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Review of the Impact of Nursing Care before Endoscopy on Anxiety and Stress and Depression and Pain of the Elderly Patients Visiting Esfahan's Al-Zahra Hospital in 2015

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ABSTRACT

Endoscopy is repeatedly studied in clinical reviews due to the various medical applications and explicit diagnostic advantages that it has. The number of the individuals who suffer from anxiety and fear when they do endoscopy is warningly high and it is necessary to do some attempts so that their fear and worrisome would be overcome. By eliminating such a harmful feeling, patients endure endoscopy easier and the doctors of the endoscopy section can do the endoscopy without tension. This research is a semi-experimental one which has been conducted with the clinical experimental method in one of the hospitals associated with Esfahan's university of medical sciences. The number of the studied units was equal to 70 elderly patients who were the candidates for endoscopy. And the patients requiring endoscopy who had visited Al-Zahra hospital in November of 2015 were selected through census and then they were divided into two groups of control and experimental group. Information gathering tools included personal information questionnaire, assessment of pain intensity the 21-question questionnaire DASS. The research findings showed that in the experimental group the mean of score of anxiety before and after the experiment has been significantly reduced (P=0.023). On the other hand, in the experimental group, the mean of score of stress before and after the experiment was indicative of the fact that the level of stress has been significantly reduced (P<0.001). Also in the experimental group, the mean of score of depression before and after the experiment indicated that the level of depression has not had a significant reduction (P=0.08). Ultimately, the pain intensity has had a significant different in the two groups (P<0.001). Nursing care before endoscopy has an impact on reduction of anxiety, stress and pain of the patients but it has not had an impact on the reduction of patients' depression.

Keywords: Nursing Care, Elderly, Pain, Anxiety, Stress, Depression

INTRODUCTION

Anxiety is one of the common problems and issues in the patients selected for surgery or invasive diagnostic and therapeutic methods [1] and it is an effective and preventive factor in the resistance of the patients for doing the surgery [20]; in such way that numerous studies have shown that 80% of the elderly who are more than 65 years old are diagnosed with different types of physical and mental disorders. Some studies also indicate that 85% of these sicknesses and diseases in the elderly is associated to anxiety [22]

Anxiety can lead to physiological changes and ultimately behavioral changes [11]. Some of these changes are changes in the vital signs of the body including heartbeat, blood pressure, increase of the Cortisol hormone and it is through these signs that one can measure the anxiety of the patients [2].

In different countries, various methods are used for reducing patients' anxiety before surgery; for instance, mental counseling sessions, educational films, patients visiting people who have had surgery before and playing music before surgery and making patients familiar with employees and equipment of the operation room are among attempts which have been studied for reducing anxiety before surgery [20]

As a method, endoscopy is repeatedly studied in clinical reviews due to the various medical applications and explicit diagnostic advantages that it has. The fact that the side effects of endoscopy are low and sampling is possible during it, using this method is confirmed in diagnosing digestive disorders [10]. The results of various studies are indicative of presence of severe anxiety and stress of patients before endoscopy. Therefore, this side effect cannot be avoided which means that one shall seek methods for reducing or eliminating it [15]. Anxiety leads to reduction of tolerance against disease and reduces people's cooperation at the time of doing the endoscopy and the more anxious the patient is, the more the time of doing diagnostic attempts and its side effects will increase and the desirable result will be reduced [7].

The number of the people who experience anxiety and fear with doing endoscopy is warningly high and some attempts are necessary for eliminating their fear and worrisome. By eliminating such a harmful feeling, patients endure endoscopy easier and the doctors of the endoscopy section can do the endoscopy without tension. These results have forced researchers to design various preliminary interventions for preparation before doing the experimental methods so that it would be of help to patients in the respect of compatibility with stressful and invasive methods [4].

Gastrointestinal endoscopy is clinically important from two dimensions: firstly, it makes seeing various sections of the upper gastrointestinal tract for the doctor and secondly, it enables the doctor to do biopsy and cytology [10].

Presence of wrong beliefs including the possibility of occurrence of choking and emergence of intense pain caused by endoscopy or severe worrisome about the possibility of transference of infection through endoscope intensifies anxiety in these patients. On one hand, late visits due to anxiety caused by the probability of malignant disease or fear of the side effects of diagnostic attempts especially endoscopy leads to the deference of diagnosing and damage to patients [5].

Anxiety affects mental and physical responses on gastrointestinal methods and endoscopy units shall use strategies in the respect of minimizing this anxiety. High levels of anxiety can lead to incomplete, painful, difficult endoscopy and increases consumption o sedatives and causes side effects caused by them. On one hand, anxiety and stress leads to the increase of the duration of endoscopy and increases its side effects. Thus, preventing or reducing anxiety is important during endoscopy [10].

Also if stress is intense or continues for a long time, it might lead to the destruction of the person and ultimately lead to mental and physical disorders [13]. Wide spectrum of researches have shown that continuous stress can increase the probability of occurrence of stomach ulcers, mental disorders, myocardial infarction and other problems associated with health after a while [12].

The results of the researches done in the past few years show that the rate of stress and its side effects increases to some extent which makes many institutes and organizations worry including World health organization; in such a way that the most important factor for people going to doctors is stress or depression [9]. On one hand, there is a connection between depression, stress and anxiety in a way that depression is more prevalent in anxious and stressed patients and vice versa [3].

Research findings show that stress, anxiety and depression in patients not only affect the psychological status of the patient, but it also affects the quality of patients' lives, return of the treatment, prolongation of the period of hospitalization and even patient's age [14].

Studies have shown that doing invasive procedures including endoscopy can create anxiety and stress in patients and even be effective in feeling the pain intensity [16]. Thus, since nurses have a more of a relationship with the patients than doctors, therefore the important role of nurses which is to take care of the patients cannot be denied. Executing nursing intervention on patients can lead to the reduction of anxiety, stress and depression of the patients. The present study has been done with the purpose of determining the effect of nursing care before endoscopy on stress, anxiety, depression and pain of the elderly patients visiting Esfahan's Al-Zahra hospital in 2015.

MATERIALS AND METHODS

This study is a clinical trial research which was conducted in the year 2015 in Esfahan's Al-Zarha hospital. The studied statistical population includes the hospitalized people as candidates for endoscopy. Criteria of entering the study included those older than 65 years who agreed to cooperate and didn't have the history of a recognized mental disorder or consumption of drugs associated with these diseases (based on their files), haven't had done endoscopy before and haven't had received sedatives the night before endoscopy. Also lack of cooperation at the time of conducting the research and inability in responding to the questions of DASS questionnaire were considered as the criteria of exiting the study.

The required sample volume of the study was calculated to be 34 persons in each group by using the sample volume estimation formula for comparing the means and considering the confidence coefficient of 95%, test ability of 80%, standard deviation of the score of anxiety which has been estimated to be equal to 1.17 and the minimum difference between the two groups which has been considered to be 0.8; and for more confidence, more than 35 patients in each group entered the study.

The method of the work was as such that qualified patients visiting Al-Zahra hospital for endoscopy were selected based on the criteria of entering the study. Firstly, all of the patients visiting Al-Zahra hospital in the November of 2015 were selected and then with the simple random method, the number of their files was written down on same shaped cards and they were put in a vase then the names were taken out one after the other. The research samples were then divided into two groups: control and experimental group.

After getting the necessary permission from the university, the researcher visited Al-Zahra hospital and introduced himself to the educational supervisor and the research unit and then went to the digestive and emergency unit and presented the necessary explanations to the patients about the process and the purpose of the research and getting written testimonial from them, the patients entered the study and the researcher started his work. In this study, 70 patients, who were older than 65, were selected through a census and then they were divided to two 35-member groups randomly. Patients of the first group, which is called the experimental group, were under the care of nurses and the other group goes through endoscopy according to the routine program of the section.

At first, both groups are measured through pretest before the experiment in terms of anxiety, depression and stress. Then after the experiment, their anxiety, depression and stress was reviewed through posttest. In the experimental group, nursing interventions were done as a pamphlet and individual face-to-face explanatory including education about the preparations before doing the endoscopy including fasting for eight hours before doing the endoscopy, how to use local anesthetic in the throat area in order to eliminate the gag reflex, being careful about sleeping on the left side during the endoscopy, probability of using some medicines, their causes and side effects, visiting the place of endoscopy, explanation about all of the stage of before, during and after endoscopy, giving the patient the chance to share their feelings and ask their questions, answering the patients' questions, talking to the patient about the details of endoscopy and analyzing the emotions and reactions of the patient, teaching them deep breathing and positive mental reinforcement for the patient in the respect of supporting them. If needed, using the consult of a psychology, religious books, the presence of a preacher in the section and spiritual support can be helpful. In the control group, the routine program of the section regarding the preparation before operation included fasting and wearing the gown.

In order to measure the intensity of anxiety, stress, and depression of the patients, DASS questionnaire was used. The scale of depression, anxiety and stress of DASS- has been prepared by Lovibound in 1995. This form has 21 phrases in which each of the mental items "depression", "anxiety" and "stress" are evaluated through 7 different phrases. In a study, the reliability of DASS questionnaire was calculated to be equal to 0.93 by using the Cronbach's alpha coefficient. Also the correlations between the depression subscale of DASS with Beck's depression test was

0.70, the anxiety subscale of DASS was 0.67 with Zong's anxiety test and stress subscale of DASS was 0.49 with the perceived stress test and according to the obtained results, DASS-21 was qualified for application in clinical and psychological researches regarding the necessary conditions. Also the obtained validity and reliability coefficients were very satisfying and significant at the level of P=0.001 [19].

In order evaluate the pain intensity; the visual analogue scale of pain (VAS) was used based on which patient's pain intensity has been divided to 0 to 10 where 0 shows lack of pain and 10 is indicative of the most intense rate of pain. The patients were asked to give their own rate of pain intensity scores from 0 to 10 and the result was recorded in the forms of the patient. Reliability of the visual analogue scale of pain has been confirmed by Hekmat Afshar, et al. in 2012 and also Shaban, et al. in 2006 [6, 21].

The gathered information was put in the SPSS software version 23 and was analyzed. The accurate Fisher and Chi-square statistical tests (for comparing the qualitative data between two groups), Spearman correlation test (for reviewing the relationship between pain intensity and intensity of anxiety and stress) and linear regression test (for determining the rate of impact of variables on the pain intensity) were used in order to analyze the information.

Moral observations: after getting the required permission from the university and explaining the research purposes to the authorities, the researcher started his work is such a way that after getting the informed testimonial from the patients, they were ensured that their information will remain confidential and informed that they have permission to exit the study at any point. In addition, the researcher has the moral code of the morality committee of Esfahan's university of medical sciences.

Findings and results:

Mean and standard deviation of the intensity of pain, anxiety, stress and depression before and after the experiment have been shown. According to the T-paired test, the mean of score of anxiety before and after the experiment has been significantly reduced but this reduction has not been significant (P=0.09). On the other hand, in the experimental group, the mean of score of stress before and after the experiment showed that the level of anxiety has been significantly reduced (P=0.023). In the control group, the intensity of anxiety in the pretest and posttest has not been significant (P=0.82). On the other hand, the intensity of anxiety has not had a significant difference before and after the experiment in the two groups: experimental and control group (P=0.009) but after the experiments the difference between the two groups was significant (P=0.001) (Table no. 1).

The mean of score of depression after the experiment in all patients did not have a significant difference compared with the time before the experiment (P=0.19). In the experimental group, the average scope of depression before and after the experiment indicated that the level of depression has not had a significant reduction (P=0.08) and in the control group, the intensity of depression has not had a significant different either (P=0.89).

Table 1: mean and standard deviation of the intensity of pain, anxiety, stress and depression before and after in the two experimental and control group

Variable	Time	Group		P
		Experimental	Control	
Pain intensity	Before experiment (pretest)	14.1±1.8	14.8±1.7	0.09
	After experiment (posttest)	13±1.7	14.7±2.3	0.023
	P	0.023	0.82	
Anxiety	Before experiment (pretest)	14.1±1.8	14.8±1.7	0.09
	After experiment (posttest)	13±1.7	14.7±2.3	0.023
	P	0.023	0.82	
Stress	Before experiment (pretest)	12.5±1.8	14.2±2.1	<0.001
	After experiment (posttest)	8.8±1.9	11.9±2	<0.001
	P	<0.001	<0.001	
Depression	Before experiment (pretest)	14.1±1.8	14.8±1.7	0.09
	After experiment (posttest)	13.4±2.2	14.7±2.1	0.012
	P	0.08	0.89	

Mean and standard deviation of the score of pain has been shown based on demographic variables. Based on the mentioned table, the pain intensity has had significant difference based on age, gender and academic level in such way that the percentage of the patients who had an average rate of pain in patients who were more than 70% and older, in women and in people with those without a diploma have been significantly more (table no. 2).

Table 2: distribution of pain intensity based on demographic variables

Variable		Pain intensity		P
		Low	Average	
Age	Under 70	15(48.4)	16(51.6)	0.027
	70 and older	9(23.1)	30(76.9)	
Gender Number (percentage)	Man	18(43.9)	23(56.1)	0.04
	Woman	6(20.7)	23(79.3)	
Marriage status Number (percentage)	Single	1(20)	4(80)	0.65
	Married	23(35.4)	42(64.6)	
Education	Under diploma	13(26.5)	36(73.5)	0.037
	Diploma	11(52.4)	10(47.6)	
Job	Unemployed	16(30.2)	37(69.8)	0.2
	Employed	8(47.1)	9(52.9)	

Mean and standard deviation of the score of anxiety, stress and depression before and after the experiment has been shown based on demographic variables. Based on the mentioned table, the anxiety intensity before the experiment has had a significant reduction in comparison with before the experiment for patients who were 70 years old and older, no significant different was seen. The T-paired test on the mentioned variable showed that the score of stress after the experiment compared to before did not have a significant difference based on all of the demographic variables (table no. 3).

Also, anxiety intensity after the experiment in men significantly reduced but its changes in women was not significant. Also the reduction of the level of anxiety in married people was significant but not in single people. In terms of education, reduction of the level of anxiety after the experiment was higher and significant in the group including people without diploma and those with diplomas and finally, the reduction of the level of anxiety based on job also has a significant difference and it has had a significant reduction in employed and unemployed people. Based on the T-paired test, the changes of the depression intensity have not had a significant difference based on any of the demographic variables (table no. 3).

Table 3: mean and standard deviation of the score of anxiety, stress and depression based on demographic variables

Variable		Anxiety			Stress			Depression		
		Before experiment	After experiment	P	Before experiment	After experiment	P	Before experiment	After experiment	P
Age	Under 70	14.1±1.7	12.5±2.6	0.005	12.7±2.2	9.4±1.8	<0.001	14.1±1.7	13.7±1.8	0.28
	70 and older	14.7±1.9	13.8±2.7	0.11	13.8±1.9	11.1±2.7	<0.001	1.7±1.9	14.3±2.5	0.42
Gender	Man	14.4±1.8	13±2.6	0.01	13.5±2.2	10.2±2.3	<0.001	14.4±1.8	14±2.3	0.23
	Woman	14.5±1.9	13.5±2.9	0.09	13.1± 2	10.5±2.7	<0.001	14.5±1.9	14.2±2.2	0.56
Marriage status	Single	14±1.4	11.6±3.4	0.08	14±1	11.4±2.1	0.012	14±1.4	14.8±2.3	0.55
	Married	14.5±1.8	13.4±2.6	0.006	13.3±2.2	10.2±2.5	<0.001	14.5±1.8	14±2.3	0.12
Academic degree	Under diploma	14.5±1.8	13.4±2.6	0.021	13.4±2.1	10.4±2.7	<0.001	14.5±1.8	14.2±2.3	0.43
	Diploma	14.3±1.7	12.8±2.9	0.038	10.1±2.2	10.1±2.1	<0.001	14.3±1.9	13.8±2.1	0.2
Job	Unemployed	14.3±1.7	13.3±2.7	0.019	13.2±2.1	10.2±2.6	<0.001	14.3±1.7	14±2.3	0.38
	Employed	14.9±2	13.1±2.9	0.046	10.6±2.2	10.6±2.2	<0.001	14.9±2	14.4±2	0.22

According to the obtained results, there is a direct correlation between the mean of score of pain and anxiety before the experience which was not significant according to the Pearson test (P=0.14). The rate of correlation between the two mentioned variables in the experimental group and the control group has not been statistically significant. The rate of correlation between the pain intensity and anxiety before the experiment in all patients was not statistically significant either (P=0.07). The rate of correlation between anxiety before the experiment and pain after endoscopy was not statistically significant in the experimental and control group.

According to the obtained results, there was a direct correlation between the mean of score of pain and stress before the experience which was significant according to the Pearson test (P=0.006). The rate of correlation between the two mentioned variables in the experimental group and the control group has not been statistically significant. The rate of correlation between the pain intensity and stress before the experiment in all patients was statistically significant either (P<0.01). The rate of correlation between stress before the experiment and pain after endoscopy had a significant correlation in the control group.

According to the obtained results, there is a direct correlation between pain intensity after endoscopy and the intensity of depression before the experience which was not statistically significant (P=0.14); whereas the rate of correlation between pain after endoscopy and depression after the experiment was statistically significant (P=0.004). The rate of correlation between the pain intensity and anxiety before the experiment in all patients was not statistically significant either (P=0.07). The rate of correlation between anxiety before the experiment and pain after endoscopy was not statistically significant in the experimental and control group.

On the other hand, in the experimental group the rate of correlation between pain intensity and depression before and after experiment has not been significant for any of them and in the control group, the rates of correlation between pain and depression before and after the experiment has not been statistically significant either.

DISCUSSION AND CONCLUSION

Although endoscopy, compared to many therapeutic procedures is not considered as a painful procedure, but many studies have shown that patients who are candidate for endoscopy, especially the youngsters and the elderly, have a high rate of stress before the endoscopy and due to this intense stress, it is possible for the patients to suffer from pain before and after the endoscopy and this pain usually has a psychosomatic and mental root.

Based on the obtained results, in the experimental group, the average of the score of anxiety before and after the experiment significantly reduced (P=0.023) but in the control group, the average of the anxiety score in the pretest and posttest was not significant (P=0.82) (table no. 1).

The intensity of anxiety after the experiment compared to before it in the patients younger than 70 years old has been significantly reduced but in those who are 70 years old or older, no significant difference was seen. Also, the anxiety intensity after the experiment in men significantly reduced but its changes in women were not significant. Also, the reduction of the level of anxiety in the married people was significant but not in the single ones. In terms of academic degree, the reduction of the level of anxiety after the experiment was significant both in the group of patients without diplomas and in the group of patients with diplomas or of a higher level of education and finally, the reduction of the level of anxiety based on job has also had a significant difference and there has been a significant reduction in unemployed and employed people (table no. 3).

According to the obtained results, the rate of correlation between anxiety before experiment and pain after endoscopy was -0.06 in the experimental group and it was -0.13 in the control group and both of them were not statistically significant. In another study done by Poorsharifi, et al. in 2013 in the city Tabriz, presentation of three different educational methods (oral, written and oral – written) on 100 patients who were candidates for endoscopy, showed that education through these three methods has caused a reduction in patients' anxiety.

Also, Arabul, et al. did a research in 2010 in Turkey in which they presented the necessary educations in 227 patients as candidates for endoscopy and the results showed that it reduces the anxiety of the patients.

In a similar study done by Oroojloo and Hemmati Maslak Pak in Urmia in 2014, presentation of the nursing experiments on 80 patients as candidates for endoscopy showed that the rate of anxiety, blood pressure and heartbeat significantly reduced.

Also, Pahlivan, et al. did a study in Turkey in 2011 in which presentation of the verbal information of the patients who were candidates for endoscopy showed that it has a positive impact on perception, acceptance and reduction of the rate of anxiety.

According to the results of our research, in the experimental group the average of stress score before and after the experiment has been significantly reduced (P<0.001). Also in the control group, the intensity of stress in the pretest and posttest was significant (P<0.001).

The score of stress after the experiment compared to before it, based on all of the demographic variables, had a significant difference. There is a direct correlation between the average of the score of pain and stress before the experiment with the rate of 0.33 which was significant based on the Pearson test (P=0.006). The rate of correlation

between the stress after the experiment and pain after endoscopy in the experimental group was -0.18 and it was 0.88 in the control group and the correlation in the control group was significant.

Various researches have been conducted on the reduction of anxiety, stress and even pain of the patients in invasive procedures in such way that all of them indicate that all of the attempts for calming the patients before the procedure have a crucial impact on the reduction of patients' anxiety and stress. These methods of calming can be making the patients or their companies in the stages of treatment to participate in the company as education, mental and spiritual supports, sound of Quran and calming music, therapeutic massages and so on.

In a similar study done by Nikbakht Nasr Abadi, et al. in the city Arak in 2012, presentation of nursing consulting to 120 patients as candidates for endoscopy showed that patients had lower rate of stress.

In the experimental group, the average of the score of depression before and after the experiment did not have a significant reduction (P=0.08). Also in the control group, the intensity of depression didn't have a significant difference in the pretest and posttest (P=0.89). Changes of the intensity of depression did not have a significant difference based on any of the demographic variables. According to the obtained results, the rate of correlation between pain after endoscopy and depression after the experiment was 0.34 which was statistically significant (P=0.004).

Given that depression is considered as a chronic disease and it doesn't come immediately to the person in crisis, this research shows that nursing care has not have an impact on mental and spiritual disorder of depression. Or perhaps it can be said that the reason why depressed individuals don't want to participate in the activity and are disappointed dejected, nursing care has not been accepted in the depressed individuals. No research was found in this field.

According to the results of our research, the two variables of anxiety and stress in patients under nursing care, in comparison with the control group, were less intense; whereas the level of depression did not have a significant difference in both groups. Therefore, it can be concluded that nursing care before endoscopy can an effective process on calming patients and reducing their stress and this reduction of anxiety and stress affects other variables such as heartbeat and blood pressure as well as reduction of the feeling of pain and since elderly patients usually suffer from diseases such as high blood pressure, increase of blood pressure and heartbeat can be dangerous for them and therefore calming patients before endoscopy with nursing care can have other advantages for patients in addition to reduction of pain, anxiety and stress.

According to the obtained results and according to table 2, the mean of the score of pain in the experimental and control group is respectively 1.3±3.57 and 1.3±5.17 and according to the t-test, patients under the experiment significantly suffered from less intense pain (P<0.001). In other words, in the experimental group, most of the patients had a low level of pain and most of the patients in the control group had an average level of pain.

In table 2, the pain intensity had a significant difference based on age, gender and academic degree in such a way that the percentage of patients with average level of pain was significantly more in 70-year-old patients and older patients and in women and in patients without a diploma.

According to the results of this study, patients who were under the nursing cares before the endoscopy procedure felt less pain in it which shows that doing nursing cares has an impact on the reduction of patients' pain. In other words, there is a sign of the psychotic cause of the pain during and after the endoscopy. It must be said that, other than the psychological root of the pain during and after endoscopy, there are also cases where due to the physical pressure on the throat area during the endoscopy or scratches in the throat and esophagus can create real pain after the endoscopy procedure. And since a similar anesthetic medicine is used during the endoscopy, the pain might be reduced during the endoscopy; however since the patient is not completely unconscious and all of the patients under study in the experimental and control group, a similar sedative protocol was used during the endoscopy, the pain can be perceived and expressed by the patients and ultimately be evaluated.

As it was expressed before, all of the attempts of calming the patients before the procedure has a crucial impact on the reduction of anxiety and pain of the patients; in such a way that in another study done by Islakdemir did in Istanbul in 2015, presence of the family during the nursing care in 138 patients hospitalized in the emergency room showed that patients' pain and anxiety have been reduced.

On the other hand, patients with sufficient peace during the endoscopy procedure showed fewer reactions during it and therefore the duration of their procedure was shorter too and the accuracy of their endoscopist will also increase. Also, the probable side effects caused by endoscopy will decrease in them.

CONCLUSION

Given the research findings regarding the impact of nursing care on reduction of anxiety, stress and pain of patients under endoscopy, it is recommended that the results obtained from this research is considered by the hospitals as the scientific approach for reducing anxiety, stress and pain of the patients as candidates for endoscopy and it can be used in order to increase the quality of their treatment. Therefore, the techniques of nursing intervention can be used as one of the non-pharmacological methods for reducing patients' mental disorders before doing the invasive diagnostic methods. On one hand, nursing care can be of help to encourage the patients to do the invasive and diagnostic methods through increasing the level of information and awareness of them so that they would show complete participation with the doctor and ultimately, it affects the reduction of patient's pain caused by his/her stress and anxiety.

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