The influence of disease type and activity to sexual life and health quality in inflammatory bowel disease

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ABSTRACT

Background/Aims: Inflammatory bowel disease (IBD) has a major impact on patients' quality of life (QoL), mood, and sexual life. The purpose of the present study was to show the effect of disease type and activity on sexual life and QoL in patients with IBD.

Materials and Methods: A total of 122 patients with IBD and 42 sex- and age-matched control cases were included in the study. Demographic characteristics were recorded. The disease activity of patients with IBD was assessed by the Harvey-Bradshaw Index in Crohn's disease (CD) and the Mayo Clinical Ulcerative Colitis Activity Index in ulcerative colitis (UC). All participants were subjected to complete three questionnaires: Short Form 36 (SF-36), Hospital Anxiety and Depression Scales (HAD-A and HAD-D), and Arizona Sexual Experience Scale (ASEX).

Results: There was no difference in terms of demographic characteristics between the three groups, except cigarette exposure in CD. The disease activity of patients with UC and CD was not different ($p>0.05$). The mean HAD-A score was significantly higher in the CD group, whereas the mean HAD-D score was higher in the IBD group than in the control group ($p<0.05$). Anxiety was seen more frequently in women. SF-36 scale scores were found to be lower in the UC and CD groups than in the control group ($p<0.05$). The mean ASEX scores of women with UC (19.59±7.59) and CD (19.38±6.27) were both significantly higher than those of the control group (15±4.76). Although the mean ASEX scores of men were not different, some ASEX subscores of the IBD groups were worse than those of the control.

Conclusion: Inflammatory bowel disease is a chronic disease that has multiple complications affecting patients' psychosocial life. Patients have more anxiety, depression, and sexual dysfunction when their disease is active. Patients should be screened for psychological diseases and sexual dysfunction, and necessary treatments should be given.

Keywords: Inflammatory bowel disease, quality of life, sexual dysfunction, anxiety, depression

INTRODUCTION

Inflammatory bowel disease (IBD), which affects various parts of the gastrointestinal tract, is a chronic relapsing inflammatory disease. The pathogenesis of the disease is unclear. IBD is mainly divided into three groups as Crohn's disease (CD), ulcerative colitis (UC), and indeterminate colitis. The active period in patients is characterized by findings, such as bloody diarrhea, fever, abdominal pain, and weight loss. In addition, extraintestinal effects, such as arthritis, sacroiliitis, primary sclerosing cholangitis, pyoderma gangrenosum, erythematous nodosum, scleritis, and episcleritis, can be seen. Particularly, CD causes serious morbidity (1,2).

It was shown that the patients' quality of life (QoL) is significantly reduced during the active period of the disease independent from sociodemographic features (3). Social, emotional, and economic problems are quite common in these patients. Anxiety and depressive symptoms are more frequent due to mental and physical discomforts (4). Additionally, disease activity is associated with greater utilization of medical services and decreased social functioning. IBD often causes severe labor loss because it occurs in the productive middle ages. Furthermore, fertility and sexual experiences of patients are adversely affected by complications of the disease, invasive medical procedures, and surgery (5). Problematic sexuality causes disruption of social relationships and reduction of personal abilities and productivity. Sexual dysfunction also leads to additional emotional and behavioral problems.

On the other hand, sexual dysfunction is not often questioned by health workers in contrast to other diseases, and patients find it difficult to indicate sexual problems because of various drawbacks, such as social pressure and religious beliefs. Neglecting these factors that affect patients' physical and mental health makes it difficult to treat the disease.

The aim of the present study was to investigate the effect of disease type and activity on sexual life, QoL, and mood in individuals with IBD.

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MATERIALS AND METHODS

This was a cross-sectional study to evaluate anxiety, depression, health quality, and sexual dysfunction in patients diagnosed with IBD. The study was conducted between 01.01.2014 and 01.10.2014 on a single center in Ankara, Turkey. A total of 122 patients who applied to the gastroenterology outpatient or inpatient clinics with diagnoses of UC or CD were included in the study. Forty-two control subjects who did not have IBD and were admitted to the gastroenterology outpatient clinics, matched for age (±3 years), sex, and systemic comorbidity (e.g., hypertension and diabetes mellitus) with patients with IBD, were also recruited in the study. Control subjects' systemic diseases were under control with treatment. Written informed consent was obtained from all participants. The study was approved by the Ankara University Ethics Committee.

Exclusion criteria:
- Patients <18 years
- Patients who do not have endoscopic and pathological diagnoses (for UC and CD)
- Patients who have indeterminate colitis
- Patients who need acute care, such as decompensated heart failure, sepsis, acute kidney injury, respiratory failure, and gastrointestinal bleeding at the time of study.

Patients' characteristics

Patient's name, diagnosis, date of diagnosis, age, sex, history of smoking and alcohol use, level of education, area of residence (urban or rural region), accompanying systemic diseases, treatments up to now, and activity of disease were recorded.

Data collection and questionnaires

The disease activity was determined by the Harvey-Bradshaw Index (6) in CD and the Mayo Clinical Ulcerative Colitis Activity Index (7) in patients with UC. Short Form 36 (SF-36), Hospital Anxiety and Depression Scale (HAD), and Arizona Sexual Experience Scale (ASEX) Women-Male Form (8) were administered to all participants.

SF-36: The scale was developed by Ware et al. (9). The validity and reliability were evaluated by Kocyigit et al. (10). The scale consists of 36 items considering the last 4 weeks. There were eight subscales: physical function (10 items), physical role difficulty (4 items), pain (2 items), general health (5 items), vitality (4 items), social functioning (2 items), emotional role (3 items), and mental health (5 items). The total score ranges between 0 and 100. The higher the score of each field, the better QoL related to the domain.

HAD: Self-evaluation scale is used to measure the level of anxiety and depression in hospital and community sample. Seven of the questions investigate depression, and the remaining seven evaluate anxiety symptoms. Each question has a score of 0-3. As a result of the validity study in Turkey, a cut-off score of 10 for anxiety and 7 for depression were found (11).

ASEX: It determines sexual impulse, arousal, vaginal lubrication, penis hardening, orgasm reaching capacity, and orgasmic endurance satisfaction. Low scores indicate that the sexual response is strong, easy, and satisfactory, whereas high scores indicate the presence of sexual dysfunction. There was a reported cut-off score of 11 in the Turkish validity study (8).

Statistical analysis

Data were analyzed using Statistical Package for Social Sciences for Windows 15 package program (SPSS Inc.; Chicago, IL, USA). Descriptive statistics are expressed as mean±standard deviation or median according to the distribution of numerical data, and nominal variables are expressed as percentage (%). The effect of disease activity and disease type on anxiety, depression, sexual dysfunction, and health quality was compared using the chi-square or Mann-Whitney test between the two groups. When there were more than two groups, the significance of differences between the groups was studied according to data distribution by ANOVA or Kruskal-Wallis test. Nominal data were evaluated by Pearson chi-square or Fisher's exact test. The variances in the groups more than two were assessed by post hoc Tukey test. The strength of association was evaluated by Spearman's correlation analysis. A p value <0.05 was considered statistically significant.

RESULTS

A total of 164 participants were included in the study, with 58 (24 females and 34 males) CD, 64 (29 females and 35 males) UC, and 42 (22 females and 20 males) voluntary control group without IBD. The mean ages were 44±14 years in the UC group, 38±12 years in the CD group, and 43±13 years in the control group. There was no significant difference between the groups in terms of age, gender, and educational level.

It was seen that 7% of the hospitalized patients and 44% of the outpatients were in remission. Inpatients had significantly more active disease (p<0.01). Active disease was found in 75% of the UC group and in 70% of the CD group. Anti-tumor necrosis factor (anti-TNF) drug usage

was common in the CD group (p=0.01). Anti-TNF drug usage was not found to be related to disease activity. There was no difference between the UC and CD groups in terms of active disease (p=0.59). There was no association between disease activity and gender. Active cigarette smoking was 6% in the UC group, 40% in the CD group, and 31% in the control group. Active smoking and exposure history were statistically higher in CD (p=<0.01). Table 1 summarizes the characteristics of the patients. There was no statistical difference between the control group and patients with IBD in terms of systemic diseases. The most common comorbidities were hypertension, diabetes mellitus, atherosclerotic coronary artery disease, and ankylosing spondylitis.

The mean HAD-A score was significantly higher in the CD group. The mean HAD-D score was significantly higher in the CD and UC groups than in the control group. There was no significant difference between the UC versus CD groups. The mean depression scores were similar between female and male (p>0.05). Anxiety scores were found to be higher in female. Anxiety and depression scores were associated (p=0.02) with higher educational level and disease activity and were not related to age.

SF-36 scale scores were found to be lower in the UC and CD groups than in the control group. There was no difference between the CD and UC groups. It was seen that physical role and emotional role difficulties increased in the more educated group. The physical function score decreased with age (p=0.03).

The mean ASEX score was lower in the control group (p=0.05). When the upper limit for sexual dysfunction was considered as 11 points, there was no difference in all three groups (p=0.42). However, women had more frequent sexual dysfunction and higher ASEX scores in the three groups. When ASEX subdomains were evaluated according to sex, women in the control group had better sexual desire, arousal, vaginal lubrication, and orgasm than those in the UC and CD groups. Men with CD were assessed to have higher erection problem than the control group. Men with UC indicated more difficulty to reach orgasm than the control group. ASEX score was significantly correlated with age (r=0.30, p<0.01), anxiety (r=0.43, p<0.01), and depression (r=0.51, p<0.01) scores. HAD-A, HAD-D, SF-36, and ASEX scores are shown in Table 2.

Patients with active disease were more likely to have higher anxiety and depression scores than those in remission. The ASEX mean score was higher in women with active disease. It reached a borderline significance in men with active disease (p=0.05). Patients with remission had higher

Table 1. Demographic characteristics of the patients

	Control group (n=42)	UC group (n=64)	CD group (n=58)	p
Female (%)	52.38	45	41	0.55
>11 years of education (%)	74	62	60	0.61
Mean age (year)	43±13	44±14	38±12	0.08
Hypertension (%)	16	11	7	0.31
Diabetes mellitus (%)	2	6	2	0.37
Chronic obstructive pulmonary disease (%)	0	3	0	0.20
Coronary artery disease (%)	10	9	9	0.17
Ankylosing spondylitis (%)	0	8	12	0.06
No. of inpatients (%)	-	48	43	0.48
Active disease (%)	-	75	70	0.59
Mean follow-up duration	-	5.68±6.01	5.15±4.96	0.89
Rural residency (%)	33	20	31	0.25
Anti-TNF drug usage (%)	-	22	43	0.01
Patients with comorbidity (%)	17	36	40	0.03
Cigarette exposure (%)	41	40	64	<0.01
Colectomy (%)	0	3	5	0.32

UC: ulcerative colitis; CD: Crohn's disease; anti-TNF: anti-tumor necrosis factor

Table 2. HAD-A, HAD-D, SF-36, and ASEX scores of the groups

	Control group	UC group	CD group	p[1]	p[2]	p[3]
HAD-A mean score	6.05±3.18	7.22±4.17	9.17±5.32	0.54	0.04	<0.01
HAD-A score >10 (%)	7	19	38	0.09	0.01	<0.01
HAD-D mean score	5±3.21	8.23±5.50	8±4.89	<0.01	1.00	0.01
HAD-D score >7 (%)	31	52	47	0.10	0.11	0.18
SF-36 scale scores						
Physical function	80.2±22.6	60.2±28.2	58.8±26.5	<0.01	1.00	<0.01
Physical role difficulty	70.2±38.7	31.2±40.5	34.4±43.1	<0.01	1.00	<0.01
Pain	72.6±18.0	45.7±27.5	48.1±29.4	<0.01	1.00	<0.01
General health	66.5±19	46.0±21.0	43.1±21.8	<0.01	1.00	<0.01
Vitality	60.8±21.1	43.7±27.0	40.5±25.0	<0.01	1.00	<0.01
Social functioning	74.7±27.3	45.2±33.9	48.0±32.9	<0.01	1.00	<0.01
Emotional role difficulty	74.6±36.6	36.9±56.6	37.9±42.5	<0.01	1.00	<0.01
Mental health	72.6±12.2	59.2±22.8	57.7±20.4	<0.01	1.00	<0.01
ASEX mean score	13.31±4.88	16.92±7.51	15.79±6.51	0.05	>0.05	0.05
ASEX score >11 (%)	62	73	65	>0.05	>0.05	>0.05
Women						
ASEX mean score	15.00±4.76	19.59±7.39	19.38±6.27	0.02	0.95	0.01
ASEX score >11 (%)	77	83	83	0.62	0.95	0.60
Desire	3.14±0.94	4.21±1.56	4.29±1.19	0.01	0.96	<0.01
Arousal	3.00±1.11	3.97±1.50	4.00±1.41	0.02	0.90	0.01
Vaginal lubrication	2.77±0.81	3.86±1.50	3.62±1.46	<0.01	0.67	0.01
Orgasm	2.86±1.20	4.07±1.58	3.83±1.27	<0.01	0.59	0.01
Satisfaction	3.18±1.05	3.62±1.76	3.63±1.58	0.52	0.89	0.39
Men						
ASEX mean score	11.45±4.40	14.66±6.95	13.26±5.46	0.12	0.99	0.27
ASEX score >11 (%)	45	66	53	0.13	0.97	0.57
Desire	2.30±0.92	3.11±1.67	2.68±1.43	0.08	0.63	0.42
Arousal	2.40±0.88	3.03±1.50	2.82±1.24	0.12	1.00	0.27
Penile erection	2.00±0.91	2.77±1.49	2.65±1.17	0.07	1.00	0.04
Orgasm	2.20±1.10	3.06±1.55	2.76±1.92	0.03	1.00	0.26
Satisfaction	2.55±1.05	2.71±1.60	2.59±1.37	0.95	1.00	0.86

UC: ulcerative colitis; CD: Crohn's disease; HAD-A: Hospital Anxiety and Depression Scale Anxiety Subscale; HAD-D: Hospital Anxiety and Depression Scale Depression Subscale; SF-36: Short Form 36; ASEX: Arizona Sexual Experience Scale
p difference within the groups:
[1]Comparisons between the control group versus ulcerative colitis group
[2]Comparisons between the ulcerative colitis group versus Crohn's disease group
[3]Comparisons between the control group versus Crohn's disease group

SF-36 scores. Table 3 shows the anxiety, depression, and sexual dysfunction scores according to disease activity.

Risky group in terms of anxiety (HAD-A mean score>10) had also higher risk for being depressed (HAD-D mean score>7) (p<0.01). It was found that 84% of the anxiety group had depression together. At the same time, it was shown that scores of the SF-36 subgroups were lower, and scores of ASEX were higher in the anxious and depressed groups. Table 4 summarizes the SF-36 and ASEX scores of risky patients in terms of anxiety and depression.

Table 3. HAD-A, HAD-D, SF-36, and ASEX scores according to disease activity

	Remission (N=33)	Active disease (N=89)	p
HAD-A score >10 (%)	12	34	0.01
HAD-D score >7 (%)	12	63	<0.01
ASEX score	13.7±6.02	17.3±7.14	0.01
ASEX score >11 (%) women	75	87	0.30
ASEX score women	16.13±6.38	20.95±6.59	0.01
ASEX score >11 (%) men	47	64	0.23
ASEX score men	11.59±4.98	14.75±6.47	0.05
SF-36 scale scores			
Physical function	76.21±22.64	53.43±26.47	<0.01
Physical role difficulty	67.42±42.15	19.94±33.53	<0.01
Pain	69.39±23.31	38.54±25.52	<0.01
General health	62.27±19.12	38.15±18.31	<0.01
Vitality	62.42±24.37	34.72±22.53	<0.01
Social functioning	74.67±30.28	36.19±28.18	<0.01
Emotional role difficulty	57.57±44.31	29.96±50.51	<0.01
Mental health	72.12±18.73	53.53±20.21	<0.01

HAD-A: Hospital Anxiety and Depression Scale Anxiety Subscale; HAD-D: Hospital Anxiety and Depression Scale Depression Subscale; SF-36: Short Form 36; ASEX: Arizona Sexual Experience Scale

Table 4. SF-36 and ASEX scores of risky patients in terms of anxiety and depression

	HAD-A score			HAD-D score		
	≤10	>10		≤7	>7	
	Mean	Mean	p	Mean	Mean	p
Physical function	70.7±25.7	44.7±24.7	<0.01	76.3±23.8	50.6±25.5	<0.01
Physical role difficulty	50.0±44.2	16.2±31.8	<0.01	62.9±41.8	16.7±31.4	<0.01
Pain	59.6±20.8	32.1±24.0	<0.01	65.3±23.3	38.6±27.3	<0.01
General health	55.1±20.8	33.5±21.5	<0.01	59.4±21.6	38.9±18.9	<0.01
Vitality	54.2±23.9	22.0±16.0	<0.01	61.2±22.0	29.2±19.0	<0.01
Social functioning	61.4±32.6	27.5±25.5	<0.01	68.8±31.2	35.0±27.9	<0.01
Emotional role difficulty	56.6±50.4	13.5±28.8	<0.01	63±42.2	26.9±51.4	<0.01
Mental health	68.8±17.3	39.2±13	<0.01	72.4±15.3	49.3±19.0	<0.01
ASEX score women	16.4±6.1	22.0±5.9	<0.01	15.8±5.8	18.1±6.6	0.01
ASEX score men	12.6±5.4	17.57±7.1	<0.01	11.6±5.3	16.0±5.8	<0.01

HAD-A: Hospital Anxiety and Depression Scale Anxiety Subscale; HAD-D: Hospital Anxiety and Depression Scale Depression Subscale; ASEX: Arizona Sexual Experience Scale

DISCUSSION

In the present study, we showed that IBD has an important influence on QoL, mood, functionality, and sexual life. Anxiety, depression, QoL, and sexual functions were all seriously affected by disease activity. Additionally, mood disorders were associated with impaired sexual function.

It was determined that HAD-A score in the CD group and HAD-D score in the UC and CD groups were significantly higher. Anxiety rates were 7% in the control, 19% in the UC, and 38% in the CD groups. Depression rates were 31% in the control, 52% in the UC, and 47% in the CD groups. According to the American National Comorbidity Survey study, the lifelong prevalence of generalized anxi-

ety was 4%-6%, and the prevalence of major depression was 12%-17% in the community (12). On the other hand, Guthrie et al. (13) reported an anxiety rate of 25% and a depression rate of 47% in 116 patients with IBD in a cross-sectional study using HAD and SF-36 scales. In addition, it was emphasized that disease activity and physiological symptoms affect the QoL as in accordance with our results (13,14). Anxiety and depression rates were observed to be higher in the UC and CD groups than in the general population, and rates were also even higher in patients with active disease. Disease activity was associated with poorer social and physical functioning as assessed by SF-36. Furthermore, it was reported that antidepressant therapy enhances not only patients' mood, QoL, and sexual life but also disease remission (15). Chronic illnesses could also put a strain on family caregivers. It was reported that 41% of patients with IBD and also 30% of patients' caregivers were vulnerable to depression (16).

The mean ASEX scores and all ASEX subscores, except satisfaction, were significantly higher (worse) in women with CD or UC than in the control group. Although the mean ASEX scores of male patients were not different from the control group, ASEX subscore for penile erection was significantly higher (worse) in men with CD, and subscore for orgasm was significantly higher in men with UC than in the control group. The mean ASEX scores were significantly higher in both women (p=0.01) and men (p=0.05) with active disease than in patients with inactive disease. In the present study, 87% of women and 64% of men with active disease had sexual dysfunction. Active disease was a risk factor for impaired QoL and sexual dysfunction as compatible with other studies (17-19). Timmer et al. (18) reported that sexual dysfunction in men with IBD and the control group is similar, but active disease causes to increase sexual dysfunction. As in the present study, being women was associated to sexual dysfunction independent of disease activity. The reason for the similarity of sexual dysfunction rate in the control men group with male patients with IBD may be explained by cultural and gender differences about sexual expectations and cut-off value of the Turkish version of the ASEX scale. In the present study, marital status of the patients was not recorded, and also it was not questioned whether patients had a regular sexual life.

In a prospective Zurich cohort study, sexual dysfunction was shown to be twice more frequent in the depressed group than in the control group (50% vs. 24%) (20). In a study conducted in India, the rate of sexual dysfunction was found to be 71% using the ASEX and Hamilton Depression Scale on 60 patients with a major depressive disorder diagnosis according to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition criteria (21). Bel et al. (19) reported that sexual dysfunction frequency is similar to the control group, and disease activity and mood have a major association between sexual dysfunction. On the other hand, Riviere et al. (22) indicated that social and emotional functioning is a predictor of sexual dysfunction, and sexual dysfunction is not related to disease activity. It appears that not only disease activity but also depression, sociological factors, psychiatric comorbidities, and IBD complications play a prominent role in sexual function.

The prolongation of the expected life span and increasing number of chronic illnesses reveal the importance of QoL. In recent years, physicians also aim to improve the functional, psychological, and social well-being of patients, along with prolonging the life span, slowing the progression of diseases and controlling physical symptoms. IBD is a chronic inflammatory disease that affects many organs and systems and is more common in the younger population. The expected life span of patients with IBD has been shown to be the same as for healthy people (23). Therefore, increasing the QoL should be one of the main goals of treatment. Satisfaction of the patients with the quality of the health care service also leads to significant improvement in their QoL (24).

The present study has strong features, such as evaluating disease activity, QoL, mood, and sexual dysfunction at the same time, and has a control group with sufficient number of samples. Furthermore, to the best of our knowledge, this was the first study from Turkey evaluating this issue. As there could be valuable differences in the geographical and cultural aspects and the presence of less number of such epidemiological studies from our country, we believe that the present study will bring some new insights to this field. On the other hand, our study had some limitations as well. Indicators affecting the QoL, such as house type, average monthly income, occupational group, working conditions, marital status, perceived stress, and social support (25) of the patients, were not specified, and patients' follow-up assessment was not performed. Disease-related complications, especially perianal stricture, pelvic adhesions, bowel obstruction, and pelvic surgery because of complications in IBD, may cause serious sexual dysfunction together with low QoL. They are also major contributors of patient's physical and psychological status. Patients who have undergone intra-abdominal surgery due to disease complications were not recorded, and this was another limitation of the study.

As a result, IBD is a chronic inflammatory disease affecting the young age group. Anxiety, depression, and sexual dysfunction are common in patients during the active phase, and these situations are unnoticed frequently. Therefore, patients with IBD should be screened for psychological diseases, sexual dysfunction, and necessary treatments, and counseling should be done.

Ethics Committee Approval: Ethics committee approval was received for this study from the Ethics Committee of the Ankara University (Decision Date: 10.03.2014, Decision No: 04-138-14).

Informed Consent: Written informed consent was obtained from the patients who participated in this study.

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