

Functional Assessment of Quality of Life Using EORTC QLQ-CR29 in Patients with Colon Cancer at King Abdulaziz University Hospital

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Abstract

Objective: Colorectal cancer is the third most common cancer in the world. Quality of life is important to achieve successful treatment outcomes. The aim of this study was to assess the functional quality of life of patients with newly diagnosed colorectal cancer in order to improve our understanding as physicians of how cancer therapy influences the patients' lives, and how we can help patients improve the quality of life on a daily basis.

Method: This was a cross-sectional study conducted between January-September 2013, of a sample of 40 patients newly diagnosed with colon cancer at the King Abdulaziz University Hospital, Jeddah, Saudi Arabia. Participants completed the EORTC QLQ-CR29 questionnaire, translated into Arabic and modified for a KSA population by three oncologists.

Results: In total, 40 patients were included (males, 25; females, 15). Similar findings were reported between both genders in terms of body image, postoperative complications and stomas, and these were significant issues in a substantial number of respondents.

Conclusion: The quality of life of patients with colorectal cancer in KSA is poor in general, as a result of both physician- and patient-specific factors. Further studies to assess this issue are recommended. An understanding of the difficulties that patients face should encourage physicians to consider this vital aspect of their care, positively influencing the treatment course with the aim of creating the conditions for a peaceful and optimal psychological, as well as disease, outcome.

Keywords: Colon cancer; Quality of life

Introduction

Colorectal (including anal) cancer is the third most common cancer in the world, with an estimated incidence of 1.24 million worldwide within 5 years of diagnosis. It is also the second leading cause of death from cancer worldwide. In Saudi Arabia in particular, it is the most common cancer among men and the second most common among women [1]. The highest incidence rates have been reported in North America, Australia, Western Europe and Japan. The incidence tends to be low in Africa and Asia and intermediate in the southern parts of South America [2]. Patients with colorectal cancer, both stoma and non-stoma patients, experience frequent or irregular bowel movements, diarrhoea, flatulence, and fatigue, and often have dietary restrictions [3,4]. Furthermore, colorectal cancer and its treatment can have an adverse effect on social functioning, including work life and productivity, relationships with friends, relatives, and partners, and other social activities and interests.

Health-related quality of life (QOL) has been an important object of interest in clinical practice, and there is particular emphasis on the assessment of treatment effects from a patient's point of view and the effect of the treatment on a daily basis [5]. The term "quality of life" is a multidimensional concept that covers physical, emotional, and social functioning, among other aspects, and QOL has become an important outcome measure in cancer patients, in addition to disease-free and overall survival. In addition, an assessment of QOL in patients with cancer may improve our understanding of how cancer and therapy

influence the patients' lives and how to adapt treatment strategies to the needs of individual patients [6]. Studies on cancer survivors and healthy controls have shown that cancer survivors face ongoing problems related to the disease [7], including reduction in their energy levels, weight loss, and psychological distress [8]. Colorectal cancer in particular has been shown to have a negative impact on QOL due to its associated symptoms and the treatments administered to the patients (surgery, chemotherapy and radiotherapy) [9].

The QOL questionnaire (QLQ) of the European Organization for the Research and Treatment of Cancer (EORTC) is an internationally accepted as a tool for the assessment of the health-related QOL of cancer patients. The EORTC QLQ-CR29 was developed after modification of the original QLQ-CR38, which was developed specifically for assessing the QOL of colorectal cancer patients [10]. The

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validity and reliability of QLQ-CR29 as a supplement to QLQ-CR30 has been demonstrated with regards to assessing treatment outcomes in colorectal cancer patients in the clinical setting [11]. However, not much is known about the QOL of colorectal cancer patients in Saudi from the patient's perspective. Our literature search showed only one other very recent study which used QLQ-CR30 and CR29 to assess the patient-reported QOL among colorectal patients in Saudi Arabia [12]. Moreover, the present authors have also reported the impact of physiological symptoms and complications on the QOL of colorectal cancer patients from the same institution, using the self-reported FACT-C questionnaire [13]. In the present study, we have used QLQCR-29 to assess the self-reported QOL in a group of colorectal cancer patients treated at King Abdulaziz University Hospital. These qualitative findings will improve our understanding of QOL from the point of view of colorectal cancer patients in Arabia.

Patients and Methods

Study population

After obtaining the ethical approval of the Biomedical Ethics Committee of KAUH, a cross-sectional study was conducted on all patients with colorectal cancer who were treated at King Abdulaziz University Hospital between 15th January 2013 and 17th September 2013. A total of 40 patients who were diagnosed with colorectal cancer within the stipulated period were included.

Study tools

The EROTIC QLQ-CR29 questionnaire was used; it is one of the modules of EORTC QLQ-C15-PAL. The questionnaire was translated into Arabic by two experts and retranslated again into English to ensure that there were no errors in translation. It was finally revised by three oncologists at KAUH.

Statistical analysis

Statistical analyses were performed using SPSS (SPSS Inc., Chicago, IL, USA).

Results

With regards to the place of residence of the patients, the majority (n = 14, 35%) were from the South of Jeddah; moreover, 6 (15%) were from the North, 5 (12.5%) were from the middle, 3 (7.5%) were from the East, and 12 (30%) were from other parts. There was no significant difference between male and female patients with regards to the place of residence. Further, as shown in Table 1, there was no significant difference between the male and female patients with regard to the type of treatment chemotherapy, radiotherapy, or surgery. However, surgical treatment was more common in males than in female patients.

As shown in Table 2, there was no significant difference between the male and female patients with regard to the urinary complaints reported in the questionnaire. Of the total patients, 57.5% reported that they "sometimes" and "mostly" experienced frequent urination during the day; 52.5%, frequent urination during the night; 12.5%, episodes of involuntary urine leakage, and 12.5%, dysuria pain while urinating.

As shown in Table 3, no significant difference was found between the male and female patients with regard to any of the abdominal problems listed in the questionnaire. Of the total patients, 50% reported that they "sometimes" and "mostly" experienced abdominal pain; 35%, pain around the anal area; 55%, bloated feeling around the abdomen; 30%, blood in their stool; 32.5%, mucus in their stool; and 52.5%, dryness of the mouth.

As shown in Table 4, no significant difference was detected between the male and female patients with regards to the treatment complications mentioned in the questionnaire. Of the total patients, 25% reported that they "sometimes" and "mostly" experienced hair loss; 27.5%, a change in their sense of taste; 40%, worry about their future health; 35%, worry about their body weight; 22.5%, a feeling that that they were less attractive physically; and 30%, dissatisfaction with their body.

	Male (n = 25, 62%) N (%)	Female (n = 15, 37%) N (%)	Total (n = 40) N (%)	P value
Residency				
North	4 (10%)	2 (5%)	6 (15%)	0.026
East	2 (5%)	1 (2.5%)	3 (7.5%)	
South	13 (32.5%)	1 (2.5%)	14 (35%)	
Middle	2 (5%)	3 (7.5%)	5 (12.5%)	
Other	4 (10%)	8 (20%)	12 (30%)	
Chemotherapy				
Yes	12 (30%)	9 (22.5%)	21 (52.5%)	0.462*
No	13 (32.5%)	6 (15%)	19 (47.5%)	
Radiotherapy				
Yes	2 (5%)	4 (10%)	6 (15%)	0.109*
No	23 (57.5%)	11 (27.5%)	34 (85%)	
Surgery				
Yes	19 (47.5%)	11 (27.5%)	30 (75%)	0.850*
No	6 (15%)	4 (10%)	10 (25%)	

*The difference was not significant.

Table 1: Type of treatment administered to patients with colorectal cancer according to gender.

Question	Male (n = 25)	Female (n = 15)	Total (n = 40)	P-value
Did you urinate frequently during the day?				0.817*
Never	3 (7.5%)	3 (7.5%)	6 (15%)	
Rarely	8 (20%)	3 (7.5%)	11 (27.5%)	
Sometimes	9 (22.5%)	6 (15%)	15 (37.5%)	
Mostly	5 (12.5%)	3 (7.5%)	8 (20%)	
Did you urinate frequently during the night?				0.059*
Never	6 (15%)	4 (10%)	10 (25%)	
Rarely	9 (22.5%)	0(0%)	9 (22.5%)	
Sometimes	7 (17.5%)	8 (20%)	15 (37.5%)	
Mostly	3 (7.5%)	3 (7.5%)	6 (15%)	
Did you have any episodes of unintentional (leakage) of urine?				0.560*
Never	17 (42.5%)	11 (27.5%)	28 (70%)	
Rarely	4 (10%)	3 (7.5%)	7 (17.5%)	
Sometimes	1 (2.5%)	1 (2.5%)	2 (5%)	
Mostly	3 (7.5%)	0 (0%)	3 (7.5%)	
Did you experience any pain when you urinated?				0.279*
Never	15 (35%)	9 (22.5%)	24 (60%)	
Rarely	8 (20%)	3 (7.5%)	11 (27.5%)	
Sometimes	0 (0%)	2 (5%)	2 (5%)	
Mostly	2 (5%)	1 (2.5%)	3 (7.5%)	

*The difference was not significant.

Table 2: Urinary problems in patients with colon cancer according to gender.

	Male (n = 25)	Female (n = 15)	Total (N = 40)	P Value
Did you have abdominal pain?				
Never	12 (30%)	4 (10%)	16 (40%)	0.410*
Rarely	3 (7.5%)	1 (2.5%)	4 (10%)	
Sometimes	4 (10%)	5 (12.5%)	9 (22.5%)	
Mostly	6 (15%)	5 (12.5%)	11 (27.5%)	
Did you have pain in your buttocks/anal area/rectum?				
Never	8 (20%)	7 (17.5%)	15 (37.5%)	0.646*
Rarely	7 (17.5%)	4 (10%)	11 (27.5%)	
Sometimes	5 (12.5%)	3 (7.5%)	8 (20%)	
Mostly	5 (12.5%)	1 (2.5%)	6 (15%)	
Did you have a bloated feeling in your abdomen?				
Never	9 (22.5%)	2(5%)	11 (27.5%)	0.335*
Rarely	3 (7.5%)	4 (10%)	7 (17.5%)	
Sometimes	6 (15%)	3 (7.5%)	9 (22.5%)	
Mostly	7 (17.5%)	6 (15%)	13 (32.5%)	
Did you notice blood in your stools?				
Never	12 (30%)	8 (20%)	20 (50%)	0.627*
Rarely	4 (10%)	4 (10%)	8 (20%)	
Sometimes	5 (12.5%)	1 (2.5%)	6 (15%)	
Mostly	4 (10%)	2(5%)	6 (15%)	
Did you notice mucus in your stools?				
Never	10 (25%)	7 (17.5%)	17 (42.5%)	0.855*
Rarely	6 (15%)	4 (10%)	10 (25%)	
Sometimes	5 (12.5%)	3 (7.5%)	8 (20%)	
Mostly	4 (10%)	1 (2.5%)	5 (12.5%)	
Did you experience dry mouth?				
Never	6 (15%)	5 (12.5%)	11 (27.5%)	0.840*
Rarely	6 (15%)	2(5%)	8 (20%)	
Sometimes	8 (20%)	5 (12.5%)	13 (32.5%)	
Mostly	5 (12.5%)	3 (7.5%)	8 (20%)	

Table 3: Abdominal problems among patients with colon cancer according to gender.

As shown in Table 5, there was no significant difference between the number of male and female patients who underwent open bag surgery colostomy for colorectal cancer.

As shown in Table 6, there was no significant difference between the male and female patients with regards to the bag-related questions. Of the total patients, 58.8% reported that they “sometimes” and “mostly” experienced involuntary release of gas from the stoma bag; 41.17%, involuntary release of stool from the bag; 29.4%, skin irritation around the stoma; 82.35%, frequent replacement of the stoma bag; 47%, embarrassment because of the stoma; and 35.29%, problems with caring for the stoma. In particular, 29.41% of the male patients reported that they were embarrassed by the stoma, as opposed to 17.6% of the female patients who reported that they were embarrassed.

As shown in Table 7, no significant difference was detected between the male and female patients with regard to the postoperative data. Of the

total patients, 28% reported that they “sometimes” and “mostly” experienced unintentional release of gas; 12.4%, unintentional release of stool; 6.2%, skin irritation around the anus; 34.4%, frequent bowel movements during the day; 28.1%, frequent bowel movements during the night; and 15.55%, embarrassment as a result of the bowel sounds.

Table 8 shows that no significant difference was detected between the male and female patients with regards to the quality of their sex life.

Discussion

In this study, data were collected from 40 newly diagnosed patients with colorectal cancer, 25 of whom were male and 15 female. We believe

	Male (n = 25)	Female (n = 15)	Total (N = 40)	P Value
Have you lost hair as a result of your treatment?				
Never	19 (47.5%)	5 (12.5%)	24 (60%)	0.058*
Rarely	2 (5%)	4 (10%)	6 (15%)	
Sometimes	2 (5%)	2 (5%)	4 (10%)	
Mostly	2 (5%)	4 (10%)	6 (15%)	
Have you had problems with your sense of taste?				
Never	15 (37.5%)	7 (17.5%)	22 (55%)	0.679*
Rarely	4 (10%)	3 (7.5%)	7 (17.5%)	
Sometimes	2 (5%)	3 (7.5%)	5 (12.5%)	
Mostly	4 (10%)	2 (5%)	6 (15%)	
Were you worried about your health in the future?				
Never	10 (25%)	6 (15%)	16 (40%)	0.058*
Rarely	7 (17.5%)	1 (2.5%)	8 (20%)	
Sometimes	2 (5%)	6 (15%)	8 (20%)	
Mostly	6 (15%)	2 (5%)	8 (20%)	
Have you worried about your weight?				
Never	16 (40%)	8 (20%)	24 (60%)	0.704*
Rarely	1 (2.5%)	1 (2.5%)	2 (5%)	
Sometimes	1 (2.5%)	2 (5%)	3 (7.5%)	
Mostly	7 (17.5%)	4 (10%)	11 (27.5%)	
Have you felt physically less attractive as a result of your disease or treatment?				
Never	15 (37.5%)	10 (25%)	25 (62.5%)	0.923*
Rarely	4 (10%)	2 (5%)	6 (15%)	
Sometimes	1 (2.5%)	1 (2.5%)	2 (5%)	
Mostly	5 (12.5%)	2 (5%)	7 (17.5%)	
Have you been dissatisfied with your body?				
Never	18 (45%)	7 (17.5%)	25 (62.5%)	0.313*
Rarely	2 (5%)	1 (2.5%)	3 (7.5%)	
Sometimes	2 (5%)	4 (10%)	6 (15%)	
Mostly	3 (7.5%)	3 (7.5%)	6 (15%)	

*The difference was not significant

Table 4: Treatment-related complications among patients with colon cancer according to gender.

	Male (n = 25)	Female (n = 15)	Total (N = 40)	P Value
Did you undergo open bag surgery for the evacuation				

of stool?				
Yes	16 (40%)	8 (20%)	24 (60%)	0.105*
No	9 (22.5%)	7 (17.5%)	16 (40%)	

*The difference was not significant.

Table 5: Open bag surgery in patients with colon cancer according to gender.

	Male (n = 12)	Female (n = 5)	Total (N = 17)	P Value
Did you experience unintentional release of gas/flatulence from your stoma bag?				
Never	6 (35.29%)	0 (0%)	6 (35.29%)	0.135*
Rarely	0 (0%)	1 (5.88%)	1 (5.88%)	
Sometimes	5 (29.41%)	3 (17.64%)	8 (47.06%)	
Mostly	1 (5.88%)	1 (5.88%)	2 (11.76%)	
Have you had leakage of stools from your stoma bag?				
Never	6 (35.29%)	1 (5.88%)	7 (41.18%)	0.13*
Rarely	0 (0%)	3 (17.64%)	3 (17.65%)	
Sometimes	2 (11.76%)	0 (0%)	1 (5.88%)	
Mostly	4 (23.52%)	1 (5.88%)	6 (35.29%)	
Have you had sore skin around your stoma?				
Never	3 (17.64%)	1 (5.88%)	4 (23.53%)	0.289*
Rarely	2 (11.76%)	3 (17.64%)	5 (29.41%)	
Sometimes	4 (23.52%)	1 (5.88%)	5 (29.41%)	
Mostly	3 (17.64%)	0 (0%)	3 (17.65%)	
Did you require frequent bag changes during the day and night?				
Never	1 (5.88%)	0 (0%)	1 (5.88%)	0.662*
Rarely	2 (11.76%)	0 (0%)	2 (11.76%)	
Sometimes	3 (17.64%)	2 (11.76%)	5 (29.41%)	
Mostly	6 (35.29%)	3 (17.64%)	9 (52.94%)	
Did you feel embarrassed because of your stoma?				
Never	5 (29.41%)	2 (11.76%)	7 (41.17%)	0.018*
Rarely	2 (11.76%)	0 (0%)	2 (11.76%)	
Sometimes	0 (0%)	3 (17.6%)	3 (17.6%)	
Mostly	5 (29.41%)	0 (0%)	5 (29.4%)	
Did you have problems caring for your stoma?				
Never	5 (29.41%)	5 (29.41%)	10 (85.82%)	0.84*
Rarely	1 (5.88%)	0 (0%)	1 (5.88%)	
Sometimes	1 (5.88%)	0 (0%)	1 (5.88%)	
Mostly	5 (29.41%)	0 (0%)	5 (29.41%)	

*The difference was not significant.

Table 6: Bag-related data among the patients with colon cancer who underwent colostomy according to gender. that these qualitative findings provide important information on the QOL of colorectal cancer patients in the Kingdom of Saudi Arabia.

The majority of the patients were from the South of Jeddah (35%), but this is probably related to the location of the hospital. No significant difference was detected between the male and female patients with regards to the type of treatment, although we did notice that surgical intervention was more common in male than in female patients. However, this is probably because the number of female patients is lower in the original sample. Another reason could be that female patients were more apprehensive about undergoing surgical procedures and the related complications.

With regard to urination, 37.5% of the patients reported that they urinated frequently during the day and night, 70% did not experience any involuntary urination, and 60% did not experience any pain during urination. This is probably because the size of the mass had not increased and it had not metastasized to the genitourinary tract. There was no

significant difference between the male and female patients with regards to this set of data. Further, 24 patients out of a total of 32 had normally functioning bladders according to a urodynamic study and decreased bladder compliance was observed in 7 patients. Bladder hypersensitivity, involuntary detrusor contractions and incontinence were observed in two women. Flow symptoms occurred in 6%, urgency in 15% and control problems in 19%. Of all the women, 11% wore pads. Distress as a result of urinary symptoms was half as common as the prevalence of the symptoms [14].

In our study, 60% of the patients experienced abdominal pain, 72.5% experienced bloating symptoms, 17.5% had blood in their stool, and 57.5% had mucus in their stool. This could be due to the presence of metastatic lesions that obstructed the lumen of the gut. Moreover, these findings could indicate bad prognosis of the disease. We did not find any differences between male and female patients, but our previous

	Male (n = 13)	Female (n = 10)	Total (N = 23)	P Value
Have you had unintentional release of gas/flatulence from your anal opening?				
Never	8 (34.78%)	4 (17.39%)	12 (37.5%)	0.577*
Rarely	1 (4.34%)	1 (4.347%)	2 (6.25%)	
Sometimes	2 (8.69%)	4 (17.39%)	6 (18.75%)	
Mostly	2 (8.69%)	1 (4.34%)	3 (9.37%)	
Have you had leakage of stools from your anal opening?				
Never	9 (39.13%)	9 (39.13%)	18 (56.25%)	0.196*
Rarely	0 (0%)	1 (4.34%)	1 (3.125%)	
Sometimes	3 (13.043%)	0 (0%)	3 (9.375%)	
Mostly	1 (4.347%)	0 (0%)	1 (3.125%)	
Have you had sore skin around your anal area?				
Never	8 (34.78%)	10 (43.4%)	18 (56.25%)	0.086*
Rarely	3 (13.04%)	0 (0%)	3 (9.375%)	
Sometimes	0 (0%)	0 (0%)	1 (3.125%)	
Mostly	2 (8.69%)	0 (0%)	1 (3.125%)	
Did you have frequent bowel movements during the day?				
Never	4 (17.39%)	5 (21.73%)	9 (28.125%)	0.597*
Rarely	2 (8.69%)	1 (4.34%)	3 (9.375%)	
Sometimes	3 (13.043%)	3 (13.043%)	6 (18.75%)	
Mostly	4 (17.39%)	1 (4.34%)	5 (15.625%)	
Did you have frequent bowel movements during the night?				
Never	3 (13.04%)	7 (30.4%)	10 (31.25%)	0.089*
Rarely	3 (13.04%)	1 (4.34%)	4 (12.5%)	
Sometimes	4 (17.39%)	0 (0%)	4 (12.5%)	
Mostly	3 (13.04%)	2 (8.69%)	5 (15.625%)	
Did you feel embarrassed because of your bowel movement?				
Never	8 (34.78%)	6 (26.08%)	14 (43.75%)	0.972*
Rarely	2 (8.69%)	2 (8.69%)	4 (12.5%)	
Sometimes	1 (4.34%)	1 (4.34%)	2 (6.25%)	
Mostly	2 (8.69%)	1 (4.34%)	3 (9.375%)	

*The difference was not significant.

Table 7: Postoperative data on the patients with colon cancer according to gender.

	Male (n = 25)	Female (n = 12)	Total (N = 37)	P Value
To what extent were you interested in sex?				
Never	7 (18.9%)	5 (13.5%)	12 (32.4%)	0.059*
Rarely	3(8.1%)	3(8.1%)	6 (16.2%)	
Sometimes	5 (13.5%)	2 (5.4%)	7 (18.9%)	
Mostly	10 (27.02%)	2 (5.4%)	12 (32.4%)	
Did you have difficulty getting or maintaining an erection?				
Never	15 (60%)			
Rarely	1(4%)			
Sometimes	5 (20%)			
Mostly	4 (16%)			
Did you have pain or discomfort during intercourse?				
Never		9 (75%)		
Rarely		2 (16.6%)		
Sometimes		0 (0%)		
Mostly		1 (8.33%)		

*The difference was not significant.

Table 8: Data related to sexual desire among patients with colon cancer according to gender.

study using the FACT-C questionnaire showed that male patients complained more about abdominal pain (13); this is probably related...

With regard to pain in their buttock region, 62.5% of the patients had this problem: 42.5% were male and 20% were female. In compare to other studies, only 40 % of the patients had this complain. Further, 72.5% of the patients experienced dry mouth, with a significant difference observed between male and female patients.

Hair loss is one of the main complications associated with chemotherapy, as this treatment is known to affect cell division, resulting in hair loss. In our population, 40% of the patients had hair loss, but there was no significant difference between males and females. Of the total patients in our study, 45% had a problem with their sense of taste, but there was no significant difference between male and female patients. This could be due to some form of GI toxicity caused by the chemotherapy.

When our patients were asked if they were worried about their health in the future, the responses of the male and female patients were not very different. Further, 40% stated that they were worried about their health. In another study, 55% of the sample acknowledged that they had a fear of dying, and 31.6% acknowledged they sensed a loss of hope in the fight against their illness [15].

With regards to their body image, 40% of the patients stated that they were worried about their weight, and no difference was found between male and female patients. It has been reported that 31% of patients with non-Hodgkin's lymphoma experience weight loss, as opposed to 87% of patients with gastric cancer [16]. With regards to physical activity, 37.5% of the patients reported that they felt less physically active, and no significant difference was found between male

complained of gas release from the bag; this percentage is considerably different from the percentage of 100% that was reported in a sample in Europe. The percentage of patients who frequently changed their bags was 52%; this value is probably related to the religious practices in Saudi Arabia, which require people to clean themselves before their daily prayers. This daily cleansing and hygiene practice may also be related to the lower incidence of sore skin around the stoma and anus, as only 17% of our patients reported having sore skin around the stoma, and 3% reported having sore skin around the anus. These findings are further supported by the findings in colorectal cancer patients in Europe. Further, only 9% of the patients in our sample were embarrassed by their bowel sounds, probably because only 15% had bowel movements during both the day and night.

Arab men are rather conservative and not open to talking freely about sex, which probably explains why only 27% of our patients stated that they were still interested in sexual activity. This figure is significantly lower than that reported in patients from other cultures: for example, in Europe, this figure was 96%. The other similar study that used QLQ-CR29 in colorectal cancer patients in Saudi Arabia also showed a lack of interest in sexual activity, probably because of the same reason [12]. However, we did find a Dutch study that reported impairment in sexual functioning and a lower quality of sex life preoperatively in colorectal cancer patients [17], so the effects of this cancer on sexual functioning probably need to be explored further in the future.

There are a few limitations to this study.

In conclusion, the most common complaints in our population of patients with colorectal cancer were abdominal pain and bloating, pain in the rectal area, and dry mouth. Further, hair loss and a change in the sense of taste were the most commonly reported treatment-related complications. Among the patients who underwent colostomy, only a small percentage reported any problems with care, which is probably related to the religious and cultural practices in Saudi Arabia.

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and female patients. Moreover, 37.5% of the patients stated that they were dissatisfied with their bodies, which is similar to the percentage of 40% reported in other studies.

Surgical intervention was performed in 60% of the patients, with no significant difference detected between male and female patients.

Of the total patients who underwent colostomy in our sample, 11%

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