

# Assessment of Patient Anxiety Levels Before and After Stoma Surgery

## Stoma Cerrahisi Öncesi ve Sonrası Hastaların Anksiyete Düzeylerinin Değerlendirilmesi

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### ABSTRACT

**Aim:** Preoperative education is one of the methods used to reduce anxiety levels. This study was planned to investigate the effect of preoperative education on the anxiety levels of patients undergoing planned colorectal surgery with creation of an intestinal stoma.

**Method:** The study population consisted of patients admitted to the general surgery department of a university hospital between 9 June 2013 and 15 August 2014 for planned colorectal surgery with stoma creation. The study sample consisted of 30 patients in the experimental group (received preoperative education) and 30 patients in the control group who met the inclusion criteria. Scheduled trainings were given to the experimental group during the preoperative period using a training booklet on stoma care. The Spielberger State-Trait Anxiety Inventory (STAI form TX-1/2) was administered to all patients preoperatively and six months after surgery.

**Results:** Mean age of the patients was  $53.5 \pm 12.83$  years in the experimental group, and  $58.00 \pm 14.22$  years in the control group. Mean preoperative STAI form TX-1 scores of the experimental and control groups were  $37.10 \pm 3.57$  and  $42.70 \pm 2.02$ , respectively. Mean preoperative STAI form TX-2 scores in the experimental and control groups were  $37.00 \pm 2.00$  and  $47.83 \pm 3.37$ , respectively. Six months after surgery, the experimental and control groups had mean STAI form TX-1 scores of  $37.17 \pm 5.38$  and  $41.93 \pm 3.02$  and mean STAI form TX-2 scores of  $39.73 \pm 5.02$  and  $48.00 \pm 2.33$ , respectively. Preoperative STAI form TX-1 and 6-month postoperative STAI form TX-1/2 scores were significantly higher in the control group than in the experimental group ( $p < 0.05$ ).

**Conclusion:** Based on the results obtained, patients who underwent stoma surgery experienced anxiety, and preoperative education decreased patients' anxiety levels in the postoperative period.

**Keywords:** Stoma, anxiety, State-Trait Anxiety Inventory

### ÖZ

**Amaç:** Ameliyat öncesi dönemde verilen eğitim anksiyete seviyesini düşürmek için uygulanan yöntemlerden biridir. Bu araştırma planlı kolorektal cerrahi sonrası stoma açılacak olan hastalara ameliyat öncesi verilen eğitimin hastaların anksiyete düzeyine etkisini incelemek amacıyla planlanmıştır.

**Yöntem:** Araştırmanın evrenini 9 Haziran 2013-15 Ağustos 2014 tarihleri arasında bir üniversitede hastanesinin genel cerrahi anabilim dalında planlı kolorektal cerrahi ameliyatı için yarıştı yapılan stoma açılacak olan hastalar, örneklemi araştırmanın sınırlılıklarına ulyan 30'u deney (ameliyat öncesi eğitim alan), 30'u kontrol grubunda yer alan hastalar oluşturdu. Deney grubundaki hastalara ameliyat öncesi dönemde stoma bakımına yönelik eğitim kitapçığı kullanılarak planlı eğitim verildi. Tüm hastalara ameliyat öncesi ve ameliyattan 6 ay sonra Spielberger Durumluk-Sürekli Kaygı Ölçeği (STAI form TX-1/2) uygulandı.

**Bulgular:** Deney grubundaki hastaların yaş ortalaması  $53,5 \pm 12,83$ ; kontrol grubundaki hastaların yaş ortalaması  $58,00 \pm 14,22$  yıldır. Deney grubundaki hastaların ameliyat öncesi STAI form TX-1 puan ortalaması  $37,10 \pm 3,57$ , kontrol grubunun  $42,70 \pm 2,02$ , deney grubundaki STAI form TX-2 puan ortalaması  $37,00 \pm 2,00$ , kontrol grubunun  $47,83 \pm 3,37$  olduğu saptandı. Ameliyattan 6 ay sonra deney grubundaki hastaların STAI form TX-1 puan ortalaması  $37,17 \pm 5,38$ , kontrol grubunun  $41,93 \pm 3,02$ , deney grubundaki STAI form TX-2 puan ortalaması  $39,73 \pm 5,02$ , kontrol grubunun  $48,00 \pm 2,33$  olduğu saptandı. Ameliyat öncesi STAI form TX-1 ve ameliyattan 6 ay sonraki STAI form TX-1/2 puanları kontrol grubundaki hastalarda deney grubundaki hastalara göre anlamlı derecede yüksek olduğu saptandı ( $p < 0,05$ ).

**Sonuç:** Elde edilen sonuçlara göre stoma cerrahisi geçiren hastaların anksiyete yaşadığı, ameliyat öncesi verilen eğitimin ameliyat sonrası dönemde hastaların anksiyetesini azalttığı saptanmıştır.

**Anahtar Kelimeler:** Stoma, anksiyete, Durumluk-Sürekli Kaygı Ölçeği

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## Introduction

Defecation is one of our physiological needs and has an important place in living a healthy life.<sup>1,2</sup> In healthy individuals, bowel movements and bowel continence are under their control.<sup>3</sup> Any problems that may develop in bodily functions may hinder an individual's ability to meet their needs, forcing them to change their lifestyle. One of the surgeries aimed at correcting dysfunction of the human body is the creation of an intestinal stoma.<sup>1,3</sup> An individual, whether male or female, scheduled for stoma surgery may experience many psychological problems including anxiety, fear, loss of body image, and depression.<sup>4</sup>

Preoperative anxiety has been reported in 60-80% of patients.<sup>5,6</sup> Most patients exhibit varying degrees of anxiety before surgery. This anxiety and fear may be related to anesthesia, or to various other factors such as the patient's previous experiences, personality traits, and type of surgery planned.<sup>7</sup> The situation may be different when the patient is going to have a stoma. Someone who will have a stoma is anxious about changes in their physical appearance and about losing control over their bowel functions, which they have had since childhood.<sup>8,9</sup> Preoperative education may be beneficial in reducing this anxiety, facilitating patients' recovery, and increasing their quality of life.<sup>4,10</sup> This study is a semi-experimental study aimed at analyzing the impact of preoperative education on the anxiety levels of patients scheduled for colorectal surgery involving stoma formation.

## Materials and Methods

The study was conducted after obtaining approval from the Clinical Research Ethics Committee of the Ege University Faculty of Medicine Hospital (ethics committee approval number: 13-2/8). The universe of the study included patients admitted to the general surgery ward of a university hospital between 9 June 2013 and 15 August 2014 for scheduled colorectal surgery with stoma formation. The study sample included 60 patients, 30 in the experimental group (who had preoperative education) and 30 in the control group, who met the inclusion criteria and were selected by randomized controlled sampling. Patients were assigned to the experimental and control groups using sealed envelopes containing group designations. The envelopes were selected by the ward nurse in a lottery system. The patients in the study did not know which group they were in.

Inclusion criteria were;

- Scheduled for colorectal surgery including stoma formation,
- Able to understand and communicate in Turkish,
- Volunteered to participate in the study and completed an informed written consent form,

- Over 18 years of age,
- Had no diagnosed psychiatric disorder,
- Had no vision or hearing problems,
- Were literate,
- Agreed to 6 months of follow-up.

In meetings held the day before surgery, patients in both groups signed the informed consent form and filled out a patient information form including their age, gender, education level, chronic diseases, marital status, employment status, number of children, and previous surgical history. Patients in the control group were assessed using the Spielberger State-Trait Anxiety Inventory (STAI) form TX-1/2. Patients in the experimental group first received preoperative education regarding stoma care based on a training manual, after which the STAI TX-1/2 was used. The STAI form has two sections, the state anxiety scale (STAI form TX-1) and trait anxiety scale (STAI form TX-2), each containing 20 questions. The STAI form TX-1 measures how the individual feels at a certain moment and under certain circumstances, while the STAI form TX-2 measures how the individual feels independent of their current situation and circumstances. Validity and reliability studies for the Turkish version of the STAI were performed by Öner and LeCompte.<sup>11</sup> According to STAI score thresholds, scores of 0-19 are considered no anxiety, 20-39 points represents mild anxiety, 40-59 points is interpreted as moderate anxiety, 60-79 points is considered severe anxiety, scores of 80 or higher indicate panic and crisis.

After completing the forms, the patients in the experimental group underwent anatomic evaluation and stoma site marking based on each patient's individual characteristics, performed by the researcher. In addition to the routine education given in the clinic, the patients also received preoperative education based on a training manual about stoma care prepared according to the literature. Three days after surgery, the patients watched an educational DVD created by the Wound, Ostomy and Incontinence Nurses Society. Patients with ileostomy watched a 15-minute educational DVD about how to change a two-piece ileostomy bag system<sup>12</sup> and patients with colostomy watched a 12-minute educational DVD about how to change a single-piece colostomy bag system<sup>13</sup>. Before being discharged from the hospital, the patients were allowed to perform stoma care themselves under the researcher's supervision. Patients in the control group not have stoma site marking, received only the routine patient care provided in the clinic. Patients in both the experimental and control groups were reassessed with the STAI 6 months after stoma surgery to determine whether there were any changes.

The data obtained during the study were analyzed using the SPSS 20.0 software package. Comparisons of demographic variables and other qualitative and quantitative data between the experimental and control groups were done using descriptive statistical methods (number, percent, mean, standard deviation, median, minimum, maximum) and the results of normality tests were compared using Mann-Whitney U and chi-squared tests. Level of significance was accepted as 0.05, with  $p<0.05$  considered a significant difference between the groups.

## Results

The research was conducted with 60 patients. Mean age of the patients in the experimental group ( $n=30$ ) was  $53.5\pm12.83$  years and that of the patients in the control group ( $n=30$ ) was  $58.00\pm14.22$  years. Cancer was the reason for creating a stoma in 76.6% ( $n=23$ ) of the patients in the experimental group and in 86.6% ( $n=26$ ) of those in the control group. The patients' demographic data are summarized in Table 1. Analysis of group homogeneity showed that there were no statistically significant differences between patients in the experimental and control groups in terms of descriptive characteristics such as age, gender, marital status, or employment status ( $p>0.05$ ).

Sixty percent of the patients in the experimental group had colostomy and 40% had ileostomy, whereas 63.33% of the patients in the control group had colostomy and 36.67% had ileostomy (Table 2). There was no statistically significant difference in stoma types between patients in the experimental and control groups ( $\chi^2=0.000$ ,  $p>0.05$ ).

In the experimental group, mean preoperative scores on the STAI TX-1 and -2 were  $37.10\pm3.57$  (min: 34.00, max: 53.00) and  $37.00\pm2.00$  (min: 34.00, max: 43.00), respectively; at 6 months postoperatively, mean STAI TX-1 and -2 scores were  $37.17\pm5.38$  (min: 31.00, max: 48) and  $39.73\pm5.02$  (min: 34.00, max: 50.00), respectively. In the control group, mean preoperative scores on the STAI TX-1 and -2 were  $42.70\pm2.02$  (min: 39.00, max: 46.00) and  $47.83\pm3.37$  (min: 40.00, max: 51.00) respectively; at postoperative 6 months, mean scores on the STAI TX-1 and -2 were  $41.93\pm3.02$  (min: 37.00, max: 46.00) and  $48.00\pm2.33$  (min: 48.00, max: 52.00), respectively.

There were statistically significant differences between the experimental and control groups in terms of both preoperative and 6-months postoperative mean STAI form TX-1/2 scores ( $p<0.05$ ). Preoperative state anxiety and 6-month postoperative state/trait anxiety scores were significantly higher in the control group than in the experimental group ( $p<0.05$ ) (Table 3).

Neither group showed significant differences in STAI form TX-1 or -2 scores based on gender, marital status, chronic diseases, or history of prior surgery ( $p>0.05$ ).

## Discussion

Stoma surgery is performed for palliative or treatment purposes in many diseases. Stomas are most commonly created due to colorectal cancer.<sup>14</sup> Individuals scheduled for stoma surgery experience various emotions such as anxiety, fear, negative body image, and depression, independent of their gender.<sup>8</sup> Preoperative education may help reduce these feelings, encourage more rapid recovery, and increase patients' quality of life.<sup>16</sup> Nurses can improve patients' quality of life by easing the pre- and postoperative anxiety of patients and their relatives, providing emotional support, recognizing potential problems early, and implementing appropriate nursing initiatives.<sup>7,10</sup>

Studies have demonstrated that patients who receive detailed information in the preoperative period have lower levels of postoperative anxiety and recover faster.<sup>7,17</sup> Our findings also show that anxiety levels are reduced when patients are provided information preoperatively.

In a study performed by Cheung et al.<sup>18</sup> with stoma patients, the state anxiety score in the intervention group was  $54.65\pm2.57$  after surgery before practicing progressive relaxation exercises, and  $31.27\pm3.11$  at postoperative 10 weeks, while that of the control group was  $51.03\pm10.96$  after surgery and  $42.83\pm4.24$  at postoperative 10 weeks. The anxiety scores of the patients in our study were found to be lower than the group of patients studied by Cheung et al.<sup>18</sup>

Beaver et al.<sup>19</sup> found that stoma patients followed in the hospital had state and trait anxiety scores of  $29\pm8.9$  and  $35.9\pm13.2$ , whereas patients followed by telephone had state and trait anxiety scores of  $28.5\pm8.1$  and  $31.3\pm10.8$ , respectively. The anxiety levels of the stoma patients in our study were higher than those reported by Beaver et al.<sup>19</sup>

In a study by Dayilar et al.,<sup>20</sup> the state anxiety score of patients scheduled for colon surgery was  $53.30\pm18.60$  and their trait anxiety score was  $50.24\pm7.83$ . In their study, the number of patients who had a stoma was not specified, and only the anxiety scores of patients undergoing colon surgery were analyzed preoperatively. One of the main sources of anxiety for the patients in that study was that the intestine would be connected to the abdomen with a stoma after the operation. The patients included in our study were aware that they would have a stoma. Fear of the unknown among patients in the study by Dayilar et al.<sup>20</sup> resulted in higher STAI form TX-1/2 scores compared to our study.

**Table 1.** Distribution of descriptive characteristics of patients in the experimental and control groups

		Group					
		Experimental		Control		Total	
		n	%	n	%	n	%
Age	20-40 years	6	20.00	4	13.33	10	16.67
	40-60 years	16	53.33	14	46.67	30	50.00
	60 and over	8	26.67	12	40.00	20	33.33
Gender	Female	13	43.33	13	43.33	26	43.33
	Male	17	56.67	17	56.67	34	56.67
Marital status	Married	23	76.67	24	80.00	47	78.33
	Single	7	23.33	6	20.00	13	21.67
Employment status	Employed	5	16.67	5	16.67	10	16.67
	Not employed	25	83.33	25	83.33	50	83.33
	Sibling	2	6.67	0	0.00	2	3.33
Parental status	Yes	25	83.33	27	90.00	52	86.67
	No	5	16.67	3	10.00	8	13.33
Prior surgery	Yes	19	63.33	15	50.00	34	56.67
	No	11	36.67	15	50.00	26	43.33
Chronic disease	Yes	28	93.33	24	80.00	52	86.67
	No	2	6.67	6	20.00	8	13.33
Surgery type	APR	12	40.00	8	26.67	20	33.33
	LAR + protective ileostomy	7	23.33	2	6.67	9	15.00
	Hartman	5	16.67	4	13.33	9	15.00
	Total colectomy	4	13.33	3	10.00	7	11.67
	Mikulicz	2	6.67	13	43.33	15	25.00
Stoma indication	Rectal cancer	11	36.67	21	76.66	32	53.33
	Colon cancer	9	30.00	3	10.00	12	20.00
	Ulcerative colitis	3	10.00	2	6.66	5	8.33
	Sigmoid cancer	4	13.33	3	10.00	7	11.66
	Anastomotic leakage	2	6.66	0	0.00	2	3.33
	Anal canal cancer	1	3.33	1	3.33	2	3.33

LAR: Low anterior resection, APR: Abdominoperineal resection

**Table 2.** Comparison of stoma types in patients in the experimental and control groups

		Group					
		Experimental		Control		Total	
		n	%	n	%	n	%
Stoma type	Colostomy	18	60.00	19	63.33	37	61.67
	Ileostomy	12	40.00	11	36.67	23	38.33

**Table 3.** Comparison of state and trait anxiety levels of patients in experiment and control groups by time

		Group		
		n	Mean	SD
Preoperative state anxiety level	Experimental	30	37.10	3.57
	Control	30	42.70	2.02
Preoperative trait anxiety level	Experimental	30	37.00	2.00
	Control	30	47.83	3.37
State anxiety level at postoperative 6 months	Experimental	30	37.17	5.38
	Control	30	41.93	3.02
Trait anxiety level at postoperative 6 months	Experimental	30	39.73	5.02
	Control	30	48.00	2.33

\*p<0.05, SD: Standard deviation

In conclusion, the findings of this study show that patients undergoing stoma surgery feel anxiety and that preoperative education reduces their anxiety in the postoperative period. Based on these results, we recommend regularly assessing stoma patients' anxiety levels, providing support for those with high levels of anxiety, and investigating the relationship between anxiety and the individuals' adaptation to life with a stoma.

## Ethics

**Ethics Committee Approval:** Ege University Faculty of Medicine Hospital Clinical Research Ethics Committee approval (approval number: 13-2/8).

**Informed Consent:** Informed consent form was obtained from the patients.

**Peer-review:** Externally peer-reviewed.

## Authorship Contributions

Surgical and Medical Practices: S.K.Ç., T.Ö., Concept: S.K.Ç., T.Ö., Design: S.K.Ç., T.Ö., Data Collection or Processing: S.K.Ç., Analysis or Interpretation: S.K.Ç., T.Ö., Literature Search: S.K.Ç., Writing: S.K.Ç., T.Ö.

**Conflict of Interest:** No conflict of interest was declared by the authors.

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