Original Article

The influence of escort during upper endoscopy and colonoscopy on patient satisfaction and anxiety

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Abstract

Aim: Endoscopy, including esophagogastroduodenoscopy (EGD) and colonoscopy (CS), is a diagnostic and treatment method for various diseases. We aimed to evaluate the effects of the presence of an escort by the patient on patients' satisfaction and anxiety level before and after upper endoscopy and CS. **Subjects and Methods:** Patients who referred to the Hajar Hospital for elective EGD and CS were recruited. The patients were divided into two groups: The first group underwent endoscopy/CS with an escort beside the patient and the escort was waiting in the waiting room in the second group. After interventions, patients' and their escort's levels of anxiety and satisfaction were evaluated. Anxiety level was compared before and after endoscopy. **Results:** Of 211 patients, 106 were referred for EGD and 105 for CS. Anxiety was same in both groups before the interventions ($P > 0.05$), which decreased in both after the EGD or CS ($P < 0.05$). Anxiety reduction after CS was influenced by the presence of the escort and the level of anxiety was less in this group than other group ($P < 0.05$). Satisfaction of the EGD and CS in the group that had an escort by their side was more than the other ($P < 0.05$). Escorts had a moderate level of anxiety in both groups with a marked reduction after endoscopy and CS ($P < 0.05$). However, the level of anxiety before and after endoscopy was similar in both groups ($P > 0.05$). **Conclusion:** Having an escort at the time of endoscopy or CS appears to be an effective costless complication-free measure for increasing satisfaction and reducing anxiety in patients.

Keywords: Anxiety, endoscopy, patient satisfaction

Introduction

Esophagogastroduodenoscopy (EGD) and colonoscopy (CS) are commonly performed for the diagnosis of various gastrointestinal (GI) pathologies,[1] but it frequently causes pain and stress for patients.[2] To reduce patients' discomfort, conscious sedation is used to control their pain and thus improve their tolerance,[3-5] but these medications are not free of complications and cause longer recovery time and higher costs that have caused a recent decrease in using conscious sedation in some countries.[6] Some have investigated the efficacy of alternative methods in relieving patients' pain, such as acustimulation,[7] relaxation techniques,[8] and other endoscopic methods, such as unsedated ultrathin EGD.[9,10]

Studies have indicated a high level of concern and anxiety in patients before the intervention and have determined various factors effective on patients' satisfaction after GI endoscopy, such as postintervention visits and pain control, friendliness of the operating room staff, and informing the patients adequately.[11-13] Some have defined various factors affecting poor compliance in patients such as age and gender.[14-16] Regarding the fact that patients' satisfaction is closely related to the level of anxiety and it affects patients' cooperation and their willingness to repeat the procedure, studies have suggested assessing the patients with a higher precision.

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Among psychological factors affecting patients' comfort during an invasive procedure, the presence of an escort has been suggested in various studies,[17,18] but has rarely been investigated in GI procedures,[19] and its effect on patients' anxiety and satisfaction has been scarcely evaluated by valid questionnaires.

Regarding the importance of anxiety on patients' satisfaction and compliance, this study aimed to evaluate the effects of the presence of an escort by the patient on patients' satisfaction and anxiety level before and after upper endoscopy and CS.

Subjects and Methods

This clinical trial was prospectively designed. The subjects of the study included patients over 12 years who have been referred for elective and nonemergent endoscopy and CS to the Hajar Endoscopy Center, Shahrekord city, Iran, the main medical–educational center for gastrointestinal diseases in Chaharmahal and Bakhtiari province. The patients were enrolled into the study by convenient sampling method, regardless of their diagnosis and patients who were referred for nonelective and emergency endoscopy, had underlying psychiatric disease, or were addicted to drugs/alcohol were excluded from the study. Sample size was calculated at 211, according to the pilot study.

The protocol and objectives of the study were explained to all patients and their escorts in an interview session and written informed consent was obtained from those who were willing to participate in the study. Then, Spielberger State-Trait Anxiety Inventory (STAI) questionnaire was given to all participants before the interventions to determine their baseline anxiety, which calculates state and trait anxiety. State anxiety is defined as a temporary anxiety that occurs in a specific situation and trait anxiety is the tendency to awaken state anxiety under stress.[20] Then, the patients underwent nonemergent elective endoscopy (by video-endoscope) and CS (by video-CS) by one gastroenterologist. Then, they were randomly divided into two groups according to the presence of an escort beside the patient during the interventions. After the procedures, all participants were interviewed and patients' anxiety and satisfaction were evaluated. Patients' satisfaction was evaluated by Group Health Association of America - 9 questionnaires, confirmed by American Endoscopy Association[21] that has also been used in Iranian studies.[22] The content validity of the questionnaire was confirmed by our specialists and test–retest was used to assess the reliability of the questionnaire and the coefficient correlation was calculated at 0.7 for the questionnaire's reliability.

Continuous variables were reported as mean ± standard deviation and the categorical ones as frequency with percent. The comparison of anxiety scores between groups was analyzed using independent *t*-test and the difference of anxiety scores before and after interventions was analyzed using paired *t*-test. The Pearson coefficient of correlation was calculated for evaluating relations among variables.

The protocol of the study was approved by the Ethics Committee of the Shahrekord University of Medical Sciences (URL: http://www.skums.ac.ir), (RCT code: IRCT201512116480n10). The patients were covered properly in the presence of the escort. Informed consent was obtained from all participants and those who were not willing to enter the study or continue the study at any phase were excluded from the study.

Results

Of 211 participants, 106 patients were referred for endoscopy and 105 for CS. The age of patients ranged from 12 to 92 years with mean of 44.2 ± 16.6 years and the age of the escorts ranged from 13 to 72 with mean of 36.8 ± 12.3 years. Regarding gender, 136 patients (64.5%) were female and 35.5% were male, also, 133 of escorts (63%) were female and 37% were male. In 122 cases (57.8%), the gender of patients and the gender of escorts matched and in 89 cases (42.2%), the gender of patients and gender of escorts did not matched. Patients in both groups (with and without escort) were not statistically different in terms of age and gender.

We found no significant difference in the state and trait anxiety score after endoscopy or CS between two groups in patients or their escorts. Paired *t*-test showed that the mean scores of state anxiety in patients were significantly lower after endoscopy or CS in both groups ($P < 0.05$), compared to preintervention. However, mean scores of trait anxiety were not statistically different before and after the interventions ($P > 0.05$, [Tables 1 and 2]). The anxiety reduction after CS was influenced by the presence of the escort and the level of anxiety was significantly less in this group than other groups ($P < 0.05$). Although in escort group, there was a significant difference in state anxiety of patients after the interventions between CS and endoscopy; the difference of state anxiety before and after the interventions showed no difference between the two groups. No difference was seen between all anxiety scores between CS and endoscopy procedures.

The scores of state and trait anxiety before intervention and also the scores of trait anxiety after the intervention were statistically higher in female patients than male patients ($P < 0.05$). The scores of state anxiety after the interventions was partially higher in female than male patients ($P = 0.076$). Scores of state and trait anxiety did not show any difference between male and female escorts.

In the endoscopy procedure, there was a reverse relationship between the patient's age and scores of anxiety, i.e., $r = -0.249$; $P = 0.01$ for state before, $r = -0.244$; $P = 0.008$ for state after, and $r = -0.244$; $P = 0.012$ for trait after. In the CS procedure, there was only a reverse relationship between the patient's age and scores of state anxiety, i.e., $r = -0.381$; $P < 0.001$ for state before and $r = -0.350$; $P < 0.001$ for state after. These results showed that the younger patients experienced more anxiety.

Table 1: Mean and standard deviation of (state and trait) anxiety scores of patients and their escorts before and after endoscopy in both groups

	Mean±SD		*P* (between)
	With-escort group	Without-escort group	
Patient anxiety			
State			
Before	48.7±10.3	47.8±9.6	0.647
After	42.7±7.8	43.1±7.3	0.788
P (before after)	<0.001	<0.001	-
Difference	6.1±6.8	4.8±7.4	0.355
Trait			
Before	46.7±9.6	46.8±9.1	0.959
After	46.6±9	45.8±7.6	0.609
P (before after)	0.922	0.17	-
Difference	0.075±5.6	1±5.2	0.382
Escort anxiety			
State			
Before	44.9±10.0	43.3±11.5	0.458
After	41.3±9	40.6±9.5	0.721
P (before after)	0.004	0.05	-
Difference	3.6±8.6	2.7±9.8	0.607
Trait			
Before	44.9±8.3	42.1±8.2	0.076
After	44.4±6.2	42.0±9.0	0.118
P (before after)	0.533	0.933	-
Difference	0.54±6.3	0.056±4.8	0.656

SD: Standard deviation

Table 2: Mean and standard deviation of (state and trait) anxiety scores of patients and their escorts before and after colonoscopy in both groups

	Mean±SD		*P* (between)
	With-escort group	Without-escort group	
Patient anxiety			
State			
Before	45.4±10.3	46.9±10.7	0.465
After	39.4±7.3	43±8.5	0.024
P (before after)	<0.001	0.004	-
Difference	5.9±8.6	3.9±9.4	0.256
Trait			
Before	44.3±8.6	46.8±9.8	0.177
After	44.8±8.7	46.0±9.8	0.499
P (before after)	0.36	0.234	-
Difference	−0.42±3.3	0.77±4.6	0.134
Escort anxiety			
State			
Before	46.1±10.7	45.0±10.6	0.593
After	42.1±11.4	41.8±8.7	0.871
P (before after)	0.004	0.007	-
Difference	4±9.4	3.2±8.4	0.65
Trait			
Before	44.3±9.9	44.5±8.8	0.92
After	43.7±9.4	44.9±8.1	0.481
P (before after)	0.0339	0.346	-
Difference	0.62±4.6	−0.4±3.2	0.184

SD: Standard deviation

Analysis of satisfaction score of patients after endoscopy showed a higher satisfaction in the group with the presence of escort beside the patient than the group without the escort in patient's room ($P = 0.021$). Furthermore in CS group, satisfaction score of patients was higher in the group with the presence of escort beside the patient than the group without the escort in patient's room ($P < 0.001$, [Table 3]).

Table 3: Mean and standard deviation of satisfaction scores of patients and their escorts after endoscopy and colonoscopy

	Mean±SD		*P* (between)
	With-escort group	Without-escort group	
Endoscopy	57.8±8	54.1±8	0.021
Colonoscopy	59.6±8.3	53.5±9	<0.001

SD: Standard deviation

Discussion

The results of the current study indicated some level of baseline anxiety in two groups of having an escort beside the patient and the group of having the escort in the waiting room, which significantly decreased after EGD and CS in both groups, more meaningfully in CS group with the presence of escort beside the patient.

Similarly, Shapira and Tamir, Gebbensleben, and Rohde have reported high levels of baseline anxiety before these procedures.[19,23] High mean score of anxiety in the present study, especially trait anxiety, shows high stress among the studied society, which seems to be related to the social conditions of the society his study is conducted in.

Shapira and Tamir have similarly reported 52% satisfaction in patients escorted in the endoscopy room and 89% in their escorts.[19] In their study, only 50% of patients preferred and 17% refused to have an escort during the procedure. In the study by Gebbensleben and Rohde, also, only 7% of patients undergoing these two procedures reported willingness to have a relative in the room,[23] whereas none of the participants in the present study showed any unwillingness; this might be affected by cultural issues, as Iranian people are believed to be friendly and warm and escorts were selected from escorts in the current study.

In the present study, reduction has been reported in state anxiety level after both interventions, but not in trait anxiety. Similarly, Jones *et al.* have also assessed anxiety in patients undergoing EGD and CS by STAI and have reported a reduction in state anxiety level after procedures, but not in trait anxiety, which was not related to the type of procedure, patients' sex, and age.[24] These results seem justifiable, as trait anxiety is a component of person's characteristic and cannot change in different situations. Comparing patients' anxiety by STAI in three endoscopic

methods of EGD, CS, and bronchoscopy, Trevisani *et al.* have also revealed that patients' anxiety was not associated to the type of the procedure.[25] Quadri and Vakil have also demonstrated the reduction of anxiety after endoscopy.[26] Although the later study has evaluated patients' anxiety using a different questionnaire, but their results were similar to the present study.

Trevisani *et al.* have compared four groups undergoing EGD and have concluded highest satisfaction (80.7%) in the group sedated by midazolam and have also reported 58.6% satisfaction in the group with the presence of a relative during the procedure.[4] Although they have justified patients' satisfaction based on the patient' or physician's opinion and the baseline patients' satisfaction was different among groups, they have signified fair satisfaction in the escorted group, which is consistent to the results of the present study.

Rabeneck *et al.* have also investigated patients' satisfaction in two groups receiving omeprazole or placebo in a clinical trial on 140 patients with uninvestigated dyspepsia and have concluded that endoscopy, regardless of the diagnosis, improves patients' satisfaction,[27] which is in line with the results of the current study. Similarly, Larsen *et al.* have evaluated patients' satisfaction in a large sample size by a self-designed questionnaire and have concluded high patients' satisfaction (70%) after flexible sigmoidoscopy.[15]

Yacavone *et al.* have indicated endoscopists' skill and pain control as the main factors affecting the satisfaction of patients undergoing GI endoscopy.[28] Other factors have also been associated to patients' satisfaction, such as gender and age.[14-16] Drossman *et al.* have also proposed higher satisfaction in patients experiencing GI endoscopy for the second time, which indicates decrease in patients' anxiety after undergoing the procedure, similar to our results.

Given the fact that most studies have proven high anxiety level before the procedure that reduces after the procedures, different methods have been suggested for increasing patients' satisfaction, such as informing the patients in forms of booklets,[13] feedback system,[15] coaching by a nurse,[12] providing a calm atmosphere,[23] and proper medical teams' manner.[29,30]

As pain is inversely related to patients' satisfaction,[30] conscious sedation has been suggested using various drugs.[3-5] However, using these drugs needs special considerations and may induce serious complications, such as respiratory depression. Thus, studies have proven efficacy and feasibility of unsedated CS.[31] Alternative methods have also been suggested such as acustimulation,[7] relaxation techniques,[8] and other endoscopic methods, such as unsedated ultrathin EGD.[9,10] However, each of these methods has to be specifically evaluated for their efficacy, complications, and patients' satisfaction. Among different approaches suggested for reducing patients' anxiety, the presence of an escort seems to be a noninvasive effective method that imposes no additional cost and has no physiological complications such as other methods discussed above.

Strengths of the current study included assessing patients' anxiety and satisfaction after EGD and CS simultaneously by two valid questionnaires, to obtain a precise assessment. However, most studies have evaluated either of these two parameters with either of these questionnaires, and some have even not used a valid questionnaire in their evaluation. An interesting point in the current study, scarcely investigated, is the proximity of anxiety scores of patients and their escorts that indicates that escorts are very concerned about their patients. Thus, it is suggested that the role of the family in patients' health should not be neglected in further studies.

Conclusion

Presence of an escort with the patient during EGD and CS is an effective method in reducing patients' anxiety and improving their satisfaction.

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Conflicts of interest

There are no conflicts of interest.

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