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Effect of video education on knowledge and satisfaction of patients undergoing coronary angiography

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ABSTRACT

Aims: Most of patients that refer for angiography do not have enough information about the procedure; this lack of knowledge makes the patients dissatisfied. Accordingly the aim of this study was investigating the effect of video education based on patients' native language on knowledge and satisfaction of patients hospitalized for coronary angiography.

Methods: In This quasi experimental study, 160 patients were randomly assigned into two control (n=80) and experimental (n=80) groups. These patients were selected among all the patients who came for non-emergency coronary angiography for the first time in the Thoracic Department of Medical-Educational Center of Imam Khomeini in 2013. For the experimental group, an educational film about the coronary angiography was presented. And for the control group, the routine actions of the ward were presented. The awareness level of the patients in both groups was measured after and before education by using a researcher-made awareness questionnaire. And the satisfaction level of the patients in both groups was measured after education by using a researcher-made satisfaction questionnaire. Data was analyzed by $SPSS_{13}$ software with using chi-square test, independent t-test and paired t-test.

Results: After the intervention, the mean of satisfaction in the experimental and control groups was respectively; 41.20 and 23.95 and the mean of awareness was respectively; 15.81 and 6.81; the experimental group in both dimensions ($p = 0.001$) was better than the control group.

Conclusions: Results of this study confirm the efficiency of video education based on patients' native language in increasing knowledge and satisfaction of the patients candidate for coronary angiography. Therefore, the video education is recommended for educating these patients.

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1. Introduction

Cardiovascular diseases are the main causes of death all over the world. Statistics show that about 15.8 million deaths in 2010 were due to cardiovascular diseases [1]. According to the predictions, about 23 million people will die until 2030 because of cardiovascular diseases [2]. Also in Iran, according to the present statistics, 50% of annual deaths are due to cardiovascular diseases [3].

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There are many diagnostic procedures for diagnosing cardiovascular diseases such as; Echocardiogram, a chest x-ray, ECG, exercise tolerant test.

Although they are noninvasive procedures, they are not the definite method of diagnosing ischemic heart diseases. Angiography is the most definite method of diagnosing cardiovascular diseases and treatment process will be identified based on that. In addition, it should be noted that coronary angiography is an invasive method [4].

Results of the studies show that most of the patients are not aware of diagnostic and therapeutic strategies of cardiovascular disease, also they are not aware of duration of treatment. This lack of awareness makes the patients to not use drug regimen regularly and to not follow further treatment [5, 6].

Lack of patients' awareness of how the angiography is going to be done and necessary cares before and immediately after that leads to patients' sadness and dissatisfaction and the patients can't tolerate adhering to necessary cares and at the end it leads to increase of vascular complications [7].

Results of a study with the aim of assessing methods of conveying information regarding angiography showed that 92% of the patients were not well aware in angiography method and 30% of the patients achieved the information from other patients [8].

Studies indicate that raising patients' awareness can increase adherence to treatment and consequently, informed patients are more successful in following up treatment and achieving short-term and long-term therapeutic aims [6, 9]. Studies showed that educating patients who are undergoing invasive procedures, especially education through film makes a real image of what is going to be done for the patients and makes them more prepared and they accept it better and finally decreases complications and increases patients' satisfaction [10, 11].

Patients' satisfaction is a very important criterion for evaluating health care quality, and provides important information in terms of meeting needs, values and expectations of the patients.

Health-treatment team members in addition to providing suitable and safe cares are responsible for providing patients' satisfaction. Measuring patients' satisfaction is necessary in providing appropriate cares [12]. Study of Kim et al. showed that education through film will increase patients' awareness and satisfaction significantly in compare with traditional (written) methods; 86.9% of the patients prefer education through film while it's not true about 43.4% of them [13].

One of the major barriers in educating patients and effective relationship with them is patients and health services providers' different language.

Regarding the importance and advantages of education and communication with the patients' native language, results of the review studies showed that the difference in race, ethnicity and language influences the total quality of the relationship between the health services providers and the patients, so that different language causes the patients to have less relationship with the physicians, receive less enough information and have less participation in the medical decision making. All these issues are in connection with patients' satisfaction, treatment acceptance and care results [14].

According to the studies, patients' education program does not enjoy an appropriate situation in Iran. Studies show that educating patient is not performed at all or it is performed incompletely and irregularly [14]. Most of the hospitals in Iran provide patients' educational materials in the form of educational pamphlet [10].

According to the studies, written information is effective only for a number of people since this educational method needs basic literacy to be a motivation for reading the provided materials [15-18]. Simple and short educational interventions which are adapted to patients' culture and language can improve awareness and adhering to treatment in patients [9]. But

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the studies indicate that there are few appropriate educational methods for a special group of the patients that are going to do angiography.

Reviewing the text clearly indicate lack of an appropriate study about effective health education to the patients regarding their native language, age, culture and patients' literacy level [19]. Results of the studies also emphasize significant efficacy of education through audiovisual equipment on patients' satisfaction and awareness in compare with traditional methods [9-11, 13, 20-22].

According to the results of the studies, effective education is not performed in Iran because of being time-consuming and lack of enough staff in health centers [23-25].

Considering these problems, education through film can be used for patients since it doesn't need an educator, it is not time consuming and it's an easy and affordable method [26].

This is the first study which is done in Iran to assess the effect of educational film based on patients' native language on awareness and satisfaction level of the patients hospitalized for coronary angiography.

2. Methods

This is a quasi-experimental before-after study, which includes and control and experimental groups; it was conducted in Imam Khomeini health-educational center affiliated to Ardebil Medical Sciences University; it was done since June 1st to the end of July in 2013.

Study population included patients who were hospitalized in Thoracic department of this center for doing non-emergency coronary angiography for the first time. Inclusion criteria included patients' age from 25 to 75 years old, doing non-emergency coronary angiography for the first time, patients' tendency to participate in the educational program and their ability to speak and understand Turkish. Exclusion criteria included lack of filling posttest questionnaires by the patient.

These patients were selected through convenient sampling method and they were divided into two experimental and control groups through random allocation. For determining sample size in this project, preliminary study was done on 30 patients who had the inclusion criteria (fifteen patients in each group).

Power and alpha were respectively 95% and 0.05 in each group; mean and standard deviation in control group were respectively; 3.46 and 4.32 and mean and standard deviation in experimental group were respectively; 8.66 and 5.71, therefore sample size was achieved 55 people in each group through the following formula:

$$n = \frac{(Z_{1-\alpha/2} + Z_{1-\beta})^2 (S_1^2 + S_2^2)}{(\mu_1 - \mu_2)^2}$$

S1- standard deviation of the variable of the study in the first group (experimental)

S2- standard deviation of the variable of the study in the second group (control)

μ1- the mean of the variable of the study in the first group

μ2- the mean of the variable of the study in the second group

For increasing accuracy, sample size was increased to 80 people in each group (totally 160 people).

For preventing contact between the patients of the two groups and exchanging information between them, firstly data collection was done in control group, and one week after the last sampling in control group, sampling was started in experimental group. It was a semi-experimental study and samples were selected according to the inclusion and exclusion criteria and one of the inclusion criteria was patient's tendency to participate in the study, therefore patients who liked to participate in the study were selected as the samples.

Sampling was done through interview; the aim of the study and educational method were explained to the patients of both groups at the beginning of the study, all the patients liked to participate in the study and all of them filled the questionnaire, so there was not any loss of samples in this study.

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Data collection tools in this study included three parts.

The first part of the questionnaire assessed personal-social features such as; age, gender, marital status, education level, occupation, history of disease and hospitalization.

The second part of the questionnaire was a researcher-made awareness measurement, which measured patients' awareness regarding definition and necessity of coronary angiography, cares before, during and after coronary angiography, its complications and cares after discharge.

This questionnaire included 27 questions and the answers of the questions were; true, false and I don't know, a true answer had one score, a false answer and I don't know had no score (zero).

Therefore the range of the scores was between 0 to 27. The third part was a researcher-made satisfaction questionnaire, which measured patients' satisfaction; this questionnaire included 11 five-choice items. The answers of the items from one to five were; completely agree, agree no idea, disagree, and completely disagree. The answers of the questions from six to eleven was perfect, very good, good , middle and weak and score of every answer was from one (weak and completely disagree) to five (perfect and completely agree). Therefore the score of the highest satisfaction and the lowest satisfaction were respectively; 55 and 11.

Validity of the questionnaire was assessed by 10 professors of Medical Sciences University of Tabriz through content validity method; Kuder-Richardson statistical test was used to be sure about reliability of awareness measurement questionnaire and its reliability coefficient was calculated 0.94.

For being sure about reliability of the questionnaire, satisfaction measurement was calculated 0.87 through Cronbach's alpha. After collecting information, data analysis was done by using SPSS 13 statistical software. Descriptive statistic included: number, percent, mean and standard deviation for describing participants' characteristics, awareness and satisfaction. Paired t-test was used for comparing awareness scores before and after intervention in experimental group and independent t-test was used for comparing the difference of the awareness mean in the two groups before and after intervention and the difference of the satisfaction mean of the provided education.

Some of the characteristics of the two groups were compared through Chi-2 and independent t-test. Significant level was considered less than 0.05.

Samples of the study were selected among all the patients referring from cardiologist's office, heart clinic of Imam Khomaini health-educational center and Kosar clinic to do non-emergency coronary angiography for the first time.

These patients were hospitalized in Thoracic department of Imam Khomeini health-educational center in Ardebil and they were selected through convenient sampling and according to inclusion and exclusion criteria. One day before coronary angiography, an educational film (a CD) was shown for experimental group (for 11 minutes and 36 seconds); the film was about the definition and necessity of coronary angiography method, cares before, during and after coronary angiography , angiography complications and cares after discharge. The film was Turkish and it was shown to a threesome group in the patients' room.

After the end of the film, the researcher and the patients had a ten-minute interview. This film was prepared after downloading some films that were in English; the films were about the stages and different measures of angiography (before, during and after angiography) and also after providing some pictures from the angiography environment and patients who did angiography and after downloading some pictures from the internet and recording audio synchronized with the images in Turkish. Then the provided films, images and audio were mixed by a person in charge of IT of Midwifery and Nursing College

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in Tabriz with the help of Ulead video studio software.

Content of the educational film was collected from awareness questionnaire and medical and nursing valid books, which were confirmed by cardiologists and nursing lecturers. Eventually, the final production was confirmed by ethical committee of Medical Sciences University of Tabriz with the ethical code of 9226.

Also the control group received routine measures and educational pamphlet of the unit which had content almost similar to the educational film. Pretest was done by measuring initial awareness before beginning educational intervention, and posttest was done after performing educational intervention; it means showing the film in experimental group and performing routine measures of the ward in control group were done two hours before transferring patient to the cath lab (catheterization laboratory) by filling the questionnaire regarding satisfaction of the provided education and the questionnaire of awareness measurement. It should be mentioned that it was almost 12 hours interval from pretest to posttest.

All the required ethical observations of the studies regarding human subject were considered in the study.

Required information regarding the study was provided for all the patients and it was explained to them that lack of their participation in the study is not related to the cares that they are going to receive.

Informed written consent was achieved from all the patients.

3. Results

Some demographic information of the patients are reported in table 1. According to the results of chi-square statistical test and t-test with independent samples, it was determined that the two groups were the same in terms of demographic information such as; gender, age, marital status, education level and the mode of payment; the only difference was in terms of occupation. Results of chi-square test showed significant difference in occupation distribution between the two control and experimental groups (table 1).

There was significant difference between the pretest- posttest mean of the awareness

Table1: Some personal-social features of the patients hospitalized for coronary angiography in two control and experimental group separately

Demographic features \ Group		Control group Number (percent)	Experimental group Number (percent)	df	Chi-Value Ratio	P
Gender	Male	46 (57.50)	52(65.00)	1	0.94	0.33
	Female	34 (42.50)	28(35.00)			
Marital status	Single	1(1.20)	1(1.20)	2	2.00	0.36
	Married	79(98.80)	79(98.80)			
Occupation	Clerk	7(8.80)	20(25.00)	3	14.87	0.002
	Worker	30(37.50)	31(38.80)			
	Housewife	32(40.00)	28 (35.00)			
	Self-employed	11(13.80)	1(1.20)			
Education level	Illiterate	50(62.50)	49(61.20)	4	3.41	0.49
	Primary	15(18.80)	10(1.50)			
	Guidance	8(10.00)	7(8.80)			
	Diploma	2(2.50)	4(5.00)			
	University	5(6.20)	10(12.50)			
The way of paying expenses	With insurance	70(87.50)	68(85.00)	2	2.98	0.22
	Without insurance	5(6.20)	2(2.50)			
	Supplementary insurance	5(6.20)	10(12.50)			
Age	Mean(SD)	59.32 (11.86)	59.44(9.06)	df= 158	t= -0.06	p=0.12

SD= Standard deviation

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indicator and the mean of posttest data of satisfaction indicator among patients of experimental and control groups (table 2). Also results of the paired t-test showed that there was significant statistical difference between the mean of awareness before and after intervention in the two groups, but the mean of awareness increase is higher in experimental group (table 3).

4. Discussion

Findings showed that education through film has been significantly effective in increasing patients' awareness and satisfaction. In this regard, findings of the present study is in consistent with the study of FitzGerald et al. (2012), which is a clinical trial study with the aim of assessing the effect of providing information related to different kinds of culture and its effect on asthmatic patients' self-management. Educational intervention in this study was in three forms; education through scientific film in compare with colloquial film and picture pamphlet.

Results of the study showed that simple and short educational interventions that are adapted to the culture and native language of the patients can increase patients' awareness about asthma and the way of using inhalers.

Such interventions that are made according to patients' experiences and their socio-cultural background prepare reliable and good learning tools, which can overcome special limitations of traditional educational methods.

In this study, the intervention group, which received educational film had better treatment follow-up [9].

Results of this study are in consistent with the results of the study of Steffenino et al. which was done with the aim of assessing efficacy of video information on patients' awareness before angioplasty; results of this study showed that video education increases patients' awareness significantly [27].

There are different educational aids, which can be used for educating patients. Education through film can increase awareness and consequently decrease anxiety and stress due to unknowns. Many of the patients can be educated through educational film with spending less time and without needing to skillful personnel [28].

Kim et al. in their study with the aim of comparing the effect of video education and written education on patients' satisfaction and understanding in a group of elderlies referring to a pain clinic showed that patients' satisfaction and understanding with video education was significantly higher than written education ($p<0.001$), which is in consistent with the present study [13].

Also findings of this study are in consistent with the findings of the study of Chair et al. which showed the efficacy of video education

Table 2: Changes in awareness and satisfaction scores in the control and experimental groups

Variable of the study	Group of the study		df	t independent	p-value
	Control Mean±SD	Experimental Mean±SD			
Awareness	5.81±5.69	15.81±8.10	141.62	-8.12	p=0.001
Satisfaction	23.95±7 .71	41.20±6.32	158	-15.45	p=0.001

Table 3: Comparing the mean of patients' awareness score in two experimental and control groups before and after educational intervention

Group of the study	Control					Experimental				
Intervention time	Before intervention		After intervention		Statistical indicators	Before intervention		After intervention		Statistical indicators
Indicator Variable	SD	Mean	SD	Mean	t=10.70 df=79 p=0.00	SD	Mean	SD	Mean	t=-17.44 df=79 p=0.00
Awareness	5.74	4.32	6.80	11.37		6.78	5.06	4.68	20.87	

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in decreasing anxiety and increasing Chinese patients' satisfaction and awareness in preparation for cardiac catheterization; the difference was that there was no control group in the study of Chair et al; also in this study, it has not been indicated that whether the education film was in the native language of the area that the study was conducted or the formal language of China [29].

Results of the study of Eaden et al. in a controlled random trial with the aim of comparing the effect of video education and brochure information in and brochure information alone on the patients'' awareness regarding care and the risk of ulcerative colitis cancer showed that reading the pamphlet (brochure information) and watching a film increase knowledge of the patients suffering from ulcerative colitis, but there was no significant statistical difference between the two groups, which is not in consistent with the present study [30].

Most of the educational materials in our country are Persian educational pamphlets and they are distributed among the patients without considering education level, age, social, economic and cultural status and the native language; this kind of information is not effective for all the patients. It is recommended to the nurses to use education through a film in the patients' native language for educating patients undergoing angiography and also provided education film of this study can be used in all the centers that are doing angiography; it can be used for the patients that their native language is Turkish to increase the patients and their families' awareness.

Filling in the questionnaire by the interviewer is one of the limitations of the study, which can influence samples' answering. In addition patients' awareness about angiography could be changed through other ways such as talking to other patients and friends and an effort was made to control this limitation by separating patients, who have done angiography and those who have not experienced it before. Considering this issue that one of the participants' criteria was the ability of understanding and speaking Turkish, only we assessed the effect of film in Turkish on the patients' awareness and satisfaction and it's better to assess the effect of native language or the formal language of Iran regarding many ethnicities in this country in the future studies.

5. Conclusions

Considering findings of this study, it can be concluded that education through film by considering patients' native language increases patients' satisfaction and awareness, therefore it is recommended to use this method as an education before procedure in patients undergoing coronary angiography.

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