the study did not support the difference between the two relaxation and prayer therapy interventions in these patients. Although there has been no study that compared the impact of these two interventions on psychological indicators in patients, this conclusion suggests a similar optimal effect, and moreover suggests that the health professionals, and especially nurses, can use them proportionately to the needs and willing of patients with heart disease to promote their psychological indicators.

Overall, it looks that anxiety and hope in patients with heart disease with a fundamental stress can be controlled, and the interventions that can affect this fundamental factor can also control the anxiety and hope in these patients, with some of the evidences supporting the correlation between these variables in patients. For example, in a study done by Roger *et al*.,[35] who examined the effect of hope and optimism on the anxiety of a particular group of patients with cancer, the results showed that hope has decreased anxiety and increased hope in patients with cancer. Also, in a study conducted by Doyel *et al*.,[6] who examined the predicting effect of anxiety on hope of patients with heart disease, the results showed that patients with hidden and apparent anxiety had low hopes. However, future studies with the aim of testing the models explaining the relationship between these variables in patients with heart disease are suggested.

This study was accompanied by limitations, including the limited number of participants and the limited scope of the study population; they may limit the generalizability of the results.

Conclusion

Both relaxation and prayer therapy interventions are effective on promoting hope and reducing anxiety in patients with CAD and offer optimal, short-term, and easy-to-follow options for the health team, and in particular psychiatric nurses, to be able to satisfy the need of patients with heart disease and promote their psychological indicators.

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Isfahan University of Medical Sciences (IUMS), Isfahan, Iran

Conflicts of interest

Nothing to declare.

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