Effects of a peer- led group education on fear, anxiety and depression levels of patients undergoing coronary angiography

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Objective. To investigate the effect of the peer group education on the fear, anxiety and depression levels of the patients undergoing angiography. Methods. In this clinical trial, 70 patients referred to Vali-E-Asr clinic of Fasa (Iran) for undergoing coronary angiography were selected by random sampling and divided into experimental and control groups. The experimental group ($n=35$) received the necessary instructions about coronary angiography by those in a trained peer group (Two former patients, having experienced in the procedure), while in the control group ($n=35$) the routine instructions were presented by the department's nurses. The levels of fear, anxiety and depression of the patients were measured both before and after conducting this intervention. Results. The mean score of the patients' fear and anxiety after the intervention of the peers in the experimental group was reduced compared to that of the control group ($p<0.05$). But

for the mean of the score of the depression test, no statistically significant differences were found between the two groups after the intervention. **Conclusion**. The results of this study showed that utilizing the peer group education is effective for reducing the fear and anxiety of patients undergoing coronary angiography.

Descriptors: coronary angiography; control groups; peer group; anxiety; depression; fear.

Efectos de la educación grupal realizada por pares sobre los niveles de miedo, ansiedad y depresión de los pacientes sometidos a angiografía coronaria

Objetivo. Investigar el efecto de la educación grupal realizada por pares sobre los niveles de miedo, ansiedad y depresión de los pacientes sometidos a angiografía. **Métodos.** En este ensayo clínico, 70 pacientes remitidos a la clínica Vali-E-Asr de Fasa (Irán) para someterse a una angiografía coronaria se seleccionaron por muestreo aleatorio y divididos en dos grupos. El grupo experimental ($n=35$) recibió las instrucciones sobre la angiografía coronaria por parte de pares (dos pacientes que habían sido sometidos previamente a angiografía), mientras que al grupo de control ($n=35$) las enfermeras del departamento les brindaron la instrucción de rutina. Los niveles de miedo, ansiedad y depresión de los pacientes se midieron antes y después de realizar esta intervención. **Resultados.** La puntuación media del miedo y la ansiedad de los pacientes después de la educación grupal efectuada por los pares en el grupo experimental fue menor en comparación con la del grupo control ($p<0.05$), pero para la media del puntaje de la prueba de depresión no se encontraron diferencias estadísticamente significativas entre los dos grupos. Conclusión. Los resultados de este estudio mostraron que la utilización de los pares para la educación grupal de los pacientes que serán sometidos a angiografía coronaria es efectiva para reducir el miedo y la ansiedad.

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Descriptores: angiografía coronaria; grupos control; grupo paritario; ansiedad; depresión; miedo.

Efeitos da educação grupal realizada por pares sobre os níveis de medo, ansiedade e depressão dos pacientes submetidos a angiografia coronária

Objetivo. Investigar o efeito da educação grupal realizada por pares sobre os níveis de medo, ansiedade e depressão dos pacientes submetidos a angiografia. **Métodos.** Neste ensaio clínico, 70 pacientes remitidos à clínica Vali-E-Asr de Fasa (Irão) para submeter-se a uma angiografia coronária foram selecionados por amostragem aleatório e divididos em dois grupos. O grupo experimental ($n=35$) recebeu as instruções sobre a angiografia coronária por parte de pares (dois pacientes que haviam sido submetidos previamente a angiografia), enquanto que ao grupo de controle ($n=35$) as enfermeiras do departamento lhes brindaram a instrução de rotina. Os níveis de medo, ansiedade e depressão dos pacientes se mediram antes e depois de realizar esta intervenção. **Resultados.** A pontuação média do medo e a ansiedade dos pacientes depois da educação grupal efetuada pelos pares no grupo experimental foi menor em comparação com a do grupo de controle ($p<0.05$), mas para a média da pontuação da prova de depressão, não se encontraram diferenças estatisticamente significativas entre os dois grupos. **Conclusão.** Os resultados deste estudo mostraram que a utilização dos pares para a educação grupal dos pacientes que serão submetidos a angiografia coronária é efetiva para reduzir o medo e a ansiedade.

Descritores: angiografia coronária; grupos controle; grupo asociado; ansiedade; depressão; medo.

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Introduction

The cardiovascular diseases are a wide range of disorders, among which the coronary artery disease is the most common cause of death. [1] The spread of cardiovascular diseases, especially the coronary artery disease, is growing strongly, and they account for 40 percent of deaths in the Middle East.[2] According to the World Health Organization's report, the leading cause of death in our country is related to the cardiovascular diseases, which accounts for over 45% of all deaths caused by the coronary artery disease.[3] Many invasive and non-invasive methods are being used to determine the severity and extent of coronary artery blockage, among which the coronary angiography is considered to be the golden standard for diagnosis. In the United States of America, annually, about two million cardiac patients undergo coronary angiography, and due to the credibility and the accuracy of this diagnosis method, its use is increasing.[4,5] Using the angiography technique to detect coronary artery disease has increased in the Western countries, and it is 7 times higher than ten years ago.[6] Also in Iran, the majority of treatment centers utilize the same techniques to diagnose the coronary artery disease.[7]

Despite the important role of coronary angiography in the diagnosis of the coronary artery disease, this method causes physical and psychological problems such as fear and anxiety for the patients so that it affects the admission and selection of this diagnostic test significantly.[1,4] Before and during angiography, many patients experience fear and anxiety so that for some, chest pain, nausea, sweating and for some other mouth drying occur.[1] In a study carried out by Gallagher et al, many of patients experienced moderate anxiety before the coronary angiography.[8] The researches indicate that the lack of awareness and unfamiliarity with diagnostic procedures are the greatest causes for fear and anxiety in patients before the procedure, and they affect the satisfaction level and intensity of fear and anxiety in the patients.[1,8]

Various methods are being used to reduce the patients' psychological problems before invasive procedures, being divided into two medicinal and none-medicinal groups.[1,4,7] One of the appropriate non-medicinal methods for reducing the psychological problems of patients before the surgery is to provide the patient with training and adequate information about the disease, how to control it and pursue the treatment plan, through the informed people who are involved with the disease and are known as the peer group.[9] Training through peer people is a method including the exchange of information, attitude and behavior by those who have not specialized in the topic but have had similar experiences themselves. Since they can share their weaknesses, strengths and experiences at the lowest cost, the peer group's members can establish a better relationship with their peers (patients), and help and encourage them to show better behaviors.[10] The review of the literature suggests that training through peers is a cost-effective way to educate patients in different occasions.[10,11]

Having in mind the shortage of nurses, and the review of the literature that clearly indicates the absence of studies on the impact of the utilizing peer group on the fear, anxiety and depression levels of angiography patients, And also the invasive nature of coronary angiography and the little time of hospitalization, neglecting to instruct the patients, and no study having been done about the peer education approach, further studies to control the fear, anxiety and depression in patients using a non-medicinal and easy way seem to be necessary. The current study aimed at investigating the effects of utilizing the peer group on fear, anxiety and depression levels in patients undergoing coronary angiography.

Methods

This study is a clinical trial conducted between October 2015-April 2016 on volunteer patients referred to Fasa city's Vali-E-Asr Hospital (Iran) for coronary angiography. Using the previous studies,[1] the sample size was determined with a safety coefficient of 95% and a test power of 80% for every 28-patient groups, and considering the probable loss, 35 participants in each group was considered. The examination samples were selected through random sampling and according to the acceptance criteria, including the absence of angiography history for the patient, an age range of 30 and 70 years, no history of using psychoactive drugs, and no detection of mental disorders such as depression, anxiety and physical and cognitive disorders. After the selection of eligible samples, the patients were randomly divided into two experimental and control groups. After explaining the purpose and the method of study to the patients, the researcher obtained written consent.

Before the procedure, the patients filled out a questionnaire about demographic variables and information to determine the levels of fear, anxiety and depression. Then, in addition to routine oral instructions about the coronary angiography, the patients received trainings through the peer group. In order to select the peer group, the list of the patients who had undergone angiography during the recent months was taken from the hospital and examined. Then, some peers with the following conditions were selected: willingness to voluntarily participate in the research; education level of at least Diploma; at least three months after their angiography; having appropriate knowledge; powerful communications; Being interested in training, and being trainable and willing to be trained. Two former patients, having experienced angiography, came to the hospital in the morning of the angiography procedure as the peer group, and provided and exchanged information with patients undergoing angiography in a quiet place, and answered their questions. The training was conducted as presentations, questions and answers and group discussions, being controlled by the researcher. The training was carried out in groups. Thus, each peer was instructing a group of patients while the second group was instructed by the other peer. The trainings were presented through a single session lasting 30 to 45 minutes and about 3 hours before the angiography. The peer group's educational package for the angiography included the pre-angiography preparations, during-angiography and post-angiography cares as well as instructions for after discharge from the hospital. The patients in the control group received the hospital's routine verbal instructions presented by the nurses. These instructions included the entering place of the catheter and how the entrance was going to be made, and the need to be fasting for 8 hours prior to angiography, and to stop using anticoagulant drugs. After the instructions of the peer group and before the patient entered the angiography room, another questionnaire, for measuring fear, anxiety and depression, was filled out by the researcher about the patients.

The data for this study were collected through three questionnaires including: 1- the individual characteristics questionnaire, 2- the patient's angiography fear scale, and 3- the hospitalization anxiety and depression scale (HADS). The visual analog scale was used to assess the patient's fear. This scale consists of 20 expressions, marked from zero to ten by the patient. Zero represents the least amount of fear and the score representing the greatest fear is ten. This scale was designed by

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Heikkila et al.[12] In order to measure the content validity, the scale was given to 10 expert professors and after obtaining their opinions and content approval, the final version of the scale was used. In order to assess the reliability of the scale, it was firstly performed on 10 angiography patients and according to the Cronbach's alpha, an Interclass correlation coefficient of 0.88 was computed for the scale. Additionally, the reliability of the scale was also evaluated using the parallel method, and in the simultaneous use of the scale with the hospital anxiety and depression questionnaire, a correlation of 0.94 was obtained. The hospitalization anxiety and depression HADS questionnaire has fourteen questions about the two anxiety and depression scales. Of all the questions, seven are related to the levels of anxiety and the other seven are about the depression level. The research of Kaviani et al.[13] also verifies the validity of the questionnaire with the Alpha of 70 percent in the sub-scale of depression, the Alpha of 85 percent in sub-scale of anxiety, and the reliability obtained by the retesting method ($r=0.77$, $p<0.001$) in the sub-scale of depression and also in anxiety sub-scale ($r=0.81$, $p<0.001$). The obtained data were analyzed through SPSS vr.19 software, using descriptive statistics, $Chi2$ test and both the independent and paired t-tests. An alpha level of 0.05 was considered as the significance level.

Results

The mean age of the patients being analyzed in the experimental and control groups was 53.3 ± 10.6 and 52.1 ± 9.7 years old, respectively ($p>0.05$). The duration of heart disease in the experimental and control groups was, respectively, 19.2 ± 11.1 and 16.1 ± 7.4 ($p>0.05$). Comparison of the two groups in terms of other demographic variables showed that there was no significant difference between the experimental and control groups. The results of this comparison are presented in Table 1.

Table 2 shows the mean scores of fear, anxiety and depression in both experimental and control groups before and after the intervention. The results of the independent t-test between the two groups showed that no statistically significant difference was reported for the scores of fear, anxiety and depression before the intervention. After the intervention, a statistically significant difference was found between the fear and anxiety scores for the two groups, but no statistically significant difference was observed in the depression score of the two groups after the intervention.

Discussion

Despite its numerous benefits for patients, coronary angiography is also an invasive technique that brings about a lot of physical and psychological problems due to its aggressive nature.[1] According to the effects of psychological problems such as fear and anxiety on the status of cardiac patients, taking any measures to reduce fear and anxiety in these patients is very important.[14] The results of this study revealed reduced amounts of fear in the experimental group compared with the control group after educational intervention by peers. This findings comply with the results of the studies conducted by Dehghani et al.[15], Nematian Jolodar et al.[11] and Lianne et al.,[16] indicating that training the patients before the procedure helps to minimize their psychological problems. Also, Jamshidi et al. found in their study that educational programs play an important role in reducing psychological problems of patients undergoing coronary angiography.[1]

It seems that part of the anxiety in heart patients is due to the lack of information about the disease. Thus, appropriate training, reduction of psychological problems, increase in the patient's participation, and their adherence to medical prescriptions can also provide some information that can lead to the decrease of the patients' anxiety about the disease.[1] The other results of this study was a decrease in the level of anxiety in the experimental group compared to the control group after the educational intervention by the peers, which complies with the results of the researches performed by Varaee et al.[17], Chan et al.[18] and Doğan et al.,[19] emphasizing the fact that the use of peer group education and patient-centered educational interventions can cause a decrease in the patients' anxiety.

Table 1. General characteristics by groups

Variables	Control group Number	Control group Percentage	Experimental group Number	Experimental group Percentage	*p*-value
Gender					**0.314**
Male	21	60	25	71.4	
Female	14	40	10	28.6	
Marital status					**0.665**
Married	27	77.1	24	68.6	
Single	1	2.9	2	5.7	
Widow	7	20.0	8	22.9	
Divorced	0	00.0	1	2.9	
Occupation					**0.127**
Free	7	20.0	7	20.0	
Employee	5	14.3	10	28.6	
Worker	3	8.6	2	5.7	
Retired	4	11.4	9	25.7	
House keeper	13	37.1	7	20	
Farmer	3	8.6	0	0	
Education					**0.119**
Illiterate	5	14.3	0	0	
Preliminary	10	28.6	12	34.3	
Junior School	13	37.1	12	34.3	
High School diploma	3	8.6	2	5.7	
Graduated	4	11.4	9	25.7	
Smoking History					**0.231**
Yes	16	45.7	21	60	
No	19	54.3	14	40	

Table 2. Comparison of the mean scores of fear, anxiety and depression in the experimental and control groups before and after the intervention

Variables	Group Experimental Mean±SD	Control Mean±SD	*p*-value
Fear			
Before	6.3±0.7	6.1±0.5	0.21
After	4.4±1.1	6.7±0.6	<0.001
Anxiety			
Before	12.3±1.2	12.1±1.0	0.33
After	8.9±2.3	14.3±1.2	<0.001
Depression			
Before	5.4±1.2	5.4±1.2	0.93
After	5.3±1.2	5.3±1.5	0.92

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The studies showed that providing the patients with angiography-related instructions through the health staff would reduce the anxiety caused by invasive procedures.[1,8,14,18,19] The researches done by Thomas et al.[20] and Jong et al.[21] indicated that the educational interventions using guided images through a CD won't be effective in reducing the anxiety of patients; this is not in the same line with the results of the current study, and this inconsistency may be related to the anxiety measuring and training methods and the demographic differences among the samples. The results of the present research indicated that the mean depression score after the educational intervention by peers in the experimental group and the control group represent no statistically significant difference. The results presented by Krannich et al.[22] showed that no difference exists in the level of depression before and after surgery. Behrozian et al.[23] showed in their study that the coronary artery graft surgery makes no significant effect on the growth of the depression process.

In the study of Khatibi et al.,[24], the patients were in a state of mild depression before and after the surgery; however, their depression scores increased after the surgery. The results of the current study showed that the use of peer group reduced the level of fear and anxiety in the experimental group compared to the control group, which reveals the effect of educational intervention through the peer group. The research results of Nematian Jelodar[11], Dehghan et al.[15] and Varaee et al.[17] are consistent with those of this study.

Moreover, Kumakech et al.[25] showed in their research that the supportive intervention of the peer group reduced the social psychosocial distress, and especially the symptoms of depression, stress, anxiety and anger reduced in the experimental group after the intervention, while the mentioned symptoms did not change for the control group before and after the intervention. This study also suggests the use of peer group on mental and physical symptoms of other patients. The use of self-report questionnaires to measure the patients' fear, anxiety and depression offers less accuracy compared with the hemodynamic and experimental measuring instruments.

Conclusion. The results obtained from this study showed that instructing patients undergoing coronary angiography through peer-centered instructions leads to a decrease in the amount of fear, anxiety and depression of patients, compared with the routine verbal instructions performed before an invasive procedure. Since high levels of fear, anxiety and depression are dangerous for the patients, and especially those with cardiac diseases, the use of this inexpensive and easy method as part of the nursing care can reduce these symptoms and the length of the patient's hospitalization time. The peer-based instructions are closer to reality, and lead to its better acceptance by patients and raising their awareness. The results of this study show that education through peer group is a much more effective and useful way to reduce the psychological symptoms of the patients, compared with the routine oral instructions.

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