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Research Article

Sexual Dysfunction among Patients having undergone Colostomy and its Relationship with Self-Esteem

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Abstract

Objective: This study investigated sexual problems which may be faced by patients of either gender after undergoing temporary or permanent colostomy and the relationship between these problems and self-esteem.

Materials and Methods: 42 participants undergoing temporary or permanent colostomy (study group) at the Samsun Education and Research Hospital and 42 participants working as auxiliary staff in the same hospital (control group) were included in the study. All participants completed a questionnaire investigating socio-demographic characteristics and the Rosenberg Self-Esteem Scale. Female participants also completed the Female Sexual Function Index and male participants the International Index of Erectile Function by the sealed envelope method. After one week, the data obtained from the questionnaires were evaluated among the groups.

Findings: In the study group, 17 out of 42 cases (40%) had undergone permanent colostomy and 25 temporary colostomy. Self-esteem levels in the study group were lower (1.01±1.13) than those in the control group (0.5±0.44) (p=0.021). There was a significant relationship between male patients' IIEF scores and the self-esteem scale (r= 0.123, p=0.013). Male cases (45.00±23.71 points) in the study group had lower IIEF test scores (59.0±21.31) than the control group (p=0.026). Females with colostomy had significantly lower scores than the control group in the "arousal" subgroup only (p=0.045). Males with temporary colostomy had higher IIEF and all subgroup scores than the permanent colostomy group, and females had higher scores on the arousal, satisfaction and pain subscales.

Conclusion: Cases of permanent colostomy have more serious sexual problems than those with temporary colostomy. More detailed studies are needed concerning sexual problems faced by patients who have undergone colostomy.

INTRODUCTION

Colostomy is a surgical procedure in which an opening (stoma) is formed by drawing the healthy end of the large intestine or colon through an incision in the anterior abdominal wall and suturing it into place [1]. This opening, in conjunction with the attached stoma appliance, provides an alternative channel for feces to leave the body. It may be temporary or permanent. Permanent stomas are opened for lifetime and temporary stomas are closed again in a few months after the relevant condition has resolved. Colostomies are mostly opened for conditions such as rectal cancer, diverticulitis, volvulus, trauma, intestinal ischemia, burns, Crohn disease and ulcerative colitis [2]. Defecation cannot be controlled in colostomy, and the content and nature of defecation changes according to the part of the intestine involved. Approximately 100,000 patients undergo abdominal stoma operations every year [3]. More than 70,000 people in England and approximately 120,000 in the USA experience stoma every year [4,5].

Apart from the risks that surgery entails and the complex nature of colostomy care, individuals who have undergone colostomy also experience many different physical and psychological problems [6]. As familiar physiological functions change, problems arise which reduce patients' quality of life and affect family and social relations [7]. For example, 37% to 95.5% of patients with stoma complain about the unpleasant smell and 52% to 97.7% complain of uncontrollable flatulence [8-9]. Even if there is no apparent underlying physiological or psychological problem, a decrease in sexual activity is still observed in both sexes [10]. Black et al. [11] suggested that the few patients who complain about sexual problems are in fact the tip of an iceberg and concluded that sexual problems are the *"secret agenda"* of colostomy. Nugent et al. [12] reported that 43% and Silva et al. [13] that 81% of individuals have sexual problems after colostomy [14,15].

There are also some distinctive physical and psychological factors which may contribute to sexual problems. Some physical problems derive from complications of parasympathetic neural trauma during abdominoperitoneal resection, which may result in erectile dysfunction and ejaculation problems in men. The residual pelvic scar tissue after surgery may result in dyspareunia and decreased vaginal lubrication in women [14]. In addition, individuals who have undergone colostomy also experience sexual compatibility problems with their partners [15]. Partners may be afraid of injuring the colostomy during sexual activity, and colostomy can create a negative sexual image in both sexes [16]. Men may perceive the stoma in their partners as a phallic symbol or may associate the bleeding during stoma care with menstrual bleeding in their partners.

Psychological problems are very frequent in colostomy patients, as at least 20% develop clinically significant depression following colostomy [17]. These problems are very frequent in both genders. Thomas *et al.* [18] concluded that 17% of men and 19% of women suffer these kinds of problems after colostomy. The levels of emotional trauma faced by patients with temporary or permanent stoma and the content of their psychological problems may differ. Patients who undergo permanent colostomy after initially believing that it would be temporary have the worst outcomes in terms of psychological problems [19]. These include concerns over body image and social acceptability, anxiety, anger, feeling unattractive and undesirable and negative self-image awareness. These problems may lead to a decrease in self-esteem which in turn results in sexual problems [10,15,20-22]. Self-esteem is a state of acclamation of personal concept resulting from individuals' self-evaluation. Generally, self-esteem is known to decline in situations such as physical health issues and changes in body image. There is increasing evidence concerning self-esteem and sexual dysfunction in colostomy patients [23].

The purpose of this study was to examine sexual problems faced by patients with temporary or permanent stoma, the relationship between this situation and self-esteem, and that between some socio-demographical factors which may impact upon this.

MATERIALS AND METHODS

The research was planned as a retrospective case control study and was carried out at the General Surgery Clinic in Samsun Training and Research Hospital, Turkey, from January to September 2014. Forty-two out of 47 patients undergoing permanent or temporary colostomy at the same clinic at least 1 month previously was enrolled as the study group. A 42-member control group with no chronic disease was selected on the basis of simple randomization based on the sexes of the members of the study group. Individuals diagnosed with a psychological problem, receiving continuing psychological treatment or with no active sex life before the study were not included in either group. Participants who had undergone colostomy were visited in their homes, and the aim and content of the study were explained to them. Evaluation questionnaires using the sealed envelope method were sent to those who agreed to take part. The envelopes were collected on the next visit. The few illiterate patients had the questions read to them by people chosen by them. The aim of the study was also explained to the subjects in the control group, and sealed envelopes were given out and collected later. All individuals included in the study completed socio-demographic information forms and the Rosenberg Self-Esteem Scale (RSE). Male participants also completed the International Index of Erectile Function (IIEF) and female participants the Female Sexual Function Index (FSFI). Envelopes were collected from 84 participants. The results of the questionnaires were first evaluated between the study and control groups. Later, the results of the permanent and temporary colostomy patients in the study group were compared.

THE TOOLS USED IN THE STUDY

Socio-demographic Information Form

This form inquired into about age, marital status, education, work life, past or present psychiatric diagnoses, medication, previous significant health problems, and type of colostomy (permanent or temporary).

Rosenberg Self-Esteem Scale (RSE)

The purpose of the 10-item RSE scale is to measure self-esteem [24]. It was originally designed to measure the self-esteem of high school students. Since then, however, the scale has been used with a variety of groups, including adults, with norms available for many of those groups. Scoring involves a method of combined ratings. The RSE has a Guttman scale coefficient of reproducibility of .92, indicating excellent internal consistency. Test-retest reliability over a period of 2 weeks reveals correlations of .85 and .88, indicating excellent stability. It demonstrates concurrent, predictive and construct validity using known groups. The validity and reliability of the RSE in Turkish has also been investigated [25]. Lower total scores indicate higher self-esteem. Subjects scoring 0-1 are considered to have "high" self-esteem, those scoring 2-4 to have "medium" self-esteem and those scoring 5-6 to have "low" self-esteem.

Female Sexual Function Index (FSFI)

Rosen et al. [26] developed the FSFI as a brief multi-dimensional self-report instrument for assessing key dimensions of sexual function in women. The scale consists of 19 items that assess sexual function over the previous 4 weeks and yield domain scores in six areas: sexual desire, arousal, lubrication,

orgasm, satisfaction, and pain. It has demonstrated significant discriminant validity in all domains of sexual function, as well as in total FSFI scores, in sexually dysfunctional and non-dysfunctional samples. The higher the score, the lower the function loss. The highest possible score on the scale is 36.0 and the lowest 2.0. If the total score is >22.7, this shows normal sexual activity, while a score ≤22.7 shows sexual dysfunction. A desire score ≤3.6 (score range 1.2-6), arousal score ≤3.9 (score range 0-6), lubrication score ≤3.6 (score range 0-6), orgasm score ≤3.6 (score range 0-6), satisfaction score ≤3.6 (score range 0-6) or pain score ≤4.4 (score range 0-6) show the presence of sexual dysfunction to lesser extents. The validity and reliability of FSFI have been investigated in Turkish [27].

The International Index of Erectile Function (IIEF)

The International Index of Erectile Function (IIEF) is a brief self-administered questionnaire investigating erectile dysfunction (ED). Rosen et al. demonstrated good overall reliability of the IIEF. The 15 items in the index differentiate five relevant subscales of sexual function (erectile function, orgasmic function, sexual desire, intercourse satisfaction and overall satisfaction) with adequate validity, sensitivity and specificity [28] . Turkish validity and reliability were established by Akkus E *et al.* [29]. The higher the questionnaire score, the lower the function loss. Every sub-element is evaluated on 4 levels, severe, medium, low and normal function, according to the function rating.

Statistical analysis

Data collected in the study were analyzed on SPSS 15.0 software. The Shapiro-Wilk test was used to analyze homogeneity, and non-parametric tests (Mann Whitney-U test, etc.) were employed. A p value <0.05 was regarded as statistically significant.

Ethical Issues

Approval for the study was granted by the Samsun Education and Research Hospital ethical board.

RESULTS

The socio-demographic characteristics of the cases in the study are shown in (Table 1). Seventeen of the 42 cases (40%) in the study group had undergone permanent and 25 temporary colostomy. Mean age in the permanent colostomy group was 56.24 ± 11.17 years (min 30, max 71), 41.96 ± 7.76 years (min 26, max 60) in the temporary colostomy group and 37.29 ± 11.63 years (min 19, max 70) in the control group. Compared to the control group, the study group cases were older (p= 0.001, F =11.010) and less educated (p=0.002).

Self-esteem scores in the study group were lower (1.01±1.13) than those of the control group (0.5±0, 44) (p=0.021). No statistical relationship between self-esteem and age, sex and marital status was determined in either group. Participants in both study and control groups who had at 8 years or more of education had higher self-esteem compared to subject with lower levels of education (study group p=0.018, control group p=0.004). The self-esteem scores of cases with permanent ostomy (1.7±1.24) were significantly lower than those in cases with temporary ostomy (0.5±0.9) (p=0.044).

In the study group, no relationship was determined between sexual dysfunction and age, sex, education level or marital status. When sexual dysfunction in male cases was evaluated, the cases in the study group (45.00±23.71 points) scored lower on the IIEF test than those in the control group (59.0±21.31 points) (p=0.026). A comparison of IIEF subscale scores of male cases in the study and control groups is shown in (Table2). The sexual desire (p=0.001) and sexual satisfaction scores for male cases with colostomy were significantly lower than those of the control group. When female patients with colostomy were compared to the control group, although these had lower total FSFI and FSFI subgroup scores, only the difference in the "arousal" subgroup was statistically significant (p=0.045).

A comparison of the IIEF and FSFI subgroup scores for male and female cases with permanent or temporary colostomy is shown in (Table 3 and 4). Comparing male cases with temporary or permanent colostomy among themselves, cases with permanent ostomy achieved significantly lower scores than those with temporary colostomy, both in IIEF scores and

Table 1: Sociodemographic characteristics of cases enrolled in the study.

Sociodemographic Variables	Study group	Control group	P values
Sex			
Female	20	21	0.827
Male	22	21	
Age			
18-24	0	4	
25-44	19	29	0.001
45-64	19	7	(F =11.007)
>64	4	2	
Marital Status			
Married	33	34	
Single	1	8	0.786
Widow/widower	8	0	
Education level			
≤ 8 years	27	12	0.002
> 8 years	15	30	
Occupation			
Working	15	25	0.049
Not working	27	17	

Table 2: Comparison of IIEF scale scores of male cases in the study and healthy control groups.

	Ostomy condition		
IIEF[#]	Yes (n=22)	No (n=21)	P value
IIEF Score	45.00 ± 23.71	59.0 ± 21.31	0.026
IIEF Erectile func.	19.50 ± 11.41	26.0 ± 10.23	0.060
IIEF Orgasmic func.	7.00 ± 4.13	8.00 ± 3.82	0.227
IIEF Sexual desire	5.50 ± 2.75	8.0 ± 2.67	0.001
IIEF Sexual satisfaction	10.00 ± 5.05	12.0 ± 4.84	0.028
IIEF General content	6.00 ± 3.14	8.0 ± 3.01	0.056

[*]Mann-Whitney U test
[#]IIEF: International Index of Erectile Function

in all IIEF subgroups. The average scores of the cases with temporary colostomy on the IIEF subscale were close to those of the control group. Distributions of the IIEF scores of male cases with permanent ostomy, temporary ostomy and those in the control group are shown in (Figure 1). Comparing female cases with temporary or permanent colostomy, cases with temporary colostomy had significantly lower scores in only the arousal, satisfaction and pain FSFI subscales. Distributions of the FSFI scores of female cases with permanent ostomy or temporary ostomy and those in the control group are shown in (Figure 2).

There was a correlation between the IIEF scores of male patients in the study group and the self-esteem scale (p=0.013, r=0.123). The same correlation was not observed between the FDFI scores of female patients in the study group and self-esteem (p=0.820, r=0.004).

Table 3: Comparison of FSFI scale scores between the and healthy control groups.

	Ostomy condition		
FSFI‡	**Yes (n=20)**	**No (n=21)**	**P value**
FSFI score	11.65 ± 9.29	17.38 ± 14.39	0.121
FSFI Sexual desire	2.10 ± 1.14	3.6± 1.41	0.098
FSFI arousal	1.35 ± 1.39	4.80 ± 2.57	0.045
FSFI lubrication	2.10 ± 1.88	4.20 ± 2.63	0.105
FSFI orgasm	1.40 ± 1.72	4.0 ± 2.70	0.075
FSFI Sexual satisfaction	1.80 ± 1.86	4.80 ± 2.70	0.061
FSFI pain	2.40 ± 2.11	4.80 ± 2.72	0.121

*Mann-Whitney U test
‡FSFI: Female Sexual Function Index

Table 4: Comparison of scale scores between the permanent and temporary colostomy groups.

	Ostomy Type		
Scales	**Permanent**	**Temporary**	**P Value**
IIEF# Score	5.0 ± 18.60	58.0 ± 17.38	0.001
IIEF Erectile func.	2.0± 7.95	26.0 ± 8.70	0.001
IIEF Orgasmic func.	0.0 ± 3.28	8.0 ± 3.25	0.002
IIEF Sexual desire	1.0± 2.18	7.0 ± 2.06	0.003
IIEF Sexual satisfaction	0.0 ± 5.11	11.0 ± 3.30	0.004
IIEF General content	2.0± 2.23	8.0 ± 2.78	0.006
FSFI‡ score	3.6 ± 5.30	16.1 ± 9.86	0.075
FSFI Sexual desire	1.2 ± 1.11	2.4 ± 1.09	0.084
FSFI arousal	0.60 ± 0.68	2.25 ± 1.47	0.020
FSFI lubrication	0.15± 1.52	2.70 ± 1.93	0.097
FSFI orgasm	0.00 ± 0.97	2.20 ± 1.85	0.066
FSFI Sexual satisfaction	0.00 ± 1.27	2.80 ± 1.91	0.042
FSFI pain	0.00± 1.53	3.60 ± 2.18	0.038
RSE† total	1.74 ± 1.24	0.5 ± 0.94	0.044

‡* Mann-Whitney U test
#IIEF: International Index of Erectile Function
‡FSFI: Female Sexual Function Index
†RSE: Rosenberg Self-Esteem Scale

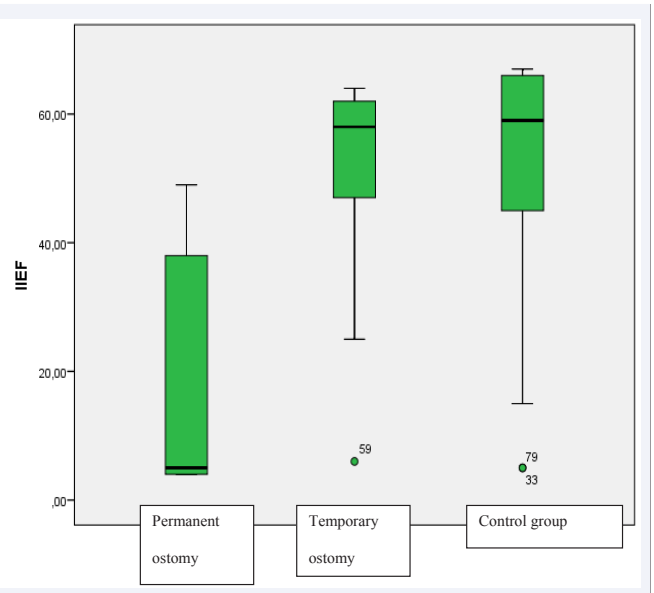

Figure 1 IIEF score distributions of male patients in the study group with permanent or temporary colostomy and male participants in the control group
#IIEF: International Index of Erectile Function

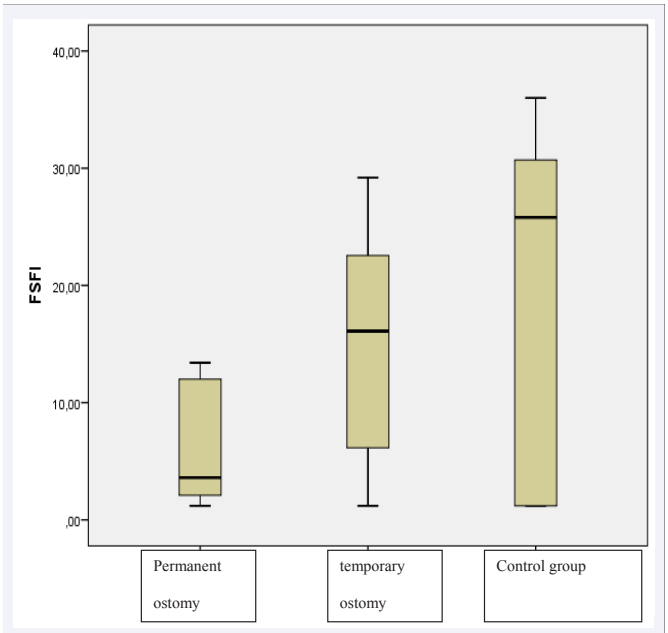

Figure 2 FSFI scores of female patients in the study group with permanent or temporary colostomy and female participants in the control group
‡FSFI: Female Sexual Function Index

DISCUSSION

Our results indicate that compared to the control group, male and female cases with a history of colostomy have serious problems in sexual functions. The detected problems were at a statistically significant level in sexual desire and sexual satisfaction scores in male patients and in arousal scores in female patients. Other studies in the literature support our findings. Wabrek et al. [30] determined erectile dysfunction in

53-100% and Huish et al. [31] in 43% of males after colostomy. Approximately 77% of female colostomy patients report painful intercourse [32]. In our study, no demographic risk factor (age, education level, continuing to work normally, etc) was determined to affect the sex lives of patients who had active sex lives before colostomy. No demographic factor supporting our findings has been reported in the literature concerning a decrease in sexual activities after colostomy. According to our findings, although the functional decrease in male patients was more significant, women experienced more sexual dysfunction among patients with a history of temporary ostomy. However, these results in female participants did not differ significantly between the study and control groups. Sexual dysfunction may be a common problem in healthy individuals. In a study of healthy individuals Nazareth et al. [33] determined that 40% of female and 22% of male patients experienced at least one sexual problem, the most common sexual problems being sexual reluctance and orgasm disorder in females, and loss of sexual desire and erectile dysfunction in males. This may have affected our results.

One of the main research questions in our study was whether there is a relationship between self-esteem and problems that may develop in patients' sex lives after colostomy. Self-esteem in patients with colostomy was significantly lower than that in the control group. Interestingly, the only demographic factor affecting self-esteem of patients with stoma was a high education level. Szczepkowski *et al*. [17] reported that low self-esteem was mostly seen in very young and female patients. We determined no relationship between self-esteem and sexual dysfunction in female patients with colostomy or in females or males in the healthy control group. However, as self-esteem increased in males with colostomy, the incidence of sexual dysfunction decreased. Kiliç *et al.* [23] reported that compared to the control group, patients with ostomy experience significant impairment in self-esteem and sexual functions (apart from impotence and premature ejaculation), and that impairment in sexual functions is particularly high in female patients. Underlying performance anxiety and low self-esteem ensure the emergence of sexual problems in patients with colostomy, resulting in a vicious circle [34]. Studies have reported that the level of self-esteem affects the individual's resistance to psychological and physiological diseases and the ability to form close connections with the surrounding environment [35]. Individuals with stoma may experience changes in emotions after surgery [22]. These involve negative emotions such as worry over adaptation to anew body image, anxiety, feeling different, difficulty in accepting the stoma, sadness, embarrassment and fear [36]. In addition, fecal secretion and the inability to control this, unpleasant odors, fecal liquidity or leakage and inability to control intestinal motility all reduce the individual's self-esteem [37]. All these factors can lower the individual's sexual desire or even eliminate it entirely and result in complete avoidance of sex.

The permanent or temporary nature of stoma affected patients of both sexes in the study group. Although FSFI scores of all female patients with temporary or permanent stoma in the study group and sexual problems in subgroups were determined, the fact that patients with permanent stoma achieved significantly low scores on the arousal, satisfaction and pain subscales can be attributed to the fact that the operation is more difficult than temporary stoma. Sexuality is an integral part of the whole person and a highly complex phenomenon in both sexes, especially in women. However, when male patients with temporary stomas were compared to those with permanent stomas, impressive results were observed. Sexual functions in patients with temporary stoma were significantly much better than those in patients with permanent stoma. Similarly to our study, Kuzu et al. [38] reported that sexual life was adversely affected in patients with permanent stoma. Golicki et al. [39] investigated 737 stoma patients and concluded that patients who underwent temporary stomas had better sexual functions and quality of life. Anaraki *et al.* [40] concluded that patients with temporary stoma had better sexual satisfaction compared with patients undergoing permanent stoma with cancer. In a cross-sectional study, 131 male patients with rectal cancer who underwent permanent stoma had worse sexual functions compared with patients with stationary stoma [41]. However, it is unclear whether these differences derive from morbidity of the diseases, demographic elements or other psychological factors. Patients with temporary colostomy in our study had better self-esteem than those with permanent colostomies. Self-esteem levels in patients with temporary stoma were almost twice as high as those in patients with permanent stoma. Similarly, Harputlu *et al.* showed that the permanent or temporary nature of the stoma affects the self-esteem of patients [42]. Further studies regarding these factors are needed, since the reason for this outcome is unclear

Our study has a number of limitations. Although cases with active sex lives before the study were included in the study and control groups, the course of treatment in patients with colostomy and progressive morbidity levels may have influenced our results. Likewise, it was not possible to calculate the probable risk in every case. Although randomization was used in order to reduce the possibility of bias when establishing the control group from among hospital personnel, burnout is a common problem in this occupational group. This may also have influenced our results. Additionally, since there were no data on cases' self-esteem of cases before ostomy, the effect of the operation on this psychological component is uncertain. However, the total number of cases in our study is satisfactory compared to those in some other studies [9,14,38,42]. Sexual health is known to be an important factor affecting quality of life, and one which is insufficiently investigated in stoma patents [43]. This is one of the few studies evaluating the sexual functions of patients with permanent or temporary colostomy.

Providing long-term health care services and home care is one of the main goals of primary care physicians. In this regard, sexual dysfunctions among colostomy patients are overlooked among the many other different clinical problems they face. Many patients find it difficult to discuss their sexual problems with their physicians. Sexual dysfunction is not generally investigated or evaluated satisfactorily by health personnel [44]. Although health professionals agree that sexuality is an important part of health care, time limitations, lack of available information or education about sexual functions and difficulties in talking about sexual problems due to elevated personal anxiety levels, little progress has been made on communicating with patients [45]. However, sexual life is one of the most important factors affecting the quality of life of these patients and their partners

[46]. Family physicians can help patients to identify and adapt to alterations in sexual self-concept. They can develop appropriate approaches by collaborating in this area with other health workers (enterostomal therapy nurses, therapists, etc.) and can have a positive impact on their quality of life.

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