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RESEARCH ARTICLE

Depression, Anxiety, Sexual Dysfunction and Quality of Life in Patients with Ileostomy or Colostomy

İleostomi veya Kolostomisi Olan Hastaların Depresyon, Anksiyete, Cinsel İşlev Bozukluk Düzeyleri ve Yaşam Kaliteleri Düzeylerinin Saptanması

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ABSTRACT

Aim: Despite improved cure rates with oncological treatment, stomas (colostomy, ileostomy) are still a commonly used surgical procedure for the treatment of colorectal cancer patients. The aim of this study was to evaluate depression, anxiety, sexual dysfunction, and quality of life in patients with ileostomy and colostomy.

Method: The study was planned as a case-control, retrospective study. Survivors of colorectal cancer who underwent surgery with ostomy (ileostomy or colostomy) at one center were included in the study. The control group consisted of healthy volunteers. Depression, anxiety, and quality of life after treatment were assessed using validated questionnaires: the Beck Depression inventory, Beck Anxiety inventory, and Short-Form 36, respectively. Sexual function was measured using the validated questionnaires Arizona Sexual Experiences scale and Golombok-Rust inventory of Sexual satisfaction.

Results: A total of 50 patients (patient group) completed the questionnaires. The control group comprised 50 healthy volunteers. The mean anxiety score Beck Anxiety inventory was significantly higher in the patient group than in the control group (p=0.04). The mean Arizona Sexual Experiences scale score was significantly higher in the patient group than in control group (23.0±4.2 vs. 14.1±6.5, respectively; p=0.01). According to Golombok-Rust inventory of Sexual satisfaction, infrequent sexual intercourse was significantly more common among the patient group than in the control group (p=0.01). The patient group had significantly lower self-reported mental health and physical well-being than the control group (p=0.01 and 0.03).

Conclusion: It was found that patients who had ileostomy or colostomy had higher rates of anxiety symptoms, less sexual pleasure, more abstinence from sexual intercourse, and lower quality of life compared to healthy individuals.

Keywords: Depression, anxiety, sexual dysfunction, ileostomy, colostomy

ÖZ

Amaç: İleostomi veya kolostomi kolorektal kanser ameliyatlarında kullanılan yöntemlerdir. Bu araştırmada ileostomi veya kolostomi ameliyatı geçiren hastalarda depresyon, anksiyete, cinsel işlev bozukluk düzeyleri ve yaşam kaliteleri düzeyleri incelenmesi amaçlanmıştır.

Yöntem: Çalışma retrospektif olarak planlanmış olup çalışmaya tek merkezde kolorektal kanser nedeni ile ileostomi veya kolostomi ameliyatı geçiren hastalar ve kontrol grubu olarak sağlıklı bireyler alınmıştır. Katılımcılardan çalışmaya katılmaya gönüllü olanlara bilgilendirilmiş onam formu, sosyodemografik veri formu, Beck Depresyon ölçeği, Beck Anksiyete ölçeği, Yaşam Kalitesi formu, Arizona Cinsel Yaşantılar ölçegi, Golombok-Rust Cinsel Doyum ölçegi uygulanmıştır.

Bulgular: Çalışmaya 50 hasta ve kontrol grubu olarak 50 sağlıklı birey katılmıştır. Hasta ve kontrol grubun Beck Anksiyete ölçeği toplam puan ortalamasının sırasıyla 23,0±4,2, 14,1±6,5 olduğu ve hasta grubunun istatistiksel olarak anlamlı biçimde daha yüksel anksiyete puanına sahip olduğu saptanmıştır (p=0,01). Grupların, Arizona Cinsel Yaşantılar Ölçeği sonuçları incelendiğinde; hasta grubunun puan ortalaması 55,8±12,4 ve kontrol grubunun puan ortalaması 45,2±10,9 olarak bulunmuştur (p=0,04) ve istatistiksel olarak anlamlıdır. Yaşam Kalitesi formu değerlendirmesinde hasta grubunun ruhsal sağlıklılık ve fiziksel sağlıklılık bildirimlerinin kontrol grubuna göre istatistiksel olarak anlamlı biçimde daha düşük olduğu izlenmiştir (p=0,01 ve 0,03) ve sonuç istatistiksel olarak anlamlıdır.

Sonuç: Kolostomisi ya da ileostomisi olan hastaların daha fazla anksiyete belirtisi gösterdikleri, cinsel doyuma daha az ulaştıkları, cinsel birleşmeden daha fazla oranda kaçındıkları, yaşam kalitelerinin daha düşük olduğu saptanmıştır

Anahtar Kelimeler: Depresyon, anksiyete, cinsel disfonksiyon, ileostomi, kolostomi

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Introduction

Stomas (colostomy, ileostomy) are commonly used surgical procedure for treatment of colorectal cancer patients. After the operation some side effects such as changes in body image, dermatitis, stomal edema, stoma induced infection, bleeding, stomal ischemia and necrosis, stoma prolapse and stenosis may occur. As a result anxiety may develop in such patients, and this may lead to depression.[1] Depression feautures are not usually limited to emotional changes, it also affects many psychophysiological functions such as sexual function. Reduced sexual function is associated with lower quality of life in cancer survivors. As overall the prevalence of sexual dysfunction in men ranges between 10-52%, and in women between 25-63%.[2] These rates are reported to increase after rectal surgery as erectile dysfunction has been found in 77.3% of the patients. While erectile dysfunction after colostomy was 77%, it increased up to 85.5% in patients who had additionally radiotherapy.[3] The aim of this study was to evaluate depression, anxiety, sexual dysfunction and quality of life in patients with ileostomy and colostomy.

Materials and Methods

Study Design and Setting

The study was planned as a case-control, retrospective study. Database of all colorectal cancer patients who involved surgery with ileostomy or colostomy at one center from 2011 to 2014 were evaluataed for the study. Non-Interventional Research Ethics Committee of Üsküdar University approved the study, and all participants signed a written informed consent form before participation in the study.

Inclusion and Exclusion Criteria

Inclusion criteria were patients with colorectal cancer who underwent surgery with ostomy (ileostomy or colostomy) for any stage of colorectal cancer. Survivors (18-60 aged) treated with surgery [with or without (neo) adjuvant therapy] who not underwent ostomy closure and did not received psychological treatment were included. Patients who are more than 60 age, have loss of follow up, exitus, no sexual activity and those who underwent ostomy closure were excluded from the study. The control group consisted of healthy volunteers who were matched with the patients group in terms of age, gender, education and marital status.

Clinical Data

Information on age, gender, histological diagnosis, surgical procedure, eduacaction status and (neo)adjuvant treatment were obtained from the medical records of the patients who underwent surgery for colorectal cancer between 2011 and 2014 at one center. Depression, anxiety and quality of life after treatment were measured using the validated questionnaires of Beck Depression inventory (BDI), Beck Anxiety inventory (BAI) and Short Form-36 (SF-36) respectively. Sexual function was measured using the validated questionnaires Arizona Sexual Experiences (ASEX) scale and The Golombok-Rust inventory of Sexual Satisfaction (GRISS).

Beck Depression Inventory

It has been developed by Hisli[4], and validated to Turkish population has been performed by Hisli[5] It is a self-reported inventory applicable in healthy and psychiatric patient groups. The aim of the inventory is to define the risk of depression and to measure the level and severity of depressive symptoms.

0It has been developed by Ulusoy et al.[6], and validated to Turkish population has been performed by Ulusoy et al.[6] It is a self-reported inventory. It is used in order to determine the frequency of anxiety symptoms.

Short Form-36

SF-36 having a generic scale feature among scales of quality of life and providing a comprehensive measurement has been developed by Rand Corporation in 1992.[7] The SF-36 consists of 36 items which provides the measurement of 8 sections: physical functioning (10 items), social functioning (2 items), physical role functioning (4 items), emotional role functioning (3 items), mental health (5 items), vitality (4 items), bodily pain (2 items) and general health perceptions (5 items). Reliability and validity of SF-36's Turkish version has been performed by Koçyiğit et al.[8]

Arizona Sexual Experiences Scale

It is a short 5-item rating scale developed to quantify five basic components of sexual functioning.[9] Turkish validity and reliability work has been used on patients with end-stage renal failure.[10]

The Golombok-Rust Inventory of Sexual Satisfaction

It has been developed by Rust and Golombok.[11] It is a measurement tool for assessing the quality of the sexual intercourse and sexual function. Turkish adaptation of the inventory has been performed by Tuğrul et al.[12]

Statistical Analysis

Background clinical data were analyzed using the t-test or Mann-Whitney U for continuous data and Fisher exact test or the chi-square test for categorical data. To find the relationship between variables in more than 2 groups analysis of variance (ANOVA) were used. To investigate the relationship between the sub-dimensions of the scale, correlation analysis was performed. Data were analyzed using SPSS ver. 22.0 (SPSS Inc., Chicago, IL, USA). P-values below 0.05 were considered statistically significant.

Results

Between November 2011 and December 2014, 134 patients with colorectal cancer underwent surgery with ostomy (ileostomy or colostomy) at Marmara University Pendik Training and Research Hospital. Fifty one of colostomy patients and 9 of ileostomy patients were found to be over 60 years old. Nine patients have their ostomy closed at the time of the study. Four patients lost their lives, 7 patients stated that there was no sexual activity, 4 patients were not reached. A total of 50 patients (group of patients) completed the questionnaires (Figure 1). A control group was formed from 50 healthy volunteers whose characteristics were similar in terms of age, education and gender. The study cohort consisted of 25 men (50%) and 25 women (50%) in patients group and 25 men (50%) and 25 women (50%) in the control group. The mean age of the patient group was 46.7±11.3 and the mean age of the control group was 48.2±10.8. The demographic and the clinical characteristics of the patients are shown in (Table 1). By analyzing the history of patients group it has been found the duration of co morbid diseases was found to be less than one year in 62% of the patients, 2-3 years in 28%, 4-5 years in 2%, and more than 10 years in 8%. The histological diagnosis of all patients in the the patient group was adenocancer and all underwent resection in curative intent. However the data regarding surgical procedures could not be reached clearly. It was found out that 60% of the patients received adjuvat chemotherapy during the treatment process. The mean score of BDI in the patient group and control group were found to be 14.8±8.0 and 12.6±9.1, respectively, and the difference was not significant (p=0.89). The mean anxiety score (BAI) was significantly higher in the patient group than in control group (55.8±12.4 vs. 45.2±10.9, respectively; p=0.04). The mean ASEX score was significantly higher in the patient group than in control group (23.0±4.2 vs. 14.1±6.5, respectively; p=0.01). According to GRISS test the sparse frequency of sexual intercourse was significantly higher in the patients group than in control group (68% vs.30%, respectively; p=0.01). Also it was found that 52% of the patient group avoided sexual intercourse and the avoidance rate of the control group was 4% (p=0.01). The rate of the vaginismus symptom of female participants was significantly higher in the patient group than in control group (92% vs. 52%, respectively; p=0.02). There weren't any significant differences between the patient group and control group in terms of touching during sexual intercourse, verbal communication during sexual intercourse, anorgasmia, impotency, and premature ejaculation (Table 2). In evaluating the SF-36 Quality of Life Form, the patient group was reported to have significantly lower levels of mental health and physical well-being reporting than the control group (p=0.01 and 0.03). Physical functioning, physical role functioning, general health perceptions, vitality, emotional role functioning and mental health scores were found to be significantly lower in patient group compared to control group (Table 3). Positive correlation was found between BDI score and BAI, ASEX score; negative correlation was found between BDI score and SF-36 Physical Health and Mental Health subscale scores. Inverse correlation was found between BAI score and SF-36 Physical Health subscale score. The rise in ASEX score was found to be correlated with the rise in the BDI score and the decline in SF-36 Physical Health subscale scores (Table 4).

Table 1. Comparison of sociodemographic variables in patient and control groups

	Patient group (n=50)	Control group (n=50)	p
Age (Mean ± SD)	46.7±11.3	48.2±10.8	0.82
Gender (n, %)			
Male	25 (50%)	25 (50%)	
Female	25 (50%)	25 (50%)	
Education (year mean ± SD)	10.9±4.3	10.7±5.6	0.91
Marital status (n, %)			
Married	44 (88%)	44 (88%)	
Single	5 (10%)	5 (10%)	
Widowed/divorced	1 (2%)	1 (2%)	

SD: Standard deviation

Discussion

This study showed that patients with colostomy or ileostomy had more anxiety symptoms, less sexual satisfaction, more sexual abstinence, and lower quality of life than normal healthy people. Conventionally, outcome assessments in colorectal cancer include mortality, morbidity, disease recurrence, and long-term survival. However, patient-reported outcomes (e.g., quality of life) are now also regarded as key measurements in assessing outcomes of interventions.[13] Sexuality and intimacy are considered to be important aspects of quality of life.[14] Improvements in the treatment of colorectal cancer result in satisfactory outcomes, but patients are still complain of long-term sequelae of the treatment. Despite sexual dysfunction is common after rectal cancer treatment and can have major negative effects on the quality of life, it is not often discussed in clinical practice. Patients are unlikely to mention these problems themselves either because they are embarrassed or because they do not relate their symptoms to their rectal cancer treatment.[15] These complications seriously affect the psychology, social

Table 2. Comparison of depression, anxiety and sexual dysfunction between the study groups

	Patient group (n=50)	Control group (n=50)	p
Beck Depression inventory total score (mean ± SD)	14.8±8.0	12.6±9.1	0.89
Beck Anxiety inventory total score (mean ± SD)	23.0±4.2	14.1±6.5	**0.01**
ASEX (mean ± SD)	55.8±12.4	45.2±10.9	
Healthy in terms of sexual functioning	8 (16%)	12 (24%)	
Sexual dysfunction at a very low level	17 (34%)	23 (46%)	**0.04**
Low-level sexual dysfunction	16 (32%)	9 (18%)	
Moderate-level sexual dysfunction	4 (8%)	5 (10%)	
High-level sexual dysfunction	5 (10%)	1 (2%)	
Golombuk-Rust inventory frequency (mean ± SD)	23.7±8.9	45.6±7.5	
Infrequent sexual intercourse	34 (68%)	15 (30%)	**0.01**
Frequent sexual intercourse	16 (32%)	35 (70%)	
Golombuk-Rust inventory communication (mean ± SD)	47.5±3.9	52.5±5.7	
Low communication in sexual intercourse	16 (32%)	10 (20%)	0.17
High communication in sexual intercourse	34 (68%)	40 (80%)	
Golombuk-Rust inventory orgasm (mean ± SD)	44.3±7.8	56.4±6.9	
Low level of sexual pleasure	17 (34%)	6 (12%)	0.09
High level of sexual pleasure	33 (66%)	44 (88%)	
Golombuk-Rust inventory abstinence (mean ± SD)	62.5±9.2	37.5±8.9	
Less abstinence of sexual intercourse or no abstinence	24 (48%)	48 (96%)	**0.01**
Abstinence of sexual intercourse	26 (52%)	2 (4%)	
Golombuk-Rust inventory touching (mean ± SD)	47.5±6.7	52.5±7.7	
Low-level touching desire during sexual intercourse	8 (16%)	4 (8%)	0.22
High-level touching desire during sexual intercourse	42 (84%)	46 (92%)	
Golombuk-Rust scale vaginismus (mean ± SD)	29.5±8.6	20.5±7.5	
Vaginismus	23 (92%)	13 (52%)	**0.02**
No vaginismus	2 (8%)	12 (48%)	
Golombuk-Rust inventory anorgasmia (mean ± SD)	23.5±4.5	26.5±4.8	
Anorgasmia	10 (20%)	6 (12%)	0.23
No anorgasmia	15 (30%)	19 (38%)	
Golombuk-Rust inventory impotence (mean ± SD)	25.5±6.7	24.5±8.5	
Impotence	0 (0%)	2 (4%)	0.15
No impotence	25 (50%)	23 (46%)	
Golombuk-Rust inventory premature ejaculation (mean ± SD)	24.0±6.0	26.5±5.6	
Premature ejaculation	13 (26%)	12 (24%)	0.77
No premature ejaculation	12 (24%)	13 (26%)	

SD: Standard deviation, ASEX: Arizona Sexual Experiences scale

Table 3. Comparison of quality of life between the study groups

		n	Lean	p
Physical functioning	Control	50	64.47	**0.01**
	Patient	50	35.53	
Physical role	Control	50	70.85	**0.01**
	Patient	50	29.15	
Bodily pain	Control	50	45.22	0.13
	Patient	50	54.78	
General health	Control	50	62.69	**0.01**
	Patient	50	37.31	
Vitality	Control	50	59.89	**0.01**
	Patient	50	40.11	
Social functioning	Control	50	56.14	0.48
	Patient	50	43.86	
Emotional role	Control	50	66.53	**0.01**
	Patient	50	33.47	
Mental health	Control	50	58.98	**0.03**
	Patient	50	41.02	

Table 4. Analysis of the correlation between depression, anxiety, sexual dysfunction and quality of life in the study group

		Beck depression	Beck anxiety	ASEX
Beck depression	r	1	**0.405**	**0.247**
	p		0.000	0.013
	n	100	100	100
Beck anxiety	r	**0.405**	1	0.174
	p	0.000		0.084
	n	100	100	100
ASEX	r	**0.247**	0.174	1
	p	0.013	0.084	
	n	100	100	100
Physical health	r	**-0.336**	**-0.213**	**-0.267**
	p	0.001	0.034	0.007
	n	100	100	100
Mental health	r	**-0.398**	-0.156	-0.015
	p	0.000	0.121	0.886
	n	100	100	100

ASEX: Arizona Sexual Experiences scale

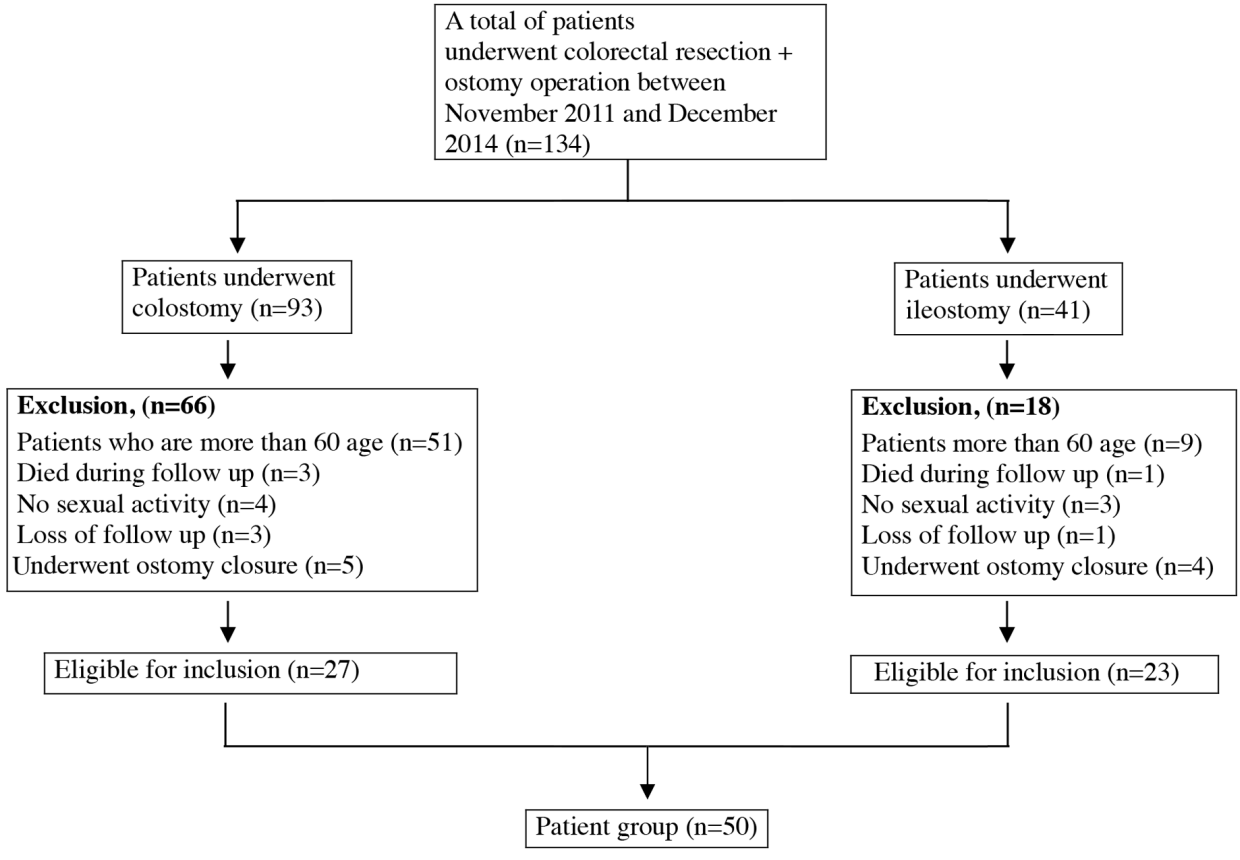

Figure 1. Flowchart for inclusion in the study

and emotional functions of the patient.[16] This study will fills this gap and highlights the less discussed issue in the literature[17] and suggests that depression, sexual dysfunction, and quality of life studies are needed in patients with ostomy after colorectal cancer treatment. The importance of this study is evaluating depression, anxiety, sexual functions and quality of life all together in the patients. This study has some limitations that need to be acknowledged. Limitations of this study include sample size. In addition, the study was retrospective and no information was known about anxiety, depression, quality of life, and sexual (dys) function before diagnosis/treatment of cancer, which limited the determination of the effect of cancer diagnosis and treatment on functioning or on the ability to correct for baseline functioning. Lack of data regarding surgical procedure and (neo) adjuvant radiation therapy which have effect on the quality of life, including sexually habits and problems were other limitations of this study. In a study performed with 409 patients who had bowel resection or ostomy due to colorectal cancer, ileitis or colitis; higher depression and decline in social activity was found in patients who had ostomy during the preoperative and postoperative periods when compared to patients who had bowel resection due to the same diagnosis.[18] Turnbull[19] suggests that patients do not receive any support especially in terms of physical image and sexual functioning after ostomy and this condition affects patients' quality of life in a negative manner. Szczepkowski[20] showed that psychological problems of patients who had colostomy included a change in the perception of the body, decreased self-esteem, impairment of sexual functions, emergence of problems in alignment of the spouses and various psychiatric disorders including depression in the forefront. In patients who underwent surgery due to colorectal cancer, fear of recurrence of cancer is one of the major problems. This fear has been defined as a condition with repetitive thoughts and imaginations that create intense anxiety and distress. Low quality of life, low emotional state, declined social functioning; thoughts of death, suffering, inability to perform familial responsibilities were reported to be the reasons that increased this fear.[21] Similar fear and thoughts may have been effective in the emergence of anxiety symptoms of the patients in our study as well. In another study, depression and anxiety scores of patients who underwent colorectal cancer surgery were found to be low, however high somatization, low cognitive and social functioning were found.[22] Similarly, in another study from Sweden, anxiety and depression levels were found to be low in patients who believed to be fully treated.[23] Another study reported that patients were complaining from not having life and travel insurance, lack of interdepartmental coordination, poor patient management and support systems, and lack of accessible hospital parking areas.[24] When studies are still controversial since some studies showed that patients didn't have depression symptoms however other studies showed that patients have depression after colorectal cancer treatment with ostomy procedure. In this study depression levels of the patients were found to be low. This may be related to some factors regarding the community and health system in Turkey such as the trust in care, the health care coverage of the state in some way, the family support as a cultural feature causing reduction of future anxiety that patient will not feel be alone with troubles, these all may be create a protective effect of depression. In addition, patients who did not receive l post-operative chemotherapy may have reduced the likelihood of depression. As well as in other studies evaluated pre-operative and post-operative anxiety, in this study, it has been found that anxiety rate of the patients were found to be significantly higher than healthy population.[25] McDonald and Baird[26] reported that sexual dysfunction in patients with ostomy due to rectal cancer, was associated with a decrease in sexual competence rather than a decrease in sexual desire. Lack of sexual desire after ostomy is thought to be caused by shortening of the vagina and reduction of vaginal fluid in women, and by pain during sexual intercourse in men the caused by fibrosis tissue in the pelvis.[27] Kılıç et al.[28] reported that patients with ileostomy or colostomy had sexual dysfunction and problems in communication, touching, physical image, and abstinence. In two previous studies (one is retrospective and the other is prospective), we have shown that rectal cancer survivors had a high rate of standard deviation, which was seldom treated.[29,30] In this study, further deterioration in the patient group was reported in the physical function, physical role, general health, vitality, emotional role and mental health scores determined by the SF-36 form. Anaraki et al.[31] compared patients with cancer and patients without cancer who had colostomy and ileostomy, and he investigated the degree of lifestyle changes after the ostoy in both groups. The questionnaire was administered to 102 patients (cancer and non-cancerous group with colostomy and ileostomy) based on the variables of nutrition, sexual activity, change of clothing style, job change and depression tendency of the patients. As a result of that study, it was determined that ileostomy and colostomy lead to a lifestyle change in both groups and it emphasized the importance of psychoeducation and psychological support for patients with ileostomy and colostomy after surgery.[31] In conclusion, it was found that patients who had ileostomy or colostomy had higher rates of anxiety symptoms, less sexual pleasure, more abstinence from sexual intercourse, and lower quality of life compared to that of healthy individuals. The establishment of pre-operative training and support programs for patients and

their relatives who are scheduled for the operation of the ostomy will provide the necessary support in the face of the physical and psychological difficulties that the operation can bring about.

Ethics

Ethics Committee Approval: Non-Interventional Research Ethics Committee of Üsküdar University approved the study (approval number : B.08.0.YÖK.2.ÜS.o.05.0.06/2015/16).

Informed Consent: Consent form was filled out by all participants.

Peer-review: External and internal peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: W.A., S.Y., Concept: K.B., H.B., E.Ö., Design: Kader Bahayi, W.A., S.Y., H.B., E.Ö., Data Collection or Processing: K.B., W.A., S.Y., Analysis or Interpretation: K.B., W.A., S.Y., Literature Search: K.B., W.A., H.B., E.Ö., Writing: K.B., W.A.

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