Research Article

Effect of Sex Education on Anxiety, Stress and Depression in Patients With Myocardial Infarction (MI) and Their Spouses

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Abstract

Background: The lack of awareness about sexual activity after a myocardial infarction (MI), as well as consequent occasional sexual withdrawal and sex problems, are the key factors that intensify the stress, anxiety, and depression in patients with MI and their spouses.

Objectives: This study aimed to investigate the effect of "sex education" on stress, anxiety, and depression in patients and their spouses after MI.

Patients and Methods: This randomized clinical trial was conducted on 60 patients hospitalized with ischemic heart disease along with their spouses. The intervention included five sessions of face to face training and offering an educational pamphlet. The Dass-21 questionnaire was completed for both groups before and after the intervention. The collected data were analyzed using paired sample t-test, independent t-test, and Chi-square test.

Results: After the intervention, the levels of stress and anxiety of the patients and their spouses were measured in both groups using independent t-test and a significant difference was observed (P = 0.001). The level of depression of the patients and their spouses was measured in both groups using independent t- test, yet no significant difference was found (P > 0.11).

Conclusions: It is recommended to include sex education in training programs for heart patients in cardiac care units.

Keywords: Sex Education, Myocardial Infarction, Stress, Anxiety, Depression

1. Background

Cardiovascular disease is one of the most common chronic diseases (1) and the main cause of death worldwide (2). In Iran, the prevalence of coronary artery disease and its mortality is rising (3, 4). Myocardial Infarction (MI) is the most common coronary artery disease (5). Fear and anxiety associated with hospitalization are generally a diagnosis for MI patients hospitalized in the cardiac care unit for the first time. In addition, the fear of death, uncertainty about the future, and the lack of knowledge on treatment methods, as well as families' expectations cause anxiety in these patients (6). During the first days after MI, the patient's spouse experiences severe psychological stress (7). Returning home may also trigger a period of vulnerability and stress for the patients, especially their spouses (8). An increase in heart rate is a consequence of stress and anxiety in patients with MI, which increases myocardial oxygen demand and reduces the higher ratio of diastole to systole. This can lead to further disorders in an ischemic heart and the patient's re-hospitalization. Bodis et al. showed that high level of anxiety increases

the risk of sudden death by up to three times. Coronary events in patients with MI, who suffer from high anxiety, increase immediately after the stroke and during the following months (9). The lack of awareness on sexual activity after an MI, as well as consequent occasional sexual withdrawal and sex problems, are the key factors that intensify the stress, anxiety and depression in patients with MI and their spouses (1, 10). Psychological concerns such as stress, anxiety and depression about returning to sexual activity (11, 12) are common among patients with heart disease (13, 14). Spouses are often more concerned than the patients about such issues (15, 16). High prevalence of sex problems in males and females with cardiovascular disease has negative effects on the quality of their life and their well-being and exacerbates the anxiety of patients and their spouses (17). According to researches, some reasons for sex problems following cardiovascular diseases, especially MI, include fear and anxiety of the patient's spouse of a cardiac event or a sudden death during sexual activity (17, 18), misinterpreting the normal sexual arousal symptoms as signs of cardiac problems, anxiety and depression after an MI, and also the side effects of some prescribed medicines such

as beta-blockers (17). Bridin (2004) considers sex education as critical care after MI (19). Sex education can be effective for reducing the anxiety of patients (20). During rehabilitation, sexual concerns are one of the most common stressors among spouses of patients (21), thus it is important to include patients and their spouses in sex education programs (22). However, for various reasons, such as culture and modesty, sex education and its importance is neglected by health teams (19); the majority of researches show that patients and their families regretted that the treatment team members had not discussed sexual function with them after an MI. In Iran, there is limited research in this area and sexual activity is one of the problems that are faced by patients after MI. Also, lack of knowledge on the subject, causes a lot of problems including stress, anxiety and depression and aggravates them, both for the patient and their spouses. Since nurses play a major role in patient education, it seems that developing a sex education program for patients with a stroke and their spouses and implementing such programs by nurses can prevent the mentioned complications.

2. Objectives

The present study was conducted to evaluate the effect of sex education on anxiety, stress, and depression in patients with stroke and their spouses.

3. Patients and Methods

This was a clinical trial that was performed on 60 patients with myocardial infarction (MI) admitted to the coronary care unit (CCU), and their spouses (120 samples) at Afshar hospital, Yazd, from 2012 to 2013. Afshar hospital has four CCUs. Sampling was done by throwing a coin; two units were selected for the control group and two units for the intervention group. The samples were simple randomly selected of units. To prevent contact between the two groups, the control and the experimental group were sampled separately. The data were collected in October and March 2012 and inclusion criteria were voluntary participation in the study, age between 30 to 60 years old, male or female, having a legal spouse, being monogamous and sexual contact with no barriers with their spouse, literacy, diagnosed with MI by a specialist, admitted to the CCU, being able to communicate, no reported case of depression, anxiety, stress, or sexual dysfunction, experiencing their first MI, and showing no complications of acute MI. Inclusion criteria for the spouses of the patients were voluntary participation in the study, literacy, no MI, sexual contact with no barriers with their spouse, and no re-

ported case of depression, anxiety, stress, or sexual dysfunction. A demographic questionnaire (age, sex, education, occupation, medical history, etc.), and a DASS-21 standard questionnaire containing 21 questions were used to collect data. These 21 questions included seven questions on stress, seven questions on anxiety, and seven questions on depression with a Likert scale consisting of never, little, moderate, and high. One and four were respectively the lowest and the highest scores for each question. A score of 0 - 4 was considered as normal, 5 - 11 as average, and more than 12 as extreme. This questionnaire was first introduced by Lavyband in 1995 and tested on a large sample of individuals and has been used in many researches ever since. In Iran, it was used in Aghebati's study (23) and the validity and reliability of the questionnaire were controlled and reported. In the current study, the validity was confirmed by content validity and internal homogeneity was used to determine the reliability. Depression ($r = 0.71$), stress ($r = 0.74$), anxiety ($r = 0.97$), and ultimately the reliability of the instrument ($r = 0.84$) were confirmed. The researcher started the study after obtaining formal permission from Tarbiat Modares University authorities. The patients and their spouses were assured that their names would not be mentioned and their information would be kept confidential. The staff members were also assured that they would be notified of the results. Besides, the patients and their spouses were assured that in case of being included in the control group with no training, they would receive the training booklet at the end of the project. The manager of the cardiovascular research center at the hospital selected four nurses (two females and two males, all married, and aged 30 - 40) to cooperate in the study. After literature reviews and developing protocols, the researcher prepared the selected nurses, according to the steps listed below, to begin the intervention by training the patients and their spouses. Before the training, the researchers confirmed the competence of nurses based on control and supervision and monitoring of the check-list during the training period. Also the researchers took the responsibility of distributing and collecting the questionnaires. During the first step, a theory session was held in which the researcher met the nurses, introduced herself and explained the research and its aim, assessed the nurses' knowledge on sex problems of patients with MI, introduced the tools for collecting data, and filled out the nurses' demographic information forms.

In the second step theory session was held for training of the nurses and presenting the content of the sex education program, and introducing the educational pamphlet. During the third step, a practical session for assessing the patients' sexual needs was held at the patient's bedside by the researcher. Assessment of the Nurses' needs by the

researcher and the patients' needs for sex education was achieved by asking these questions: "Do you know if you can have sex after discharge?" and "Are you aware of the conditions of sexual activity after an MI?"

The fourth step: repeating the patients' needs assessment by nurses at their bedside and then repeating and practicing giving sex education to patients and obtaining feedback by the researcher and approving them.

When the nurses' competence was approved, they performed the intervention (sex education) on the experimental group (patients and their spouses). The researcher confirmed the confidence of patients regarding the knowledge they gained in the sexual programs by the nurses. By questioning the patients at the time of discharge, on the items trained by nurses, the researcher made sure that they had received a proper sex education from nurses. The sex education program included five 15-minute sessions, each session covering one topic. The first session: time to resume sexual activity, second session: terms of sexual activity, third session: warning signals to stop sexual activity, fourth session: what to do in case of chest pain during sex and some tips on reducing the risk of sexual activity, fifth session: repetition, practice, answering questions, and providing the patients and their spouses with educational pamphlets. The training was done individually and face-to-face by nurses at the bedside (the duration of training varied based on the patient's physical and mental conditions, and according to the patient and his/her spouse's preferences, the spouse received training simultaneously or separately). The patients with MI were hospitalized at the ICU for at least six days, and they could communicate since the third day and were able to learn. Therefore, training was started on the third day for two consecutive days, twice a day, once in the morning after breakfast and again in the evening after visiting hours. The fifth session was on the last day, before discharge, and it included repetition, practice, and asking and answering questions. Most patients in the experimental group and their spouses were trained individually based on their own preferences. In other words, four trained nurses gave education to 30 patients and their 30 spouses separately and individually, according to their gender (i.e. female nurses trained female patients and male nurses trained male patients). In general, the DASS-21 questionnaires were completed twice (by the samples in both control and experimental groups), first, on the third day of hospitalization, and then six weeks later when the patients visited the cardiac rehabilitation clinic for follow up. The data were analyzed using the SPSS software with the paired t-test, independent samples t-test, and chi-square. Frequency distribution tables were used for summarizing the data.

4. Results

Demographic and clinical data are presented in Tables 1 and 2. Quantitative variables including the age of the patients and their spouse and the frequency of family members were analyzed using independent t-test (P > 0.05). Qualitative variables such as gender, education (patient and spouse), occupation, specification of family members who live with the patient, whether the patient owns a separate bedroom, history of the patient's health problems (heart disease, hypertension, high cholesterol, respiratory disease, diabetes, drug use and drug abuse), and history of their spouse's health problems (heart disease, stress, anxiety, and depression) were also analyzed. There were no statistically significant difference between the two groups using Chi-square test (P > 0.05) and the results were similar in both groups. Before the intervention, independent t-test (P > 0.05) showed that stress, anxiety, and depression levels in the patients in both groups had no significant difference. Mean and standard deviation of stress, anxiety and depression in the patients in both groups before the intervention were determined. The paired t-test (P = 0.001) also showed a significant difference between the level of depression in the control group before and after the intervention. Before the intervention, the level of stress, anxiety and depression of the spouses was measured in both groups using independent t-test (P > 0.05), but no significant difference was shown. After the intervention, the levels of stress and anxiety of the spouses in both groups were measured using independent t-test (P = 0.001) and showed a significant difference. Independent t-test (P = 0.11) showed no significant difference between the levels of depression of the spouses in both groups, but the difference in mean depression scores of spouses in both groups using independent t-test (P = 0.001) before and after the intervention was significantly different. Using paired t-test (P = 0.01), the level of depression in the experimental group before and after the intervention and using paired t-test (P = 0.001), the level of depression in the control group before and after the intervention showed a significant difference.

5. Discussion

In this study, sex education for the patients and their spouses made a significant difference in their levels of stress, anxiety, and depression so that the intervention reduced the stress and anxiety of the patients and their spouses in the experimental group. Najafian (2000) confirms these findings. He studied the effects of cardiac rehabilitation on the sexual ability of patients with MI, on 60 patients aged 35 to 65 years. The results showed that after the invention the mean score of the experimental

Table 1. Characteristics of the Two Groups in Terms of Demographic Information

Variable Group	Intervention	Control	P Value
Age of the patient			0.47
30 - 40	3 (10)	4 (13.3)	
41 - 50	9 (30)	16 (53.3)	
51 - 60	18 (60)	10 (33.3)	
Patient Gender			0.59
Female	10 (33.3)	12 (40)	
Male	20 (66.7)	18 (60)	
Patient Education			0.9
Educated	6 (20)	8 (26.7)	
High school	13 (43.3)	13 (43.3)	
Diploma	3 (10)	3 (10)	
Patient occupation			0.33
Housewife	9 (30)	11 (36.7)	
Worker-Farmer	2 (6.7)	6 (20)	
Clerk	5 (16.7)	4 (13.3)	
Other	14 (46.7)	9 (30)	
Patient insurance status			0.68
Social security	20 (66.7)	17 (56.7)	
Health care	7 (3.23)	10 (33.3)	
Other	3 (10)	3 (10)	
With whom are they living?			0.44
Spouse	5 (16.7)	3 (10)	
Spouse and Children	25 (83.3)	27 (90)	
Separate bedroom			0.79
Have	17 (56.6)	16 (53.3)	
Do not have	13 (43.4)	14 (46.7)	
Age of patient's Spouse			0.66
Less than 30	1 (3.3)	0	
30 - 40	5 (16.7)	5 (16.7)	
41 - 50	10 (33.3)	12 (40)	
51 - 60	11 (36.7)	10 (33.3)	
Spouse Education			0.42
Educated	13 (43.3)	16 (53.3)	
High school	4 (13.4)	6 (20)	
Diploma	6 (20)	2 (6.6)	
Academic Education	7 (23.3)	6 (20)	

Table 2. Characteristics of the Two Groups in Terms of Data Related to Patient Disease History

Variable Group	Interventional	Control	P Value
Heart disease			0.12
Has	2 (6.7)	6 (20)	
Does not have	28 (93.3)	24 (80)	
Hypertension			0.27
Has	8 (26.7)	12 (40)	
Does not have	22 (73.3)	18 (60)	
Hypercholesterolemia			0.43
Has	17 (56.7)	14 (46.6)	
Does not have	13 (43.4)	16 (53.4)	
Diabetes			0.79
Has	12 (40)	11 (36.7)	
Does not have	18 (60)	19 (63.3)	
Respiratory disease			0.31
Has	1 (3.3)	0	
Does not have	29 (96.7)	30 (100)	
Substance abuse in patients			0.54
Has	6 (20.1)	8 (26.7)	
Does not have	24 (79.9)	22 (73.3)	
Drug use in patients			0.22
Heart	2 (6.7)	1 (3.3)	
Blood pressure	4 (13.3)	6 (20)	
Diabetes	1 (3.3)	4 (13.3)	
Other drugs	4 (13.3)	0	
Diabetes and Hypertension	2 (6.7)	5 (16.7)	
Blood pressure and heart	2 (6.7)	2 (6.7)	
No	15 (50)	12 (40)	
History of heart disease of patients			0.06
Has	4 (13.3)	10 (33.3)	
Does not have	26 (86.7)	20 (66.7)	
History of Stress, anxiety, depression with taking drugs in spouses			1.00
Has	1 (3.3)	1 (3.3)	
Does not have	29 (96.7)	29 (96.7)	

group, who participated in the cardiac rehabilitation program was significantly reduced in terms of anxiety, depression, impotence, and premature ejaculation while the mean score of sexual desire increased. The findings indicated that cardiac rehabilitation had a positive effect on anxiety, depression, and sexual dysfunction (24). From another point of view, it can be concluded that one of the main causes of anxiety is the lack sufficient information

about the treatment process and in most cases, education has a positive effect on treatment. This information includes the tests, pre-treatment activities, complications, and post-treatment care (5, 24).

Lack of information about sexual activity after discharge and its consequent decreased sexual satisfaction is one of the major factors of stress, anxiety, and depression in patients with MI. The nurses should consider this key point in patient education (25). Steink and Jaarsma (2015) pointed out that giving advice to the patients with MI and their spouses could be effective in relieving their anxiety and fear of sexual activity (26). Steinke et al. (2013) conducted a study including a social-cognitive intervention. The intervention consisted of watching a video at home about resuming sexual activity by patients and their spouses, telephone counseling within four to six weeks after MI, and sending some emails within four to six weeks after MI. The results showed that the intervention reduced anxiety among the patients receiving the intervention (16).

The findings of the study by Steinke and Swan (2004) on 115 patients with MI were not in agreement with the results of the present study. In that study, videotapes and written and verbal instructions were used for sex education and the patients were followed up after one, three and five months after discharge. The results showed that the level of anxiety in the patients in the experimental group compared to the control group, increased unexpectedly one month after the discharge and there was no significant difference between the two groups in terms of sexual satisfaction, quality of life and resuming of sexual activity (27). It seems that the difference between the results of their study the present study is related to variables such as different mental-emotional conditions of the samples at the time of study, the events after the occurrence of the disease, and follow-up time to measure anxiety. The other finding of this study was the reduction in the mean score of the patients' depression in the experimental group after the intervention, while the mean score of the spouses' depression significantly increased. The study of Aghakhani et al. (2011) confirms these findings. They investigated the effect of a face-to-face educational program followed by a booklet on anxiety and depression in patients with MI. One of the subjects in this educational program was sexual relationships after the disease. Two months after the intervention, investigating the level of patients' depression showed a reduction in the experimental group compared to the control group (28). Within eight weeks and after the cognitive-social intervention on the patients with MI and their spouses, Steink et al. (2013) found that the level of depression improved slightly in the patients, but increased in their spouses (16). Linden (1995) studied the effectiveness of home-based rehabilitation programs for patients recovering from acute MI. Six weeks after the intervention, he reported no changes in the level of depression (29). Steinke and Swan (2004) performed a sex educational program at the homes of the patients with MI and investigated this intervention after six weeks. The results showed that the level of depression in the experimental group had no significant difference compared with the control group (27). Discrepancies in the findings of different studies might be due to differences in patients' recovery patterns after an acute MI (30), as well as cultural, behavioral, and psychological differences and their socio-economic status (31).

Our study showed that sex education programs were effective on the patients with MI and their spouses in reducing emotional reactions. Therefore, educational supervisors are recommended to empower nurses in this field and include sex education programs for the patients and their spouses in heart patients' educational programs at the ICU. In general, it can be concluded that the use of sex education programs by nurses can have positive effects on improving patients' mental symptoms. It is suggested to conduct this study with depression as a variable and a longer study period (more than six weeks) to achieve better results. Also, sex education and investigating its effect on other chronic diseases is recommended. Individual differences, psychological state of the patients and their spouses while completing the questionnaires and in education sessions, their personality type, the role of their personality traits in accepting training and their individual accountability for their health, censorship of the information while answering the questions, and giving popular answers to the questions affected the results but could not be controlled, thus the results of this study should be generalized cautiously.

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Footnote

Authors' Contribution: Imaneh Bagheri developed the original idea, study concept and design. Behroz Pakcheshm: study concept and design, acquisition of data, analysis and interpretation of data; Robabeh Memarian: study supervision and administrative support; Naiire Salmani wrote the manuscript and revised the final version.

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