

## **Comparison of the effect of video education and guided imagery on patient anxiety before endoscopy.**

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### **Abstract**

**Background:** Anxiety reduces the patient's tolerance and cooperation and increases the likelihood of complications during endoscopy. Including anxiety reduction strategies are patient education and guided imagery techniques. Considering the different results of studies on the effectiveness of education before endoscopy, the aim of this study was to compare the effect of video education and guided imagery on patients' anxiety before the endoscopy.

**Materials and methods:** This single-blinded clinical trial was conducted at endoscopy unit of Vasei Hospital in Sabzevar, Iran. Patients as selected by convenience sampling randomized to three groups of video education, guided imagery and control. The data collection tools were demographic and state-trait anxiety inventory (STAI). Video-education group received a video clip and for the guided imagery group provided a guided imagery audio file. The control group received routine care. In the day of their endoscopy, their anxiety was reassessed both two to three hours before the procedure. Data were analysed using SPSS version 21 and one-way analysis of variance, chi-square test, Fisher exact test, independent and paired t-test. The significance level in the statistical tests was 0.05.

**Results:** There were statistically significant differences in mean pre- and post-intervention anxiety scores between the three groups (P-value<0.05). However, there was no significant difference in anxiety level in terms of the type of intervention used.

**Conclusion:** According to the findings of this study, two methods of video education and guided imagery were equally effective in reducing anxiety levels in patients before endoscopy.

**Keywords:** Anxiety, Video education, Guided imagery, Endoscopy.

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### **Introduction**

Endoscopy is an invasive diagnostic method for investigating upper gastrointestinal system diseases. In this diagnostic method, therapeutic measures are also done simultaneously [1]. Patients often experience periods of anxiety before endoscopy, which causes their anxiety and fear. Insufficient information on endoscopy leads to a lack of acceptance and reduction of patient tolerance during the procedure. Also, high levels of anxiety sometimes lead to avoidance of this procedure. In addition, this high level of anxiety may cause the procedure to not be fully performed and dissatisfaction with patients [2]. Providing sufficient information, will increase patient collaboration during endoscopy and reduce the need for recurrence of the procedure and additional costs associated with it. Therefore, reduction of patient anxiety before endoscopy is necessary by providing information and explaining the method of work to the patient orally or in

writing, and training for relaxation and adaptation for patients [2].

There are several different pharmaceutical and non-pharmacological methods to moderate and reduce anxiety. Although the use of sedative medications is known to reduce anxiety and pain in patients, but it also has complications such as hypotension and depression of the respiratory system [3]. Also, 30-50 percent of patient costs increase, more time and staff are needed to help relieve and heal and monitor the patient [4].

Providing non-pharmacological interventions by the nurse can help alleviate anxiety, lower risk, discontinue or reduce drug use [5]. How to prevent or reduce the severity of anxiety, have long been considered by experts, especially endoscopy specialists and psychologists, and various studies have been done to find the right answer. Although some believe that

giving information leads to concern about and the lack of referral of a number of patients to endoscopy, But in most cases providing correct information, it improves patient collaboration and reduces the severity of anxiety [6]. The data transmission method, the appropriate time interval and the content of the information are effective factors in effectiveness [6].

Using appropriate educational methods such as booklet, video education, or peer education may be effective in reducing anxiety in patients [7].

Video education may reduce anxiety, stress, and depression. However, the combination of visual and audio information is a good tool for increasing information, reducing anxiety, improving collaboration, and enhancing self-care behaviors [8,9]. The tendency to use non-pharmacological methods to relieve pain and anxiety is increasing. One of these methods is the use of audio stimuli [3].

One of the non-pharmacological methods is the use of complementary medicine to alleviate anxiety in patients. Complementary medicine is a comprehensive approach to the physical and mental well-being of patients [10]. The guided imagery as a mind-body technique is one of the branches of complementary medicine [8].

So far, various studies have been done, including nursing counseling [11], the impact of increased patient information [12], the impact of patient education [13], the effect of voice therapy [3], reflexology [4], to reduce the anxiety of endoscopic candidates.

Considering the different results of the effectiveness of these studies and the lack of a study to compare two teaching methods to patients and using a complementary technique to reduce the anxiety of patients before endoscopy, this study compared the effectiveness of video education and guided imagery technique on reducing the anxiety of patients before endoscopy.

## Materials and Methods

The present study is, one-blind randomized controlled trial that with cod IRCT20180226038867N1 was registered at the Iranian Center for Clinical Trials. The samples of this study were ambulatory endoscopic patients referring to endoscopic unit of Sabzevar Vasezi Medical Center from May to August 2018. The sample size was calculated confidence interval of 95% for three groups of 34 people and 102 were considered. Inclusion criteria were age 18 to 60 years, at least read and write, Sabzevar and full consent to participate in research and non-inclusion criteria include having a previous history of endoscopy, emergency endoscopy certificate, history of serious illness and known mental illness and anxiety disorders, drug addiction and alcohol consumption, bad memory from the sea, disorder In focus and imagination, visual and hearing impairment. Also, the patient's unwillingness to continue studying was considered as exclusion criteria.

Data collection tools were a demographic questionnaire, and Spielberger's state trait anxiety inventory (STAI). The items of the demographic questionnaire were age, gender, place of residence, education, employment, and marital status. The validity of the questionnaire was assessed through the content validity assessment technique.

Spielberger's STAI is a 40-item inventory the first twenty items of which measure state anxiety on a fourpoint 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 [14]. The participants initially completed the state and then the trait subscales of the STAI.

After receiving an ethical approval from the ethics committee of Sabzevar University of Medical Sciences, Sabzevar, Iran, (with the code of IR.MEDSAB.REC1396.177, we referred to the study setting and conveniently selected eligible gastroscopy candidates. The candidates were allocated to a video education, guided imagery, or control group. Telephone contacts were made with eligible participants and they were asked to refer to the study setting one day before their endoscopy. Accordingly, they initially completed the demographic questionnaire and STAI and then received endoscopy-related educations.

In the video group, educations were provided ten-minute video clip on a laptop. The clip showed a endoscopy procedure performed by a physician. Educational materials were related to the advantages and disadvantages of endoscopy, pre endoscopy reparations, the process of endoscopy, complications of endoscopy, and post endoscopy care services. Patients in the control group received routine care, while patients in the guided imagery group received, a 20 minute audio file was streamed through MP3player with Lenovo marking containing gentle background music with headphones with 25-50 dB sound for patients, during which the patient was relaxed and The visualization of the sights and sentences was said and also on the day of endoscopy, 2 to 3 hours before the endoscope this intervention was performed for the guided imagery group again. The level of patients' anxiety was reassessed both two to one hour before endoscope.

Collected data were entered into the SPSS software 21. The Kolmogorov-Smirnov test showed that all study variables had normal distribution. Therefore, the data were analysed by performing the one-way analysis of variance, Tukey's post hoc, the paired, independent sample t test, chi-square and and Fisher's exact tests by significance level of less than 0.05.

## Results

A study was conducted on 102 patients undergoing endoscopy, and 34 patients to each control group, video education, and guided imagery was assigned. The means of the candidates'

*Comparison of the effect of video education and guided imagery on patient anxiety before endoscopy*

age in these three groups were  $43.71 \pm 7.75$ ,  $38.26 \pm 8.96$ ,  $38.15 \pm 9.82$ . In these groups, 58.8% (20 subjects), 47.1% (16 subjects), and 38.2% (13 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). Mean pre-intervention anxiety scores were  $82.35 \pm 12.39$ ,  $89.05 \pm 14.41$ ,  $98.76 \pm 18.32$  for control group, video education, and guided imagery respectively, with statistically significant difference between the groups ( $P = 0.000$ ). However, mean post-intervention anxiety scores were  $90.17 \pm 11.73$ ,  $78.05 \pm 15.57$ ,  $82.67 \pm 14.03$  for control group, video education, and guided imagery respectively, with statistically significant difference between the groups ( $P = 0.002$ ).

The results of paired t-test showed a significant difference in the mean of anxiety score before and after intervention in the three groups ( $p\text{-value} = 0.000$ ; Table 2).

The results of one-way ANOVA showed there were a statistically significant difference between pre- and post-intervention anxiety scores of participants undergoing control group, video education, and guided imagery. In order to eliminate the effect of the difference in the anxiety score between the groups, before the intervention, covariance analysis was used. The results showed that the intervention video education and guided imagery on the state anxiety of patients in these two groups was effective and decreased the level of state anxiety in these patients (Table 2).

The results of Tukey's post-test showed there was no significant difference in terms of the type of intervention used ( $p\text{-value} = 0.173$ ). As a result, both interventions were equally effective in reducing anxiety levels in patients.

**Table 1.** Frequency distribution table of demographic variables in three groups.

Variable		Group			Chi-square and Fisher's exact test (p-value)
		Control	Video education	Guided imagery	
Age group	41-21	18 (9/52)	(8/61) 21	(7/64) 22	588/0
	61-41	(1/47) 16	(2/38) 13	(3/35) 12	
Gender	Male	(8/58) 20	(1/47) 16	(2/38) 13	259/0
	Female	(2/41) 14	(9/52) 18	(8/61) 21	
Marital status	Married	(1/97) 33	(1/97) 33	(4/82) 28	140/0
	Single	1 (9/2)	1 (9/2)	(7/14) 5	
	Wife died	(0) 0	(0) 0	(9/2) 1	
Employment status	The worker	(9/2) 1	(7/14) 5	(8/11) 4	264/0
	Employee	12 (3/35)	(6/17) 6	(6/17) 6	
	Free job	(4/29) 10	(6/20) 7	(6/20) 7	
	Housewife	(4/32) 11	(1/47) 16	(5) 17	
Education	Read and write	(7/14) 5	(9/2) 1	(9/5) 2	174/0
	Primary	(8/8) 3	(6/20) 7	(5/23) 8	
	Guidance education	(8/11) 4	(8/11) 4	(6/20) 7	
	Diploma	(5/23) 8	(2/41) 14	(5/23) 8	
	Assistant	(8/11) 4	(9/5) 2	(9/5) 2	
	Bachelors	(5/23) 8	(6/17) 6	(6/20) 7	
	Masters and higher	(9/5) 2	0 (0)	0 (0)	

**Table 2.** Comparison of the levels of total, state, and trait anxiety in three groups.

Variable	Group			p-value (the one-way ANOVA)
	Video education	Guided imagery	Control	

Stat anxiety	Before	46.08 ± 8.75	52.23 ± 8.31	41.35 ± 6.70	0
	After	38.23 ± 9.80	39.88 ± 5.10	47.67 ± 7.10	0
	p-value (the paired-sample t test)	0.0001	0.0001	0.0001	
Trait anxiety	Before	42.97 ± 7.35	46.52 ± 11.09	41.00 ± 7.02	0.033
	After	39.82 ± 7.46	42.79 ± 11.24	42.50 ± 6.34	0.297
	p-value (the paired-sample t test)	0.0001	0.0001	0.0001	
Total anxiety	Before	89.05 ± 14.41	98.76 ± 18.32	82.35 ± 12.39	0
	After	78.05 ± 15.57	82.67 ± 14.03	90.17 ± 11.73	0.002
	p-value (the paired-sample t test)	0.0001	0.0001	0.0001	

## Discussion

In the current study, video education, and guided imagery were all found to significantly reduce anxiety levels among patients undergoing endoscopy in comparison to a control group.

The results of some studies in the context present study, Show the effect of various methods of providing information and patient education. Such as Pour et al. [6], on the effectiveness of three different educational methods on the anxiety of endoscopic candidates. Arabul et al. [12], Salvae et al. [13], Bonaviria et al. [15], similarly found impact video education, in reduce anxiety in patients before endoscopy. However, in another randomized controlled trial, Kamyabi et al. [16], found video education had no significant effect on levels of anxiety among endoscopic candidates patients. The factors influencing the results of this study can be a small volume of cultural and social differences.

Various studies have been done to reduce the anxiety of patients before endoscopy using non-pharmacological methods. These studies include the impact of music on reducing anxiety [17], nursing interventions [11], aromatherapy [18] and reflexology of the hands and feet [4] and using the guided visualization technique [19], to reduce the anxiety of patients before endoscopy. The results of these studies were in line with our study. In contrast, Pijl et al. [20] in study of 140 patients before laparoscopic cholecystectomy in the Netherlands found that there was no effect of guided imagery in pain and anxiety in the control and intervention group, and the results of this study were not the same with our study. The sample departure during the study, which was not available for listening audio files or the acute pain caused by the disease as an interventional agent, has been influenced by the study. It seems that the text and content of the audio file guided imagery has shown different results in studies according to the type of culture and interests of different people. For example, Noghani et al. [21] used a guided imagery file with religious content that was consistent with our study. Probably, direct communication with information transmission is the most effective way to control anxiety.

Habibzadeh et al. [7] also found the effect of peer-facilitated, video-based and combined peer-and-video education on anxiety among patients undergoing coronary angiography and there was no significant difference in anxiety level in terms of the type of intervention used.

Rudin et al. [22] reducing the patient's attention by: therapeutic touch, giving information, observing the patient's endoscopic process, relationship therapy, relaxing, and listening to music while doing endoscopy is believed to reduce anxiety. In the present study, patient education and guided imagery techniques were used to reduce patient anxiety.

## Discussion and Conclusion

Overall, the results of the current study found no significant difference in post-intervention anxiety reduction between the two different interventions; in other words video education and guided imagery were all equally effective in reducing state anxiety among patients undergoing endoscopy.

Since nurses play an important role in reducing anxiety in patients, it can be advisable to use non-pharmaceutical methods, such as patient education, and the use of complementary medicine as low-cost, cost-effective and acceptable methods by the patient. The goal of connecting with the patient is to reduce the anxiety of patients before endoscopy.

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