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Effects of Video- and Pamphlet-based Patient Educations on Anxiety and Satisfaction Among Candidates for Gastroscopy

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Abstract

Background: Endoscopy is a diagnostic tool, which causes its candidates different levels of anxiety. Anxiety can reduce patients' tolerance and cooperation and increase the likelihood of endoscopy-related complications. One strategy to alleviate anxiety is patient education. However, previous studies reported conflicting findings about the most appropriate patient education method.
Objectives: This study aimed at examining the effects of video- and pamphlet-based patient educations on anxiety and satisfaction among candidates for gastroscopy.
Methods: This quasi-experimental study was conducted on 90 patients referred to the endoscopy unit of Valiasr hospital in Birjand city, Iran. The patients were selected through convenience sampling method and randomly allocated to a video, pamphlet, or control group. Data were collected using a demographic questionnaire, a researcher-made questionnaire for satisfaction assessment, and the Spielberger's state-trait anxiety inventory. One day before gastroscopy, the participants completed the demographic questionnaire and Spielberger's state-trait anxiety inventory. Then, educations were provided to them. In the day of their gastroscopy, their anxiety was reassessed both two to three hours before and immediately after the procedure. Collected data were entered into the SPSS software version 15. As all study variables had normal distribution, the data were analyzed by performing the one-way analysis of variance, the Tukey's post hoc, the paired- and independent-sample t test, the chi-square, and Fisher's exact tests at a significance level of less than 0.05.
Results: The groups did not differ significantly from each other regarding the pretest and posttest values of total, state, and trait anxiety. However, the level of patient satisfaction in the video group was significantly greater than the control and pamphlet groups ($P < 0.05$). Moreover, patient satisfaction was not significantly correlated with patients' demographic characteristics.
Conclusions: Video-based patient education can improve patient satisfaction among candidates for gastroscopy.

Keywords: Gastroscopy, Video Presentation, Pamphlet, Anxiety, Satisfaction

1. Introduction

Endoscopy is one of the main diagnostic tests for examining the gastrointestinal tract. It is widely used in clinical examinations and has many therapeutic applications (1). Anxiety is a common disorder among candidates for endoscopy. Previous studies showed that 40% - 75% of the candidates experienced some levels of anxiety, while 78.9% of them felt severe anxiety (2, 3). Anxiety arises not only from endoscopy, but also from its associated complications such as bleeding, rupture, and dysphagia. It can reduce patients' tolerance and cooperation, prolong the procedure, increase the likelihood of complications, limit physicians' ability to perform diagnostic and therapeutic interventions, and affect patient satisfaction (1, 4-6). Satisfaction is among the key components of healthcare quality assurance. Therefore, along with providing safe and quality services, healthcare providers need to adopt serious measures to ensure patient satisfaction (7) and reduce their fear and anxiety.

The main causes of anxiety among endoscopy candidates are lack of knowledge about the procedure (53%), concerns over probable tissue damage (24.4%), and negative attitudes towards the procedure (22.1%) (3). As the main cause of anxiety is the lack of knowledge about the procedure, providing patients with necessary information can enhance their endoscopy-related knowledge, alleviate their anxiety, and improve their satisfaction. Previous studies showed that providing verbal educations to patients by the treating physicians (8) and nurses (4, 8-10) through written materials such as pamphlets and brochures (11-15) or video presentation (16-24) can significantly alleviate anxiety and improve satisfaction among patients. Callaghan and Chan (2001) also reported that irrespective of its route, patient education is effective in sig-

nificantly alleviating anxiety and improving satisfaction among candidates for endoscopy.

Previous studies showed that there was no significant difference between the outcomes of written and verbal patient educations (5, 13, 24). However, Pehlivan et al. (2011) reported the greater effectiveness of verbal education compared with written one (9). Moreover, although some studies reported that video-based education is more effective than written or verbal education (18, 19, 21, 23), other studies found no significant difference between video-based and other types of patient education (15, 17, 24). Given the conflicting findings of the previous studies, the present study was conducted to examine the effects of video- and pamphlet-based patient education on anxiety and satisfaction among candidates for gastroscopy.

2. Methods

This quasi-experimental study was conducted on 90 patients referred to the endoscopy unit of Valiasr hospital, Birjand, Iran, from June 20 to December 20, 2014. Sample size was calculated based on the findings of Arabul et al. (2013) (18). The formula to determine the minimum required sample for comparing two means revealed that with a power of 0.80, an alpha of 0.05, and a probable attrition rate of 15%, thirty patients were needed for each study group. Selection criteria included an age of 18 - 60, basic literacy skills, no history of endoscopy, no addiction, and no history of known anxiety disorders, mental disorders, or refractory physical problems.

Data collection tools were a demographic questionnaire, a researcher-made satisfaction assessment questionnaire, and Spielberger's state trait anxiety inventory (STAI).

The items of the demographic questionnaire were age, gender, place of residence, income, education, employment, and marital status. The researcher-made satisfaction questionnaire contained 22 items on patient satisfaction with information provided to them, route of information provision, physician-nurse communication in the study setting, and pre, intra, and postgastroscopy care. Seven items were related to pregastroscopy care, while ten and five items dealt with intra and postgastroscopy care services, respectively. The validity of the questionnaire was assessed through the content validity assessment technique. Accordingly, the questionnaire was developed based on a literature review in the area of the study subject matter and then, it was amended according to the comments provided by ten faculty members of Birjand faculty of nursing and midwifery, Birjand, Iran. Moreover, for the purpose of reliability assessment, 20 candidates for gastroscopy were invited to complete the questionnaire. Cronbach's alpha was 0.95.

Spielberger's STAI is a 40-item inventory the first twenty items of which measure state anxiety on a four-point Likert-type scale (Not at all, Somewhat, Moderately, and Very much), while items 21 - 40 measure trait anxiety on a four-point Likert-type scale (Almost never, Sometimes, Often, and Almost always). Items which show the presence of anxiety are scored from 1 to 4, while items which show the absence of anxiety are scored reversely from 4 to 1. Thus, the total scores of the state and the trait subscales of the STAI range from 20 to 80. The validity and reliability of the STAI were assessed and upheld by Spielberger (1983) (25). The participants initially completed the state and then the trait subscales of the STAI.

After receiving an ethical approval from the ethics committee of Birjand University of Medical Sciences, Birjand, Iran, (with the code of IR.BUMS.1393.10) and obtaining necessary permissions from the university, we referred to the study setting and conveniently selected eligible gastroscopy candidates. The candidates were allocated to a video, pamphlet, or control group. For the sake of allocation, a list of random numbers was generated using the drawing method and then, patients were randomly allocated to the groups based on the list.

Telephone contacts were made with eligible participants and they were asked to refer to the study setting one day before their gastroscopy. Accordingly, they initially completed the demographic questionnaire and STAI and then received gastroscopy-related educations. Educational materials were the same for all candidates in all study groups and were related to the advantages and disadvantages of gastroscopy, pregastroscopy preparations, the process of gastroscopy, complications of gastroscopy, and postgastroscopy care services. Patients in the control group received these educations verbally, while patients in the pamphlet group received verbal educations along with a written pamphlet containing educational materials. At the end of the pamphlet, there were several questions to which patients were asked to provide answers after reading the pamphlet. In case of any wrong answer, necessary educations were provided to the intended participant and any ambiguity was clarified. In the video group, educations were provided both verbally and through showing a sixteen-minute video clip on a laptop. The clip showed a gastroscopy procedure performed by a physician. The level of patients' anxiety was reassessed both two to three hours before and immediately after gastroscopy.

Collected data were entered into the SPSS software (v. 15). The Kolmogorov-Smirnov test showed that all study variables had normal distribution. Therefore, the data were analyzed by performing the one-way analysis of variance, the Tukey's post hoc, the paired- and independent-sample t test, the chi-square, and Fisher's exact tests at a

significance level of less than 0.05.

3. Results

This study was performed on 90 candidates for gastroscopy who were allocated to the thirty-person video, pamphlet, and control groups. The means of the candidates' age in these three groups were 31.8 $\pm$ 7.8, 34.77 $\pm$ 13.04, and 36.2 $\pm$ 12.4, respectively. In these groups, 46.7% (14 subjects), 30% (9 subjects), and 33.3% (10 subjects) of the candidates were males, respectively. There were no statistically significant differences among the groups regarding the candidates' age, gender, marital and educational status, and place of residence ($P > 0.05$; Table 1).

The groups did not significantly differ from each other regarding the baseline level of total anxiety. Moreover, the posttest levels of state and trait anxiety were not significantly different from the baseline level of anxiety in any of the study groups. In addition, the groups did not differ significantly from each other concerning the pretest-posttest mean differences of anxiety scores (Table 2). However, there was a statistically significant difference among the groups regarding the level of patient satisfaction (Table 2). Finally, the total score of anxiety was not significantly correlated with the participants' gender, place of residence, and income.

4. Discussion

The results of the present study illustrated no significant differences among the video, pamphlet, and control groups regarding pretest and posttest values of total anxiety score. Moreover, a within-group pretest-posttest difference was statistically significant in none of the study groups. However, the level of satisfaction among patients in the video group was significantly higher than the control and the pamphlet groups.

The results of previous studies into the effects of education on endoscopy candidates' anxiety and satisfaction are conflicting. Some studies showed that video- and pamphlet-based educations had no significant effects on anxiety among candidates for gastroscopy and colonoscopy. For instance, Callaghan and Chan (2001) made a study in Hong Kong on candidates for gastroscopy and found no significant difference between the effects of videotaped and written information on anxiety (15). Bytzer and Lindeberg (2007) also reported the ineffectiveness of educations provided verbally and through video presentation in alleviating anxiety among gastroscopy candidates (16). Poursharifi et al. (2013) and Luo (2013) also showed that written and verbal educations had no significant effect on endoscopy-related anxiety (5, 13). All these findings are in line with our findings.

On the other hand, some studies showed the greater effectiveness of some patient education methods. For examples, Poursharifi et al. (2013) and Nikbakht Nasrabadi et al. (2012) found that patient education significantly alleviated gastroscopy-related anxiety (5, 6). The results of two other studies in Turkey and Netherlands also showed the preference of written over verbal patient education. The reason behind such preference is that written information is more organized and detailed and provides clients with the opportunity to read content for several times, while during verbal presentation of information, educational materials may not be completely explained. Moreover, clients may be unable to understand some materials due to problems such as anxiety. Additionally, some materials may be forgotten and cannot be retrieved and reviewed anymore (11, 14). Contrary to these findings, Pehlivan et al. (2011) reported the greater effectiveness of verbal patient education compared with written education in alleviating endoscopy-related anxiety. They attributed the greater effectiveness of verbal education to the patient-physician direct contact during verbal communication. Moreover, in this method, patients can express their feelings, ask their questions, and thus, feel lower levels of anxiety (9). However, despite detailed explanation of information, our findings revealed no significant difference among the groups regarding the level of anxiety. The results of another study in Turkey also showed the greater effectiveness of video presentation compared with written and verbal patient educations in alleviating endoscopy-related anxiety (18, 19). Contrarily, we did not find any significant difference among the three patient education methods respecting the level of patients' anxiety. Moreover, our findings showed that anxiety was not significantly correlated with age, gender, and place of residence, while some previous studies reported the higher levels of endoscopy-related anxiety among female patients (16, 18, 19).

We also found that video presentation was more effective than verbal and written patient educations in improving patient satisfaction. This is in line with the findings of some previous studies (6, 9, 11, 14) and contrary to the findings of some other ones (15, 17, 22). The greater effectiveness of video presentation may be due to the presentation of the steps and the environment of endoscopy during video presentation. The video clip showed the participants the endoscopy unit and contained endoscopy-related explanations provided by the treating physician.

The results of the present and previous studies showed that there are still great controversies and inadequate evidence regarding the best patient education method for al-

Table 1. Comparison of the Groups Regarding the Participants' Income and Educational and Employment Status[a]

Variable		Groups			P Value (the Chi-Square or the Fisher's Exact Test)
		Video	Pamphlet	Control	
Educational status	Primary	4 (13.3)	3 (10)	7 (23.3)	0.69
	Secondary	2 (6.7)	3 (10)	3 (10)	
	Diploma and Associate diploma	10 (33.3)	14 (46.7)	9 (30)	
	Bachelor's and higher degrees	14 (46.7)	10 (33.3)	11 (36.7)	
Employment status	Employee	9 (30)	7 (23.3)	8 (26.7)	0.92
	Laborer	1 (3.3)	2 (6.7)	2 (6.7)	
	Retired	1 (3.3)	2 (6.7)	2 (6.7)	
	Self-employed	5 (16.7)	3 (10)	5 (16.7)	
	Housewife	12 (40)	11 (36.7)	12 (40)	
	Unemployed	2 (6.7)	5 (16.7)	1 (3.33)	
Gender	Male	14 (46.7)	9 (30)	10 (33.3)	0.37
	Female	16 (53.3)	21 (70)	20 (66.7)	
Marital status	Single	6 (20)	9 (30)	5 (16.7)	0.43
	Married	24 (80)	21 (70)	25 (83.3)	
Place of residence	Urban areas	28 (93.3)	29 (96.7)	27 (90)	0.58
	Rural areas	2 (6.7)	1 (3.3)	3 (10)	

[a] Values are expressed as No. (%).

Table 2. Comparison of the Levels of Total, State, and Trait Anxiety in Three Groups[a]

Variable		Groups			P Value (the One-Way ANOVA)
		Video (N = 30)	Pamphlet (N = 30)	Control (N = 30)	
Trait anxiety	Before	45.9 ± 9.5	47.9 ± 9.2	46.1 ± 8.1	0.61
	After	45.2 ± 11.5	48.5 ± 9.9	45.2 ± 9.3	0.36
	P value (the paired-sample t test)	0.68	0.73	0.36	-
	Pretest-posttest mean difference	-0.7 ± 9.2	0.5 ± -7.7	-0.9 ± 5.3	0.74
State anxiety	Before	42.8 ± 13.2	52 ± 10.7	46.6 ± 13.6	0.02[b]
	After	45.2 ± 14.1	48.6 ± 11.8	46.2 ± 12.7	0.57
	P value (the paired-sample t test)	0.22	0.12	0.69	-
	Pretest-posttest mean difference	2.4 ± 10.3	-3.4 ± 11.3	-0.47 ± 6.3	0.07
Total anxiety	Before	88.7 ± 21.1	100 ± 8.4	92.7 ± 20.7	0.09
	After	90.3 ± 24.7	97.1 ± 21.1	91.4 ± 21.3	0.46
	P value (the paired-sample t test)	0.57	0.35	0.45	-
	Pretest-posttest mean difference	1.67 ± 15.8	-2.9 ± 16.6	-1.4 ± 9.8	0.47
Satisfaction		80.9 ± 10.3	73.7 ± 9.8	74.5 ± 12.9	0.024[c]

[a] Values are expressed as mean ± SD.
[b] The difference between the video and the pamphlet groups is statistically significant (P = 0.02).
[c] The level of satisfaction in the video group is significantly greater than the control (P = 0.04) and the pamphlet (P = 0.03) groups.

leviating endoscopy-related anxiety.

In conclusion, the results of the present study showed that although information provision may not affect the level of gastroscopy-related anxiety, it is a cost-effective intervention for improving patient satisfaction. Future studies are recommended to evaluate the effects of information provision by peers, that is, patients who have already undergone endoscopy.

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