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Research Article

Disgust and Its Effect on Quality of Life and Adjustment to Stoma in Individuals with Ileostomy and Colostomy

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Abstract

AIM: This study aims to determine the effect of disgust sensitivity on the quality of life of patients with ileostomy and colostomy, and their adaptation to stoma.

METHOD: This study has a cross-sectional and correlational design. The sample consists of 167 patients being treated in a state hospital and a private foundation hospital, who meet the research inclusion criteria. The Patient Information Form, Disgust Sensitivity Scale, Ostomy Adjustment Inventory, and Ostomy Quality of Life Scale (OQLS) are used for data collection. Descriptive statistics, one-way analysis of variance (ANOVA), t-test, and correlation analysis are used in data analysis.

RESULTS: Of the 86% of the participants diagnosed with cancer, 60% had undergone ileostomy and 40% had undergone a colostomy; 46% of the patients declared that they were capable of handling their own stoma care and 53% stated that they felt self-efficient about care. Participants who were female (88.55 ± 23.17), single (88.40 ± 20.98), or university graduates (93.34 ± 22.92) had higher disgust sensitivity scores. The study found no significant correlation between disgust sensitivity, quality of life, and stoma adjustment scores ($p > .05$).

CONCLUSION: The findings proved believe that recognizing the disgust sensitivity will help meet the physical and psychological needs of stoma patients and understand their quality of life and adjustment to stoma. This will help in guiding both patients and healthcare workers, and lead clinical studies.

Keywords: Adjustment, colostomy, disgust sensitivity, ileostomy, quality of life

Introduction

Colorectal cancers (CRC) are the third most common cancer in males and the second most common cancer in females, based on the GLOBOCAN database of the World Health Organization. Every year, 1.8 million new cases are added (www.wrcf.org). In Turkey, data from the Ministry of Health reveal that the CRC incidence is 21.8% for males and 13.2% for females (https://hsgm.saglik.gov.tr). One of the common outcomes of surgical CRC treatment is colostomy or ileostomy (Akgün & Yoldaş, 2012). Although colostomy or ileostomy have their beneficial effects with the removal of the underlying pathology from the body and the consequent improvement in health status and reduction of various symptoms, they can cause negative outcomes in the lives of individuals, regardless of the indication (Altuntaş et al., 2012; Knowles et al., 2017; Popek et al., 2010; Su et al., 2016). Ostomies dramatically change the lifestyle of individuals and can lead to experiences of various physical, psychological, and social problems, regardless of the disease itself, in the early periods and after discharge (Cengiz & Bahar, 2017; Kılıç et al., 2007). The most common complications after ileostomy and colostomy are parastomal hernia, prolapses, stenosis, ischemia, and stoma retraction (Bare et al., 2017; Colwell & Beitz, 2007; Hong et al.,

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2014; Persson et al., 2010; Sier et al., 2017). Foul smell, gas, fecal leakage, and peristomal skin irritation are among the most common problems faced because of such complications. The recent studies have shown that all of these adverse conditions negatively affect both the quality of life and the adjustment to ostomy (Nicholas et al., 2008; Traa et al., 2014). Having a stoma changes self-concept and body image, and the person may start to stay away from social environments, feeling the need to withdraw and stay alone (Kalıcı, 2008).

In addition to experiencing bodily changes and the loss of some functions, the individual has to learn how to care for their own stoma. This is very difficult for some people. For instance, along with the emotional reactions and functional changes, if the person also feels a high sense of disgust, it may result in a poor adjustment to stoma and an increase in complications experienced. The feeling of disgust is defined as an evolutionary response developed by human beings over time to avoid diseases and infections. It is evoked in contexts of food, animals, body fluids (saliva, secretions, urine, feces), sex, invasive body interventions (injections, infusions, physical examination, and incisions), death, and hygiene (Anaraki et al.,2013; Knowles et al., 2013; Poletto & da Silva, 2013; Turner et al., 2018; Wilson et al., 2010). Some studies have shown that in CRC patients, disgust can affect the patient's reactions before the surgery and the evoked disgust can prevent them from remembering the instructions or can cause avoidance (Reynolds et al., 2013; Turner et al., 2018). Smith et al.'s study focusing on the correlation of the feeling of disgust caused by the sound, foul smell, and appearance with ostomy adjustment showed that a correlation exists between the feeling of disgust, the adjustment to ostomy, and the quality of life (Smith et al., 2007). The study emphasized that following the perioperative instructions, the intentions to undergo surgery may be impacted by the feeling of disgust that is evoked while learning about stoma formation and care (Turner et al., 2018). Reynolds et al. (2016) presented in their systematic review that disgust may be a key emotional state for avoidance among CRC patients, caregivers, and health professionals. They also emphasize the need for further research to identify the factors that elicit disgust, and their effects in CRC patients, to target early identification of persons at risk of maladaptive outcomes.

There seem to be very few studies focusing on disgust due to stoma and its effects on the adaptation of the patient. Inability to change the ostomy bag because of disgust, needing a nurse for stoma care, or staying with the dirty stoma for long hours might create stomal complications and make ileostomy/colostomy adjustment more difficult. Even though studies on care, quality of life, and adjustment to care in stomal complications keep increasing, there are not enough studies aiming to determine the feeling of disgust created by the foul smell and the sight of feces during ostomy care, and its effects on stoma adjustment.

More studies are required to strengthen the evidences on the care issues in the CRC context related to the stoma, the patients adaptation to the stoma, and the adjustment process. Clarifying the relationship between disgust and related factors in ostomy patients will contribute to a better understanding of the individual needs of these patients.

This study aims to determine the effect of disgust sensitivity on the quality of life of patients with ileostomy and colostomy, and their adaptation to stoma.

Research Questions

1. Is disgust correlated with adjustment to ostomy?
2. Is disgust correlated with quality of life?
3. Is disgust correlated with the sociodemographic characteristics of patients and features of ostomy?

Methods

Study Design

This study was cross-sectional and correlational study.

Sample

The study was conducted in the general surgery and stoma care units of two different hospitals within Istanbul Municipality, between January 30, 2019 and June 30, 2019. The population of this study comprised 250 ileostomy and colostomy patients being treated in these two hospitals. One hundred sixty-seven patients who consented to participate in the study and who met the inclusion criteria formed the sample group of the study.

Inclusion criteria:

- 18years of age or above, and
- having experienced ileostomy/colostomy for at least 30 days.

Data Collection

The data were collected using face to face interviews with indiviuals called to the stomatherapy unit for follow-up, treatment, or other reasons, such as stoma education. After giving their written consent, they filled out the Participant Information Form, Disgust Sensitivity Scale-Revised Form (DS-R), Ostomy Adjustment Inventory-23 (OAI-23), and Ostomy Quality of Life Scale (OQLS), with the assistance of the stomatherapy nurse.

Participant Information Form: This form consists of 21 questions including sociodemoghraphic characteristics (age, gender, marital status, educational status, income level, etc.) and stoma features (stoma type, reason for stoma creation, stoma duration, and state of stoma care, etc.).

Disgust Sensitivity Scale-Revised: This scale was first developed by Haidt and Rozin (1994) to measure the severity of the disgust reaction to a series of disgust-eliciting stimuli like animals, bodily fluids, death, injury, foods, hygiene, and sex. The current version has been developed by Olatunji et al. (2008), and has been transformed to a 5-point Likert scale form of 27 items. Higher scores point out to a high level of disgust sensitivity. The scale contains 12 items on core disgust, 8 items on animal reminder, and 5 items on contamination-related disgust. The scale has been adapted to Turkish language by İnözü and Eremsoy (2013). Cronbach's alpha value of the DS-R was 0.93 for this present study.

Ostomy Adjustment Inventory-23: This is a 23-item 5-point Likert multidimensional scale to assess stoma adjustment in patients with ostomy, developed by Simmons et al. (2007). The OAI-23 has a four-dimensional structure: acceptance, anxious-preoccupation, social engagement, and anger. Higher scores indicate a higher level of adjustment. The OAI-23 has been adapted to the Turkish language by Karadağ et al. (2011). Cronbach's alpha for the OAI-23 in this present study was 0.90.

Ostomy Quality of Life Scale: This scale was developed by Prieto et al. (2005), to assess the quality of life of patients with stoma, based on the needs model quality of life scale of Hunt and McKenna (1992). The OQLS comprises 20 items under four domains of sleep concerns, sexual activity concerns, relations to family and close friends, and social relations other than family and close friends. The items in the scale are subject to a rating of 1 to 4. The higher the scores on the scale, the higher the quality of life. The validation and reliability of the scale for Turkey was done by Harputlu and Özsoy (2017). Cronbach's alpha value of OQLS for this present study was 0.96.

Statistical Analysis

The study used descriptive statistics (frequencies, percentages, arithmetic means, and ranges) to describe participants' characteristics; one-way variance analysis and *t*-test to determine the difference among variables, and Pearson correlation analysis to analyze the correlation among variables. The data obtained was shown to have 95% reliability and 5% significance. The data were analyzed using the program Statistical Package for Social Sciences (IBM SPSS Corp., Armonk, NY, USA) for Windows 22.0.

Ethical Considerations

Ethical approval was granted for the study by Koç University University Ethical Board (No. 2019.011. IRB3.011). The study was conducted in accordance with the principles of the Declaration of Helsinki, by underlining that participants' personal details would remain confidential and that they might leave the study at any time they liked. None of the personal information, such as names or IDs, was disclosed anywhere.

Results

Of the participants, 52% were female, 81.4% were single, and the mean age was 52.38. Most of them were living with their spouse or family. The other descriptive characteristics are given in Table 1.

Table 2 shows the characterististics of stoma. Cancer was the main reason for stoma in patients (62.9%), in addition to familial adenomatous polyposis (FAP), Crohn's disease, ulcerative colitis, and similar conditions classified as "other." Of the patients, 38,3% stated that they experienced skin problems, mostly leakage (19.8%), hemorrhage (5.4%), retraction and sore skin (5.4%), and prolapsed stoma (2.4%). The

Table 1.
Sociodemographic Characteristics of Participants (N=167)

	Min	Max	Mean	SD
Age	18	80	52.38	15.35
Weight	40	107	71.3	13.64
	n		%	
Gender				
Female	87		52.1	
Male	80		47.9	
Marital status				
Married	31		18.6	
Single	136		81.4	
Education				
Illiterate	25		15.0	
Primary school	62		37.1	
Secondary and high school	45		26.9	
University	35		21.0	
Living companion				
Alone	24		14.4	
Spouse-family	129		77.2	
Other	14		8.4	
Income				
Sufficient for care	95		56.9	
Insufficient for care	72		43.1	

Table 2.
Stoma-Related Characteristics (N=167)

	Min	Max	Mean	SD
Stoma duration (months)	1	48	10.05	10.62
	n		%	
Stoma Type				
Colostomy	79		47.3	
Ileostomy	88		52.7	
The reason for stoma				
Cancer	105		62.9	
Other*	62		37.1	
Receiving chemotherapy/radiotherapy				
Yes	91		54.5	
No	76		45.5	
Stoma care				
Only by self	78		46.7	
With help	35		21.0	
Always by someone else	54		32.3	
Feeling competent about stoma care				
Not at all	46		27.5	
Competent	93		55.7	
Very competent	28		16.8	
Having skin problems				
Yes	64		38.3	
No	103		61.7	
Having stoma education				
Yes	148		88.6	
No	19		11.4	

Note: *FAP, Crohn's disease, ulcerative colitis.

majority of the patients received stoma training and about half of them stated that they followed self-care.

It was found that the disgust sensitivity (DS-R) total score had a negative and weak correlation with age and weight ($p < .05$); however, there was no significant correlation between disgust sensitivity, quality of life, and stoma adjustment scores ($p > .05$). All adjustment scores had moderate positive correlations with quality of life scores ($p < .05$) (Table 3).

The DS-R total scores differed significantly with respect to gender, marital status, education, and presence of chronic diseases ($p < .05$). The DS-R scores of females, singles, university graduates, and those without a chronic disease were significantly higher than the others. Moreover, the OQLS scores of those who considered their income sufficient for stoma care were significantly higher than those who considered their income insufficient ($p < .05$) (Table 4).

The DS-R scores of patients with ileostomy, those who see themselves competent for stoma care, and those diagnosed with diseases other than cancer were significantly higher than the others ($p < .05$). The adjustment scores of the patients who care for their stoma on their own and consider themselves as competent, were higher than the others ($p < .05$). The quality of life scores of the patients who care for their stoma on their own and patients not receiving chemotherapy and/or radiotherapy were higher as well (Table 5).

Table 3.
Correlations Between DS-R, OAI-23, OQLS, Age, Stoma Duration, and Weight

	Age	Weight	Stoma Duration	OAI-23 Acceptance	OAI-23 Anxiety	OAI-23 Anger	OAI-23 Social	OAI-23 Total	OQLS
Age				–.155*	–.065	.040	.005	–.109	
Weight	.213*			–.196*	–.134	–.084	–.048	–.172*	
Stoma Duration	–.199*	.046		.038	.035	–.081	–.181*	–.050	
DS-R -Total	–.249*	–.206*	–.052	.126	–.012	.052	–.043	.171	–.052
OQLS	–.121	–.121*	.078	.474*	.629*	.340*	.484*	.609*	

Note: Pearson correlation analysis,*$p < .05$

Table 4.
Comparisons of DS-R, OAI-23, and OQLS Scores With Sociodemographic Characteristics

Gender	**DS-R-Total**	**OAI-23-Total**	**OQLS-Total**
Female	88.55 ± 23.17	46.13 ± 14.45	39.96 ± 15.04
Male	73.10 ± 17.62	44.16 ± 14.06	41.50 ± 17.11
t; *p*	4.818; 0.001*	0.894; 0.373	–0.617; 0.538
Marital status			
Married	79.08 ± 21.97	44.67 ± 14.42	40.60 ± 15.89
Single	88.40 ± 20.98	47.00 ± 13.71	41.05 ± 16.75
t; *p*	2.298; 0.023*	0.874; 0.384	0.152; 0.880
Education			
Illiterate	81.96 ± 20.38	46.56 ± 10.99	36.20 ± 12.17
Primary school	74.64 ± 20.12	41.56 ± 14.13	41.32 ± 15.67
Secondary high school	80.17 ± 21.44	47.66 ± 14.41	42.02 ± 17.20
University	93.34 ± 22.92	48.88 ± 15.21	41.11 ± 17.56
F; *p*	5.887; 0.001*	2.666; 0.050	0.794; 0.499
Living companion			
Alone	83.12 ± 24.04	48.83 ± 12.73	39.45 ± 17.46
Spouse/family	80.90 ± 21.32	45.25 ± 15.88	41.73 ± 16.11
Other	80.00 ± 26.35	38.35 ± 7.30	33.28 ± 10.63
F; *p*	0.122; 0.885	2.433; 0.091	1.857; 0.159
Income			
Sufficient for care	82.11 ± 19.66	45.34 ± 13.47	41.01 ± 14.35
Insufficient for care	74.69 ± 23.76	40.26 ± 13.95	36.93 ± 17.61
t; *p*	–1.952; 0.053	–2.069; 0.040*	–1.459; 0.147
Chronic disease			
No	89.12 ± 21.26	47.69 ± 13.93	42.78 ± 16.75
Yes	76.06 ± 21.09	43.59 ± 14.30	39.37 ± 15.49
t; *p*	–3.887; 0.001*	–1.821; 0.070	–1.344; 0.181

Note: $t = t$-test; F = ANOVA. *$p < .05$.

Table 5.
Comparisons of DS-R, OAI-23, and OQLS Scores With Stoma-Related Characteristics

Stoma Type	DS-R-Total	OAI-23-Total	OQLS
Colostomy	77.34 ± 20.67	43.62 ± 14.14	40.01 ± 16.02
Ileostomy	84.56 ± 22.78	46.60 ± 14.29	41.31 ± 16.11
t; p	−2.138; 0.034*	−1.352; 0.178	−0.524; 0.601
Stoma reason			
Cancer	77.53 ± 22.32	44.15 ± 13.44	39.65 ± 15.65
Other	87.27 ± 20.30	46.95 ± 15.49	42.46 ± 16.63
F; *p*	−2.816; 0.005*	−1.227; 0.221	−1.095; 0.275
Chemo/radiotherapy			
Receiving	80.68 ± 22.50	44.57 ± 13.91	38.12 ± 15.95
Not receiving	81.71 ± 21.62	45.93 ± 14.72	43.78 ± 15.68
t; p	−0.300; 0.765	−0.614; 0.540	−2.304; 0.022*
Stoma care			
Only by self	83.74 ± 23.41	51.29 ± 14.42	45.34 ± 16.86
With help	81.20 ± 17.89	39.85 ± 11.21	35.57 ± 12.26
Always by someone else	77.37 ± 22.26	39.94 ± 12.40	37.31 ± 15.32
F; *p*	1.339; 0.265	15.322; 0.001*	6.697; 0.002*
Feeling competent about stoma care			
Not at all	74.69 ± 23.76	40.26 ± 13.95	36.93 ± 17.61
Competent	82.11 ± 19.66	47.34 ± 13.47	41.01 ± 14.35
Very competent	88.53 ± 24.44	52.78 ± 14.35	45.85 ± 17.59
F; *p*	3.754; 0.025*	7.729; 0.001*	2.792; 0.064
Having skin problems			
Yes	78.14 ± 20.55	43.28 ± 13.25	38.81 ± 15.30
No	83.01 ± 22.81	46.37 ± 14.78	41.87 ± 16.44
t; p	−1.394; 0.165	−1.368; 0.173	−0.201; 0.231

Note: t = *t*-test; F = ANOVA. *$p < .05$.

Discussion

This study analyzed the relationship between the disgust sensitivity of patients with colostomy and ileostomy and their adjustment to stoma, their quality of life, and other related factors. The findings showed that disgust sensitivity has a weak negative correlation with age and weight, and has no correlation with quality of life and stoma adjustment. Disgust sensitivity seems to be correlated with certain sociodemographic characteristics such as gender, marital status, education, current chronic disease, feeling competent for stoma care, stoma type, and ostomy reason. There was also a moderate level of positive correlation between adjustment to stoma and quality of life. The disgust sensitivity levels in females, singles, and university graduates were found to be higher. In addition, individuals without chronic diseases seemed to have higher disgust sensitivity compared to the other groups. This study showed a significantly higher disgust sensitivity in females compared to males, yet there is no gender differentiation in terms of adjustment to stoma and the quality of life. Nonetheless, there are no studies in the literature regarding either the gender effect on feeling a sense of disgust or the adjustment to ostomy. One study in the literature exploring the gender correlation for all sub domains of quality of life in patients with stoma, emphasized that the scores of female participants are significantly higher compared to males (Colwell et al.,

2004). Similarly, another study found that female respondents had higher quality of life scores and the married respondents coped with CRC much better (Duchesne et al., 2002). The reason of higher disgust sensitivity in the single participants might be related with having less support resources. Additionally, disgust sensitivity had a negative correlation with age and weight in this present study. However, studies show that being overweight creates a higher risk for more stoma complications in individuals (Duchesne et al., 2002; Hunt et al., 1992). All these findings may indicate that the relationship between disgust sensitivity and the consequences pointed to need further research.

This study found that individuals with ileostomy had a higher disgust sensitivity compared to the individuals with colostomy and with non-cancer related stomas. In the studies about the colorectal surgery and quality of life and adjustment issues, authors have conventionally addressed the population as stoma patients in general. In a recent study, Jin et al., (2020) indicated that self-disgust can be an important variable related to stoma acceptance. However, in a recent study, Silva et al. (2020) emphasized that since the characteristics and symptoms of the ileum are different from the colon, comparing patients with colostomy and ileostomy together in the same analysis can affect the results. This supports the idea that the results may be an important starting point to address the differences between ileostomy and colostomy patients. However, in studies on disgust, stigma, and stoma adjustment, it was seen that these effects were strongest among colostomy patients, compared to a sample of non-patients. These studies also showed that disgust was negatively associated with general well-being and the perceived quality of life (Jin et al., 2020; Plazibat & Prlić, 2017; Smith et al., 2007; Sung et al., 2010).

This study, contrary to the expectations, presented high disgust sensitivity in respondents who felt competent about stoma care as well. The patients who care for their stoma on their own were not any different, and they had high disgust scores. Jin et al. (2020) pointed out that the sense of disgust can be an important mediator of stoma acceptance. These findings pointed out to presence of disgust sensitivity in patients who care for their stoma on their own. In addition, the weak correlation between stoma duration and the contamination sub theme of disgust sensitivity showed that contamination-based disgust sensitivity may decrease with time. On the other hand, increasing disgust sensitivity in patients who care for their stoma on their own and those who feel competent can be a trait developed with time.

Various studies have shown that having a stoma has a major impact on the quality of life of individuals, and it affects both their psychological and social adjustment (Karadağ et al., 2015; Sung et al., 2010; Wilson et al., 2010). This study presented a positive association between adjustment to stoma and quality of life, albeit somewhat weak. Stoma acceptance is among the factors affecting the stoma adjustment in the individuals (Haidt et al., 1994). Similar to this study findings, (Simmons et al., 2007) showed that psychological adjustment and stoma care self-efficacy explained 77% of the factors affecting the quality of life in patients with stoma. Caring for one's own stoma was also an important factor in the acceptance of stoma (Plazibat & Prlić, 2017; Simmons et al., 2009). Supporting these findings, this study also found that the adjustment scores of patients who look after their own stoma were significantly higher than others.

Considering all these results, even though this study could not present a direct correlation between disgust sensitivity and quality of life and adjustment to stoma, it showed the correlation with other variables such as female gender, being single, higher education level, stoma type, and being a non-cancer patient. Studying these variables along with different aspects of disgust characteristics using different research methods can be significant in preventing possible problems.

Study Limitations

The results of this study may differ from the results of colostomy and ileostomy patients living in societies with different personal characteristics. This study also disregarded the psychiatric problems (obsessive compulsive disorder, depression, anxiety disorders, etc.), and this aspect can be explored in future studies. This study did not include the patients who needed to continue receiving adjuvant chemotherapy treatment. One other limitation is that the DS-R scale used in this study measures only general disgust sensitivity level. Further studies can develop measurement tools for stoma-specific disgust sensitivity.

Conclusion and Recommendation

Despite all the limitations stated above, this study contributes strongly fill the current gap in the literature, regarding the feelings of disgust in stoma patients. The findings might lead to potential clinical results. Disgust has significant implications in CRC contexts. If disgust sensitivity before a colostomy can predict adaptation afterward, this can become a useful tool to help identify patients who might need more help in adjusting to their condition. Indeed, while general disgust sensitivity may be a fairly fixed trait, bowel-specific sensitivity might be modifiable. Interventions could be devised in order to de-sensitize responses to bowel functioning, reducing bowel disgust sensitivity, and aiding in the adaptation process. Further research is required to identify disgust elicitors and effects in patients with stoma, and develop interventions that target early identification of persons at risk of maladaptive outcomes.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Koç University (Date: January 8, 2019, Decision No: 2019.011. IRB3.011).

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

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