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Effect of providing information to the patient about upper gastrointestinal endoscopy on the patient's perception, compliance and anxiety level associated with the procedure

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Background/aims: *Diagnostic tests such as endoscopy are anxiety-provoking. The best intervention to reduce anxiety is to inform the patient about the procedure. Our study was conducted as a randomized controlled trial to determine the effect of providing information on the patient's perception of endoscopy, compliance with the procedure and their anxiety level associated with the procedure.* ***Methods:*** *This study included 300 patients allocated to three groups (controls, and provision of written versus verbal information). Data were collected with identification form, perception form, State/Trait Anxiety Inventory, and the Visual Analogue Scale completed by the patients and the physician regarding patient compliance. Chi-square test, paired sample t-test and one-way ANOVA tests were used for statistical evaluation of the data, and Tukey's HSD test was used for further analysis.* ***Results:*** *According to the results of the study, it was noted that the patients in the verbal information group responded more accurately to the questions related to the procedure. These patients experienced less pain, breathing difficulties and regret. Furthermore, they felt better during the procedure, were more satisfied, and evaluated the procedure as less difficult ($p<0.05$). The mean anxiety score of the patients in the verbal information group was significantly lower than of patients in the other groups ($p<0.05$). Compliance with the procedure was better in these patients than in the other groups, and the difference was statistically significant ($p<0.05$).* ***Conclusions:*** *In light of our findings, we suggest that providing verbal information to patients is recommended due to its positive effects on the patient's perception, compliance and anxiety level associated with the procedure.*

Key words: Upper gastrointestinal endoscopy, information, perception of procedure, compliance with procedure, anxiety

Üst gastrointestinal endoskopi işleminde bilgilendirmenin hastanın işlemi algılamasına, işleme uyumuna ve anksiyete düzeyine etkisi

Amaç: *Endoskopi gibi tanı işlemleri hastalarda anksiyeteye neden olmaktadır. Anksiyetenin azaltılması için en uygun girişim hastanın işlem hakkında bilgilendirilmesidir. Çalışmamız endoskopi hastalarının bilgilendirilmesinin hastanın işlemi algılamasına, işleme uyumuna ve anksiyete düzeyine etkisini belirlemek amacıyla randomize kontrollü deney olarak yapıldı.* ***Yöntem:*** *Çalışmaya alınan 300 hasta 3 gruba ayrıldı (kontrol, yazılı ve sözlü bilgilendirme). Veriler, hasta tanıtım formu, işlemi algılama formu, Durumluk/Sürekli Anksiyete Envanteri, Visual Analog Scale içeren işlemi değerlendirme formu, hekim tarafından doldurulan hastaların uyum ifadeleri ve Visual Analog Scale içeren form ile toplandı. Verilerin değerlendirilmesinde; Ki-Kare, İki Eş Arasındaki Farkın Önemlilik Testi, Tek Yönlü Varyans Analizi ve ileri analizlerde Tukey HSD kullanıldı.* ***Bulgular:*** *Araştırmanın sonuçlarına göre; işlemle ilgili bilgi sorularına sözlü bilgilendirme grubundaki hastaların diğer gruplara göre daha doğru cevaplar verdiği, bu gruptaki hastaların daha az ağrı, solunum sıkıntısı ve pişmanlık duyduğu; işlem sırasında kendini daha iyi hissettiği, daha memnun olduğu ve işlemi daha kolay olarak değerlendirdiği belirlendi ($p<0.05$). Ayrıca sözlü bilgilendirme grubundaki hastaların anksiyete puan ortalamaları diğer gruplara göre anlamlı olarak düşük bulundu ($p<0.05$). Sözlü bilgilendirme grubundaki hastaların işleme uyumlarının diğer gruplara göre daha iyi olduğu ve aradaki farkın istatistiksel olarak anlamlı olduğu tespit edildi ($p<0.05$).* ***Sonuç:*** *Bu bilgiler doğrultusunda; hastalara verilen sözlü bilginin hastanın işlemi algılamasına, anksiyete düzeyine ve işleme uyumuna olumlu etkileri nedeniyle, endoskopi işlemi öncesinde hastaların sözlü bilgilendirilmesi önerilebilir.*

Anahtar kelimeler: Üst gastrointestinal endoskopi, bilgilendirme, işlemi algılama, işleme uyum, anksiyete

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INTRODUCTION

Upper gastrointestinal endoscopy (UGE) is an effective and reliable procedure that is widely used for the diagnosis and treatment of gastrointestinal disorders (1,2). However, UGE is a difficult, stressful, anxiety-associated, and unpleasant diagnostic and therapeutic method (3,4). In not providing adequate information about endoscopic procedures, anxiety, fear and worry may lead to poor compliance and reduce the patient's tolerance. This situation destroys the communication between the patient and the endoscopy team, decreases the comfort of the patient, and prevents an optimal performance by the endoscopist (3,5).

Patients experience anxiety prior to surgical and gastrointestinal procedures due to the fear of pain and/or to the negative past experiences of those around them. Anxiety is defined as an emotional state of fear, tension, panic, or anticipation of an unpleasant experience (6). The best way to reduce the anxiety of the patient is to inform the patient about the procedure and provide psychological support during the procedure (7,8). Education of the patient prior to the procedure about the things they will see, hear and feel during UGE has a significant role in reducing their anxiety and fear. The aim of the procedure, nature and frequency of the possible complications, as well as the expected benefits of the procedure should be explained to the patient in detail (9,10). By taking the factors that might reduce compliance into account, an effective education should be given depending on the patient's individual needs, and the patient should be assisted in order to establish good compliance throughout the procedure.

We aimed to evaluate the effects of providing information, as well as the type of information provided, prior to UGE on the patient's perception, compliance and level of anxiety.

MATERIALS AND METHODS

Design

This study was conducted as a randomized controlled trial in patients admitted to Gaziantep University, Sahinbey Research and Training Hospital, Department of Gastroenterology, Endoscopy Unit for UGE. The exclusion criteria included inability to communicate, illiteracy, healthcare professionals, family members of a healthcare professional, referral from the emergency department or other departments, and previous endoscopy procedure. The patients were numbered according to their application to the endoscopy unit and were allocated into three groups using a random table of numbers. Patients in Group I were not informed about the procedure (controls), patients in Group II were informed about the procedure in written form, and patients in Group III were informed about the procedure with verbal explanation. The study was conducted on a total of 300 patients, with 100 patients in each group. Informed consent was obtained from all the patients included in the study.

Data collection

Data were collected using the following forms: a patient description form that was prepared by the investigators and consisted of questions pertaining to sociodemographic variables and the procedure; perception about the procedure form consisting of questions about procedure-related opinions before and after the procedure; State/Trait Anxiety Inventory (STAI) developed by Spielberger, adapted to the Turkish population, and confirmed for reliability and validity by Oner and Le Compte (11) in order to determine the level of anxiety; and procedure evaluation form consisting of the Visual Analogue Scale (VAS), which was completed both by the patient and the physician after the procedure (12).

The patient information prepared by the British Society of Gastroenterology was used as an informed consent form. The form was translated into Turkish before use and modified into its latest version after conducting a pilot trial. This form included information about the nature and purpose of the procedure, the way in which it is performed, the duration of the procedure, the preparatory steps before the procedure and what to consider after the procedure, the possible complications of the procedure, and the prospective feelings of the patient at the time of the procedure.

Statistical analysis

Statistical analysis of the data was performed using SPSS 10.0. We performed a chi-square test, paired sample t-test and one-way ANOVA to compare the groups, and Tukey's HSD was used for advanced analyses. $P<0.05$ was accepted as significant.

RESULTS

The distribution of patients according to their sociodemographic features is shown in Table 1. The-

Table 1. Distribution of the patients by group and sociodemographic features

Features	Group I n (%)	Group II n (%)	Group III n (%)	Total n (%)	Test of significance
Age (years)					
18-30	48 (48.0)	40 (40.0)	40 (40.0)	128 (42.7)	x^2=4.494; p=0.069
31-43	31 (31.0)	32 (32.0)	33 (33.0)	96 (32.0)	
≥44	21 (21.0)	28 (28.0)	27 (27.0)	76 (25.3)	
Gender					
Female	50 (50.0)	40 (40.0)	52 (52.0)	142 (47.3)	x^2=3.316; p=0.191
Male	50 (50.0)	60 (60.0)	48 (48.0)	158 (52.7)	
Educational status					
Illiterate	6 (6.0)	5 (5.0)	16 (16.0)	27 (9.0)	x^2=11.726; p=0.085
Primary	42 (42.0)	36 (36.0)	32 (32.0)	110 (36.6)	
Secondary	29 (29.0)	38 (38.0)	38 (38.0)	95 (31.7)	
College	23 (23.0)	21 (21.0)	24 (24.0)	68 (22.7)	
Living environment					
Village	5 (5.0)	7 (7.0)	8 (8.0)	20 (6.3)	x^2=2.935; p=0.596
Town	10 (10.0)	15 (15.0)	11 (11.0)	36 (12.0)	
City	85 (85.0)	78 (78.0)	81 (81.0)	244 (81.7)	
Total	100 (100.0)	100 (100.0)	100 (100.0)	300 (100.0)	

re were no statistically significant differences between the three groups in terms of sociodemographic parameters (p>0.05). 57.3% of the patients in the study population had reported anxiety related with the procedure, and stated the reasons for their anxiety as follows: not knowing the procedure (53.5%); being afraid of an injury to their organs (24.4%); and negative comments about endoscopy (22.1%).

Among the study population, 64.7% wished to see the place where the procedure would be performed prior to the intervention, 62.7% wished to see the devices that would be used during endoscopy, 80.3% wished to know the possible risks associated with the procedure, and 93.3% wanted an explanation of the procedure (77.5% preferred a verbal explanation of the procedure). Furthermore, 52.3% of the patients wanted to speak with other people who had undergone endoscopy previously. When the reasons were asked, 36.9% responded "to learn the procedure", 25.5% responded "to know what will be done to me", and 37.6% responded "to learn that there is nothing to be afraid of". Among the study population, 65.3% wanted the presence of a family member to support them during the procedure. When the patients were asked about their expectations from the staff, 71.4% wanted the staff to explain the procedure to them, while 16.3% wanted the staff to listen to them, and 12.3% wanted the staff to be more supportive during the procedure.

The patients who were verbally informed evaluated endoscopy as an examination method, and considered endoscopy as a necessary procedure for diagnosis. It was also noted that these patients knew the position, possible risks and risk-related symptoms of the procedure more accurately when compared to the other groups (p<0.05; Table 2).

Most of the patients in the verbal information group did not think the procedure would take long, thought that they would feel secure during the procedure, and thought that they would not regret that they had accepted the intervention. Fewer patients mentioned that they thought the procedure would be repeated and that the results would be unfavorable (Table 3).

When compared to the other groups, fewer patients in the verbal information group experienced pain, considered the procedure to be difficult, thought that the procedure took long, experienced breathing difficulties during the procedure, regretted that they had the procedure done, or could not tolerate the procedure. When compared to the other groups, more patients in the control group stated that they were harmed by the procedure and that they did not feel secure during the procedure (Table 4).

The distributions of mean satisfaction, evaluation, anxiety, and compliance scores of the patients according to study groups are presented in Table 5. It was found that the mean satisfaction score was highest in patients in the verbal information group,

Table 2. Distribution of the patients by group and knowledge of the procedure prior to intervention

Features	Group I n (%)	Group II n (%)	Group III n (%)	Total n (%)	Test of significance
What is endoscopy?*					
It is an examination method	57 (57.0)	69 (69.0)	*84 (84.0)	210 (70.0)	x^2=17.429; p=0.000
It is a treatment method	43 (43.0)	31 (31.0)	16 (16.0)	90 (30.0)	
Opinion about endoscopy					
I am afraid because I don't know the procedure	41 (41.0)	19 (19.0)	*7 (7.0)	67 (22.4)	x^2=93.764; p=0.000
It is a necessary procedure for diagnosis	11 (11.0)	27 (27.0)	71 (71.0)	109 (36.3)	
No response	48 (48.0)	54 (54.0)	27 (27.0)	129 (41.3)	
Position during the procedure					
Knows	7 (7.0)	34 (34.0)	*90 (90.0)	131 (43.7)	x^2=145.91; p=0.000
Does not know	93 (93.0)	66 (66.0)	10 (10.0)	169 (56.3)	
Risks of procedure					
Knows	5 (5.0)	11 (11.0)	*67 (67.0)	83 (27.7)	x^2=116.86; p=0.000
Does not know	95 (95.0)	89 (89.0)	33 (33.0)	217 (72.3)	
Risk-related symptoms					
Knows	5 (5.0)	11 (11.0)	*67 (67.0)	83 (27.7)	x^2=116.86; p=0.000
Does not know	95 (95.0)	89 (89.0)	33 (33.0)	217 (72.3)	
Total	100 (100.0)	100 (100.0)	100 (100.0)	300 (100.0)	

*The group causing significant difference

Table 3. Distribution of the patients by group and perception of the procedure prior to intervention

Features	Group I n (%)	Group II n (%)	Group III n (%)	Total n (%)	Test of significance
It will take long					
Yes	69 (69.0)	55 (55.0)	*36 (36.0)	160 (53.3)	x^2=22.045; p=0.000
No	31 (31.0)	45 (45.0)	64 (64.0)	140 (46.7)	
I will regret that I had the procedure					
Yes	32 (32.0)	21 (21.0)	*10 (10.0)	63 (21.0)	x^2=14.587; p=0.001
No	68 (68.0)	79 (79.0)	90 (90.0)	237 (79.0)	
It will have to be repeated					
Yes	42 (42.0)	48 (48.0)	*18 (18.0)	108 (36.0)	x^2=21.875; p=0.000
No	58 (58.0)	52 (52.0)	82 (82.0)	192 (64.0)	
Results will be poor					
Yes	56 (56.0)	45 (45.0)	*26 (26.0)	127 (42.3)	x^2=18.870; p=0.000
No	44 (44.0)	55 (55.0)	74 (74.0)	173 (57.7)	
Total	100 (100.0)	100 (100.0)	100 (100.0)	300 (100.0)	

*The group causing significant difference

whereas the mean satisfaction score of patients in the written information group was higher than in the controls. The mean procedure evaluation score of patients in the verbal information group was significantly higher, and the mean anxiety scores before and after the procedure were lower than in the other groups. No significant differences were found between the three groups in terms of mean anxiety score difference before and after the procedure. In other words, providing information did not seem to influence the reduction in mean anxiety scores after the procedure. The mean compliance score of patients in the verbal information group was highest, while the mean compliance score of patients in the written information group was higher than in the controls.

DISCUSSION

Being perceived as a threatening event, UGE leads to anxiety in patients who do not know the procedure and worry about the results (13). Gebbensleben and Rohde (14) reported that 67% of the patients experienced anxiety before gastrointestinal endoscopy, and 49% of these patients experienced excessive anxiety. The reasons for anxiety were previous unpleasant endoscopy experience, rumors

Table 4. Distribution of the patients by group and perception of the procedure following intervention

Features	Group I n (%)	Group II n (%)	Group III n (%)	Total n (%)	Test of significance
It was painful					
Yes	78 (78.0)	69 (69.0)	*49 (49.0)	196 (65.3)	x^2=19.456;
No	22 (22.0)	31 (31.0)	51 (51.0)	104 (34.7)	p=0.000
It was difficult					
Yes	85 (85.0)	76 (76.0)	*57 (57.0)	218 (72.7)	x^2=20.575;
No	15 (15.0)	24 (24.0)	43 (43.0)	82 (27.3)	p=0.000
It took long					
Yes	49 (49.0)	37 (37.0)	21 (21.0)	107 (35.7)	x^2=17.200;
No	51 (51.0)	63 (63.0)	79 (79.0)	193 (64.3)	p=0.000
I was harmed					
Yes	*35 (35.0)	24 (24.0)	14 (14.0)	73 (24.3)	x^2=11.985;
No	65 (65.0)	76 (76.0)	86 (86.0)	227 (75.7)	p=0.002
I experienced breathing difficulties					
Yes	67 (67.0)	63 (63.0)	*33 (33.0)	163 (54.3)	x^2=27.836
No	33 (33.0)	37 (37.0)	67 (67.0)	137 (45.7)	p=0.000
I felt secure					
Yes	*60 (60.0)	75 (75.0)	82 (82.0)	217 (72.3)	x^2=12.626;
No	40 (40.0)	25 (25.0)	18 (18.0)	83 (27.7)	p=0.002
I regret that I had the procedure done					
Yes	42 (42.0)	30 (30.0)	*9 (9.0)	81 (27.0)	x^2=28.311;
No	58 (58.0)	70 (70.0)	91 (91.0)	219 (73.0)	p=0.000
I could tolerate the procedure					
Yes	38 (38.0)	50 (50.0)	*70 (70.0)	158 (52.7)	x^2=20.966;
No	62 (62.0)	50 (50.0)	30 (30.0)	142 (47.3)	p=0.000
Total	100 (100.0)	100 (100.0)	100 (100.0)	300 (100.0)	

*The group causing significant difference

Table 5. Mean satisfaction, evaluation, anxiety, and compliance scores of the patients by group

	Group I	Group II	Group III	Test of significance
Satisfaction	60.70±1.63	72.48±1.68	91.51±1.05	F=134.433, p=0.000
Evaluation of the procedure (patient)	45.01±1.71	51.10±1.82	70.75±1.81	F=56.502, p=0.000
STAI prior to the procedure	47.44±0.99	44.04±1.09	38.76±1.05	F=17.333, p=0.000
STAI following the procedure	40.05±1.01	37.40±0.69	33.85±0.83	F=13.897, p=0.000
Before-after procedure	7.39±0.96	6.64±0.86	5.66±1.00	F=0.419, p=0.658
Compliance with the procedure	52.53±2.41	64.81±1.95	79.71±1.62	F=40.659, p=0.000

about endoscopy and a fear of the procedure rather than its results. When patients were asked about what to do to reduce their anxiety, 63% wanted a sedative, 21% wanted detailed information about the procedure, 19% wanted a tranquilizing environment, and 19% wanted a family member present beside them during the procedure. Drossman et al. (15) reported that 60% of the patients experienced anxiety before UGE, and the reasons behind this included false result, fear of pain and detection of cancer-related findings. Our findings that most of the patients experienced procedure-related anxiety before the intervention due to not understanding the procedure, feared the procedure would harm other organs, and were concerned about negative rumors regarding the procedure were compatible with the previous studies.

Patients have the right to be informed in a simple language about every kind of diagnostic and therapeutic procedure performed. Patients also have the right to accept or refuse the procedure after receiving this information. Mayberry and Mayberry (16) reported that 58 of 81 endoscopy patients preferred that the physician provide information about the procedure verbally, and 53% thought that the risks associated with the procedure should be

explained. They noted that the subjects wished to receive information, including the necessity of the procedure, the common risks associated with the procedure, how the procedure is performed, the uncommon risks, and the dangers associated with the procedure. It was found in our study that while most of our patients wanted to know the risks of the procedure, almost all of them wanted an explanation of the procedure. Most of the patients preferred a verbal explanation. The expectations of patients from the staff included an explanation of the procedure, having the opportunity to express their emotions and constant presence throughout the procedure. As understood from these findings, patients need information about the procedure and how it is performed as well as about the possible risks associated with the procedure. Their expectations are towards meeting their information needs.

In order to have sufficient information, the information should cover issues such as the nature, risks, benefits, and alternatives of the procedure. Bassi et al. (17) evaluated the distribution of data obtained from the informed consent form used in diagnostic gastrointestinal endoscopy patients and found that 98.5% of the patients had received sufficient information about the content of the procedure, 92% of the patients had received sufficient information about the necessity of the procedure, 65% had received information about the risks of the procedure, and 50% had received information about the alternatives of the procedure. In our study, it was found that significantly more patients in the verbal information group answered questions accurately about endoscopy-related information compared to the other groups. These patients considered that the procedure would not take long, that they would not regret having the procedure, and that they would experience less anxiety associated with the results of the procedure. On the other hand, a significantly fewer number of patients in the control group considered that they would feel secure during the procedure. These results suggest that providing verbal information to the patients is effective in increasing knowledge about the nature and duration of the procedure, helping them to feel secure, and reducing their anxiety associated with the results of the procedure.

When compared to the other groups, significantly fewer patients in the verbal information group experienced pain, considered the procedure to be difficult, considered that the procedure took too long, experienced breathing difficulties during the procedure, regretted having the procedure, or could not tolerate the procedure. In addition, compared to the other groups, significantly more patients in the control group stated that they were harmed by the procedure and did not feel secure during the procedure. If the patient is informed about what they will experience in each stage of the procedure, they would better understand that they are not the only ones to experience this process and that everyone having the same procedure might have experienced similar conditions. In case of a known dangerous situation, providing detailed information can be very helpful in dealing with the situation (13). The informed patient is more likely to handle the situation when faced with an issue. In contrast, an uninformed or inadequately informed patient may perceive their situation as unexpected and may consider a normal disturbance as abnormal and thus as a complication of the procedure.

In the study by Bassi et al. (17), the effect of the informed consent form on the level of satisfaction was investigated in endoscopy patients, and it was found that 48% of the patients signed the form without reading it, 74% of the patients were satisfied with the information stated in the form, and 32% of the patients were not satisfied, citing insufficient information regarding the risks of the procedure. Furthermore, the level of satisfaction was significantly higher in patients who read the consent form when compared to the patients who did not read the form.

In a study performed by Pager (18), patients were informed by video images prior to cataract surgery, and it was found that informed patients had significantly less anxiety and greater satisfaction, perceived the procedure as better, and felt much better when compared to the control group. In the present study, we also found that the patients were more satisfied and evaluated the procedure as being easier.

Anxiety is a state of fear and concern arising from a disease or hospitalization. Diagnostic tests are one of the sources of anxiety for patients. Providing information is the most important and effective intervention in reducing a patient's anxiety and stress. It has been demonstrated in previous studies that providing information before surgery reduces pain and stress induced by the surgical intervention and reduces the anxiety level before the application of diagnostic procedures. In a study performed by Gillies and Baldwin (19), it was fo-

und that the anesthesia information pamphlet given to the patients before the operation prevented the enhancement of the patient's anxiety in the pre-operative period.

Gastroscopy is a widely used diagnostic procedure that provokes anxiety (20). Jones et al. (21) found that the anxiety level is increased before the endoscopy procedure. Anxiety related with the procedure develops as a result of fear of pain and discomfort during the procedure and inadequate knowledge about the process. It has been known that the information provided to the patients prior to gastroscopy, about both the procedure itself and the expected sensations during the procedure, had beneficial effects on the patients. The reason for doing the procedure and the manner of performing the procedure should be explained to the patient, including the possible feelings that the patient might experience (20). Levy et al. (22) divided the patients into five different groups according to their enlightenment prior to the gastroscopy procedure as patients having: no information, simple information, detailed information, detailed information using figures, and detailed information using video images. However, no difference was found between the groups in terms of anxiety scores, and they concluded that detailed information did not reduce the anxiety of the patients. Lanius et al. (23) found no significant difference between the anxiety levels of patients prior to gastrointestinal endoscopy in the presence and absence of a pamphlet. Therefore, they suggested that providing individual information, instead of distributing an information pamphlet, might be more effective in reducing the anxiety level.

In a study performed by Munch et al. (24) in which the gastrointestinal endoscopy patients were informed using a computer, it was detected that the anxiety level of 60% of the patients decreased significantly, and 96% of the patients stated that they felt calmer as a result of this education. Trevisani et al. (25) conducted a study by allocating UGE patients into four groups as: control group, sedative medication-applied group, family member present in the procedure room group, and educated group via video images. The patients who used a sedative had the highest and the education group had the lowest level of anxiety, and the source of the difference was found to have arisen from the patients in the sedative medication group. This result demonstrated that providing information is effective in reducing the anxiety level of patients before the procedure. Riddhiputra and Ukarapol (26) provided detailed information by using visual materials to the families of children who would undergo gastrointestinal endoscopy and found that the anxiety level was significantly low in the informed families.

In the present study, since the anxiety level of the patients in the verbal information group was lower than in the other groups, it is suggested that verbal information is more effective in reducing anxiety compared to written information. The reason for the superior effect of verbal information might be attributed to the fact that the patients can ask questions, share their worries and fears, and also receive clarification about any poorly understood subjects during the verbal explanation. Another reason might be the possibility of patients not reading the written information form. The mean anxiety score was decreased in all three groups after the procedure. However, no significant differences were found between the groups in terms of the mean anxiety score difference before and after the procedure. This result shows that providing information did not seem to influence the reduction in the mean anxiety scores after the procedure. The reduction in anxiety after the procedure might be explained by the disappearance of the conditions causing anxiety. The significant difference between the three groups in terms of the mean physician-rated compliance to procedure VAS score suggests that providing information in some way increases compliance with the procedure and that verbal information is more effective than written information in establishing compliance with the procedure. The reason behind the superior effect of providing verbal information can be explained by the clarification of the patient's questions about when and how to behave during the procedure and the opportunity for clarification of any issues that were not well understood.

In conclusion, endoscopy is an interventional procedure that is a source of stress for patients, thus leading to anxiety as a physiologic response. Providing verbal information to patients is important in order to give accurate information about the endoscopy, reduce anxiety, facilitate patient compliance, increase satisfaction, help the patient feel better and better understand the procedure, and increase the feeling of trust. The provided information will reduce the patient's anxiety and facilitate his/her compliance with the procedure. As a result, the need for repeated procedures will be avoided, and the diagnosis and treatment time will be reduced.

REFERENCES

1. Smith P. Traditions, trends, tomorrow. Gastroenterol Nurs 2002; 25: 81-2.
2. Axon ATR, Jones RH, Quine MA, et al. Guidelines on appropriate indications for upper gastrointestinal endoscopy. BMJ 1995; 310: 853-6.
3. Yamada T. Endoscopy. Handbook of Gastroenterology. USA: Lippincott Williams &Wilkins, 2002; 667-80.
4. Classen M. Informed consent for gastroenterological endoscopy. In: Classen M, Tytgat GNJ, Lightdale CJ, eds. Gastroenterological Endoscopy. New York: Thieme, 2002; 72-9.
5. Abuksis G, Mor M, Segal N, et al. A patient education program is cost-effective for preventing failure of endoscopic procedures in a gastroenterology department. Am J Gastroenterol 2001; 97: 1786-90.
6. De Jong-Watt WJ, Arthur HM. Anxiety and health-related quality of life in patients awaiting elective coronary angiography. Heart Lung 2004; 33: 237-48.
7. Salmore RG, Nelson JP. The effect of preprocedure teaching, relaxation instruction and music on anxiety as measured by blood pressures in an outpatient gastrointestinal endoscopy laboratory. Gastroenterol Nurs 2000; 23: 102-10.
8. Moline LR. Patient psychologic preparation for invasive procedures: an integrative review. J Vasc Nurs 2000; 18: 117-22.
9. Chair SY, Thompson DR. Patient teaching prior to coronary angiography in Hong Kong: a pilot study. J Clin Nurs 2005; 14: 114-5.
10. Shepherd HA, Bowman D, Hancock B, et al. Postal consent for upper gastrointestinal endoscopy. Gut 2000; 46: 37-9.
11. Oner N, Le Compte A. State/Trait Anxiety Inventory Handbook (in Turkish, Süreksiz Durumluk/Sürekli Kaygı Envanteri El Kitabı). İstanbul: Boğaziçi Üniversitesi Yayınları, 1985.
12. Özgüven IE. Stress and anxiety scales and sociometric, psychologic tests (in Turkish), Ankara: Yeni Doğuş Matbaası, 1994; 321-324.
13. Vliet MJ, Grypdonck M, Zuuren FJ, et al. Preparing patients for gastrointestinal endoscopy: the influence of information in medical situations. Patient Educ Couns 2004; 52: 23-30.
14. Gebbensleben B, Rohde H. Anxiety before gastrointestinal endoscopy-a significant problem? Dtsch Med Wochenschr 1990; 115: 1539-44.
15. Drossman DA, Brandt LJ, Sears C, et al. A preliminary study of patients' concerns related to GI endoscopy. Am J Gastroenterol 1996; 91: 287-91.
16. Mayberry MK, Mayberry JF. Towards better informed consent in endoscopy: a study of information and consent processes in gastroscopy and flexible sigmoidoscopy. Eur J Gastroenterol Hepatol 2001; 13: 1467-76.
17. Bassi A, Brown E, Kapoor N, et al. Dissatisfaction with consent for diagnostic gastrointestinal endoscopy. Dig Dis 2002; 20: 275-9.
18. Pager CK. Randomised controlled trial of preoperative information to improve satisfaction with cataract surgery. Br J Ophthalmol 2005; 89: 10-3.
19. Gillies MA, Baldwin FJ. Do patient information booklets increase preoperative anxiety? Eur J Anaesthesiol 2001; 18: 620-2.
20. Clements H, Melby V. An investigation into the information obtained by patients undergoing gastroscopy investigations. J Clin Nurs 1998; 7: 333-42.
21. Jones MP, Ebert CC, Sloan T, et al. Patient anxiety and elective gastrointestinal endoscopy. J Clin Gastroenterol 2004; 38: 35-40.
22. Levy N, Landmann L, Stermer E, et al. Does a detailed explanation prior to gastroscopy reduce the patient's anxiety? Endoscopy 1989; 21: 263-5.
23. Lanius M, Zimmermann P, Heegewaldt H, et al. Does an information booklet on gastrointestinal endoscopy reduce anxiety for these examinations? Results of a randomized study with 379 patients. Z Gastroenterol 1990; 28: 651-5.
24. Munch R, Sabri A, Altorfer J. Experiences with a computer-assisted concept for patient education in gastroenterologic endoscopy. Schweiz Rundsch Med Prax 1997; 20: 1296-300.
25. Trevisani L, Sartori S, Gaudenzi P, et al. Upper gastrointestinal endoscopy: are preparatory interventions or conscious sedation effective? A randomized trial. World J Gastroenterol 2004; 10: 3313-7.
26. Riddhiputra P, Ukarapol N. Effect of systematic psychological preparation using visual illustration prior to gastrointestinal endoscopy on the anxiety of both pediatric patients and parents. J Med Assoc Thai 2006; 89: 231-5.