

THE QUALITY OF LIFE OF PATIENTS WITH COLORECTAL CARCINOMA AND STOMA

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ABSTRACT

Surgical treatment and formation of a stoma can be lifesaving for colorectal cancer patients. However, the quality of life is often impaired in patients with stoma. The goal of this study is to determine the quality of life of patients with stoma and cancer, and the relationship between the quality of life and characteristics of these patients.

The study was conducted from 2018 to 2020 and included a total of 64 patients of both sexes with colorectal cancer and temporary or permanent stoma. The European Organization for Research and Treatment of Cancer with Quality of Life Questionnaire (EORTC QLQ-C29-30) and the anonymous WHO Quality of Life Questionnaire SF-36 were used for self-assessment of quality of life.

Our study included 39 (61.0%) men and 25 (39.0%) women. 24 patients (37.5%) had colostomy, 14 patients (21.9%) had ileostomy, and 26 patients (40.6%) underwent surgery for resection of colorectal cancer without stoma. A significant number of women were in the group of patients with a permanent stoma ($p = 0.01$). There was no statistically significant difference in the assessment of general health ($p = 0.680$) and quality of life ($p = 0.721$) during the past month in relation to gender. Patients without a stoma rated their general health better compared to those with stoma and the difference reached statistical significance ($p = 0.035$). There was no statistically significant difference in the assessment of quality of life between the group of patients with stoma and without stoma, as well as between the patients of different age groups.

Patients with stoma rated their general health as worse, but not their quality of life.

Keywords: Quality of life, colorectal cancer, stoma.

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INTRODUCTION

Colorectal cancer is one of the biggest health problems in the world and a major public health issue with a trend of steady increase in new cases. (1) After the operation, patients get a stoma and their self-confidence and quality of life decreases greatly. (2) It is important that patients accept life with a stoma and adapt to the new situation, as well to acquire the skills and procedures that they will need throughout their lives. (3, 4) They need adequate and quality education from doctors and nurses and the help of family and friends who are with them at all times, helping them in the recovery period and everyday life. (5, 6, 7, 8) After colorectal cancer surgery, the lives of these patients are challenging as they need to adjust to life with cancer and a stoma. The concept of quality of life refers to the patient's subjective experience and feelings about the experience and the existence of specific determinants and conditions. (9) Initially, the feeling of joy and satisfaction with life with a stoma, inner peace and well-being and a life without burdens, especially without fear and uncertainty, which can often completely discourage the patient and thus impair their quality of life, is important. Such a relaxed life and a life without subconscious burden, without mental disorders and depression, with happiness, are the main emotions that describe the quality of life. The patient with a malignant disease and the consequences it bears feels and lives worse and it doesn't depend solely on the severity of the disease but also on the patient's view on their disease, improvement of their laboratory results, disease evaluation and health-related quality of life. (10, 11)

Historically, definitions and measurements of quality of life have changed. The World Health Organization Quality of Life Group (WHOQOL Group) defines quality of life in the context of the culture in which the patient lives and in relation to personal goals, expectations and concerns. (12, 13) Quality of life is viewed under the influence of physical health, mental well-being, degree of independence, connection with other people. Quality of life is a subjective concept and a subjective assessment of life as a whole or satisfaction with the degree of functioning. (14)

A stoma is formed when a part of the bowel is brought to the anterior abdominal wall. That visible part of the bowel called a colostomy, can be permanent or temporary, and causes many challenges in terms of quality of life and everyday functioning. Stoma localization depends on the localization of the cancer. The formed stoma temporarily excludes the distal intestine from the passage until the diseased part of the intestine recovers or is a permanent opening that serves to drain feces and gas. It is important that the stoma is positioned in such a way that it is accessible to the patient's sight and touch. (15) Healthy stoma is red or pink, round or oval, 2-5cm in diameter, has no nerve endings and therefore is not sensitive to touch. (16, 17) After the operation, the doctor informs the patient and his family if additional treatment is needed, such as radiation and chemotherapy, and about controls. The quality of life of a patient with a stoma largely depends on how much he and his family have accepted the

procedures important for stoma care and the way of life with a stoma. (4, 18) Patients may have comorbid conditions that affect their ability to manage stoma care and may interfere with the patient's coordination and stoma management function. If the patient is incapable to take care of himself, the spouse and family are involved. The patient and family should be explained the importance of surgery and informed about the changes that occur after surgery.

Stoma brings changes in lifestyle with inevitable mental crises. Throughout the process of treatment and recovery, the influence and help of the family are important from a psychosocial point of view, especially to establish better patient stability. (5, 6, 7) After surgery and stoma formation, it is difficult to get used to the new situation that affects the patient, and in a broader sense, their family members. As per good quality of life, emotional experiences such as anger, helplessness, anxiety should be considered and faced and eventually 'feeling good' must grow into 'being good'.

Nowadays, the quality of life of patients with stoma is an integral part of the evaluation of therapeutic and rehabilitation procedures. The detail of personal factors of quality of life is very relevant in the field of health care of patients with malignant disease and stoma. Definitions of quality of life differ as do the ways in which they are assessed. One of the definitions of quality of life describes it as general well-being influenced by objective indicators and a large share of subjective perception, and assessments of emotional, social and material well-being, development of purposeful activity. (9) In recent years, efforts to improve the quality of life of patients with stoma, as one of the important goals of treatment, have encouraged doctors to undertake more research to identify different dimensions of quality of life and ways to improve them. Making good decisions to control complications of the disease, treatment and improvement of the quality of life is a very important goal in taking care of patients with stoma. (15) After surgery, many cancer and stoma patients experience greater stress, worry, and physical problems as a result of skin irritation (76%), stoma pouch leaks (62%), unpleasant odor (59%), and decreased pleasant activities (54%) and depression (53%). (19) In such circumstances, it is worth assessing the quality of life in assessing the outcome of various therapeutic and rehabilitation procedures and their ultimate impact on the quality of life of patients with stoma.

As previously noted, each patient experiences and accepts the stoma differently, so the quality of life after primary resection of colorectal cancer and stoma formation is individual and depends on the patient. Most patients take their lifestyle seriously and adhere to regular doctor's appointments, while some often neglect this and think that surgery has solved the problem. Of course, after the operation there are various negative effects that affect the social and mental, but also the physical component of the patient's life after getting a stoma. Patients are not accustomed to a different body appearance that comes with wearing a stoma and there is also a fear of



rejection by family and friends. They do not want to show themselves in public because they are afraid of judgement and prejudice of others and think that everyone will notice the stoma pouch under their clothes. (20) Due to that, many patients withdraw and do not want to contact with the social environment. (19, 21) In addition, they are not familiar with or educated about the balanced and adequate diet, necessary for physical activity and maintaining a high quality of life. Prevention and treatment of long-term complications in patients with stoma is also a well-known factor affecting the quality of life (22) Knowing the factors that contribute to stoma complications will help identify patients at higher risk. In addition, early detection enables timely interventions so that conservative measures can be effectively implemented (23).

The goal of this study is to determine the quality of life of patients with stoma and cancer, and the relationship between the quality of life of these patients and age, gender, education, work and marital status, type of complications and life expectancy. In addition, determining the effect of how well-informed the patient is on the quality of life with a stoma.

METHODS

The study was conducted in 2018-2020 and included a total of 64 patients of both sexes with colorectal cancer and the temporary or permanent stoma. The inclusion criteria were having a stoma for at least six months, the absence of other diseases and adequate physical and mental ability. The study was conducted using the anonymous WHO Quality of Life Questionnaire SF-36, which included questions on demographic data and patient satisfaction, and tested the difference in results between patients operated on for colorectal cancer with or without temporary or permanent stoma. The EORTC QLQC29-30 (European Organization for Research and Treatment of Cancer with Quality of Life Questionnaire) and SF-36 (tm) Health Survey questionnaires were used for self-assessment of quality of life.

Categorical data are presented in absolute and relative frequencies, and numerical data are described by median and interquartile range limits. Due to deviations from the normal distribution, differences in numerical variables by gender and marital status were tested using the Mann-Whitney U test, and differences in numerical variables according to age groups, complications, and colostomy duration were tested using the Kruskal-Wallis test. All p values are two-sided.

RESULTS

The study included 64 patients, of whom 39 (61.0%) were men and 25 (39.0%) women. The mean age of patients was 62.55 ± 9.365 . The largest number of patients has completed high school 29 (45.3%), 31 are retired (48.5%), and 45 are married (70.0%). Of the total sample, 38 patients had a stoma, which is more than half of the sample, 59.5% to be exact.

Table 1. Patient characteristics

Patient characteristics	n (%)
Total	64(100)
Gender	
Male	39 (61.0)
Female	25 (39.0)
Age	
<30	0
31-50	17 (10.9)
51-70	36 (71.9)
>70	11 (17.2)
Education	
No formal education	0
Primary school	18 (28.1%)
High school	29 (45.3%)
College	11 (17.2%)
University and more	6 (9.4%)
Employment status	
Unemployed	8 (12.5%)
Employed	25 (39.0%)
Retired	31 (48.5%)
Marital status	
Unmarried	6 (9.5%)
Married	45 (70.0%)
Divorced	6 (9.5%)
Widowed	7 (11.0%)
Stoma	
Without	26 (40.5%)
Temporary	29 (45.5%)
Permanent	9 (14.0%)
Duration from stoma creation (months) (median-interquartile range)	48 (12 - 102)

Difficulties adjusting to life with a stoma make the patient's current problem, which is associated with fear, feeling of helplessness and loss of control. All this is accompanied by daily pressures, which are affected by daily challenges, loss of self-confidence and the problem of intimacy, long-term fears and worries that often lead to low self-esteem and loss of socialization.

**Table 2.** Patients in terms of pain and fatigue

Pain	n (%)				
	Not at all	A little	Quite a bit	Very much	Total
Have you had pain?	30 (46.8)	23 (36.0)	9 (14.1)	2 (3.1)	64 (100)
Did pain interfere with your daily activities?	26 (40.6)	25 (39.1)	12 (18.8)	1 (1.5)	64 (100)
Fatigue	n (%)				
	Not at all	A little	Quite a bit	Very much	Total
Did you need to rest?	20 (31.4)	28 (43.7)	14 (21.7)	2 (3.1)	64 (100)
Have you felt weak?	27 (42.2)	28 (43.7)	7 (11.0)	2 (3.1)	64 (100)
Were you tired?	22 (34.8)	27 (42.6)	12 (18.8)	3 (4.0)	64 (100)

We assessed feelings of pain and fatigue in our study. Most patients in our study reported feeling no pain (46.8 %) while 36.0% of them had mild pain, and 18.8% of patients stated that the pain interfered with their daily activities. Most patients (42.6%) felt a little tired and needed rest.

Table 3. Patient age and years with stoma by gender

	Median (interquartile range)			p*
	Male	Female	Total	
Patient age	61 (53 - 65)	57 (44 - 70)	60 (49 - 69)	0.53
Years with stoma	4.5 (3 - 8)	2 (1 - 4)	3.5 (2 - 7)	< 0.001

*Mann Whitney U test

The mean age of patients with stoma was 60 (median 60, interquartile range 49-69), ranging from 62.55 ± 9.365 years. In terms of living with a stoma, patients had a stoma for about 3 years in average (median 3.5, interquartile range 2-7) while men had a stoma for a significantly longer time (median 4.5 interquartile range 3-8) Mann Whitney U test, p <0.001.

Table 4. Distribution of patients by stoma characteristics

	Gender			p*
	Male	Female	Total	
Type of stoma				
Colostomy	15 (35.8)	9 (41.0)	24 (37.5)	0.10
Ileostomy	9 (21.4)	5 (22.7)	14 (21.9)	
No stoma	18 (42.8)	8 (36.3)	26 (40.6)	
Stoma by duration				
Permanent	4 (17.4)	5 (33.4)	9 (23.7)	0.01
Temporary	19 (82.6)	10 (66.6)	29 (76.3)	
Complications				
Skin changes	4 (20.0)	4 (22.2)	8 (21.0)	
Stoma prolapse	3 (15.0)	1 (5.5)	4 (10.5)	0.001
Stoma hernia	1 (5.0)	2 (11.0)	3 (7.9)	
No complications	12 (60.0)	11(61.3)	23 (60.6)	
Taking care of the stoma by themselves				
No	4 (17.4)	2 (13.6)	6 (15.8)	0.80
Yes	19 (82.6)	13 (86.4)	32 (84.2)	
Total	23 (100)	15 (100)	38 (100)	

* Fisher's exact test; Chi-squared test



24 patients (37.5%) had colostomy, 14 patients (21.9%) had ileostomy, and 26 patients (40.6%) underwent surgery for resection of colorectal cancer without stoma. Of the total number of patients with a permanent stoma, there was a significant number of women (Chi-squared test, $p = 0.01$). Prior to surgery, 21 patients (55.3%) had a marked stoma site, with no significant gender difference. Of the total number of patients (64) in our study, there were significantly more men with colorectal cancer. Reported complications were changes in the peristomal skin in 21.0% of patients which was significantly more reported in women. 60.6% of patients had no complications, and stoma prolapse was more pronounced in

men (Fisher's exact test, $p = 0.001$). Of the total number of patients with stoma, 32 patients (84.2%) performed stoma care independently, without significant gender difference.

Patients generally rated their health and overall quality of life as *good* during the past month, only a small number of patients rated it as *unsatisfactory*.

Patients with stoma most often rated their general health with a four (31.3%). The most frequently rounded answer on the quality of life table was answer a five (28.1%), and the mean value of both particles was four.

Table 5. Patients and living with a stoma

	n (%)				
	Not at all	A little	Quite a bit	Very much	Total
Are you generally satisfied with the information you received about life with a stoma?	1 (1.7)	10 (16.1)	41 (63.4)	12 (18.8)	64 (100.0)
How satisfied are you with the information you received after the surgery?	4 (6.3)	17 (26.7)	31 (48.5)	12 (18.5)	64 (100.0)
How satisfied are you with the information you received from the surgeons who operated on you?	5 (7.9)	16 (25.1)	27 (42.3)	16 (25.0)	64 (100.0)
How satisfied are you with the information you received from the ward nurse?	4 (6.3)	14 (21.9)	30 (47.6)	16 (25.0)	64 (100.0)
Are you satisfied with the information about the stoma you gathered on the Internet?	14 (21.9)	11 (17.2)	23 (36.0)	16 (25.0)	64 (100.0)
Are you satisfied with the information about the stoma you received from other media?	16 (25.3)	14 (22.0)	26 (40.7)	8 (12.5)	64 (100.0)
Are you satisfied with the information about the stoma that you received from other stoma patients?	6 (9.4)	13 (20.3)	32 (50.0)	13 (20.3)	64 (100.0)
How satisfied are you with the information about the stoma you received from the other people?	17 (26.6)	16 (25.0)	24 (37.5)	7 (10.9)	64 (100.0)
Needed information before surgery	5 (7.9)	8 (12.5)	20 (32.4)	31 (49.1)	64 (100.0)
Needed information after surgery	2 (3.2)	3 (4.7)	23 (35.8)	34 (53.1)	64 (100.0)
Willingness to agree to surgery and stoma formation	6 (9.4)	10 (15.6)	33 (51.6)	15 (23.4)	64 (100.0)
Changed negative attitudes about stoma after the surgery	5 (7.9)	8 (12.5)	27 (42.2)	24 (37.5)	64 (100.0)
Would you recommend surgery and a stoma to the patient with your diagnosis?	1 (1.6)	7 (11.0)	16 (25.0)	40 (62.4)	64 (100.0)



Patients mostly agree with the statement that they need information before and after the surgery, and that they are quite satisfied with the information they received about life with a stoma. They mostly rated satisfaction with the information they received from the surgeons who operated on them with

quite a bit and *very much* (67.3%) and would recommend surgery and a stoma to patients with their diagnosis in 87.4% of cases. A total of 26.6% patients operated on with a stoma were not satisfied with the information about the stoma they received from other people.

Table 6. Patients by quality of life self-assessment

	n (%)				
	Not at all	A little	Quite a bit	Very much	Total
Did you urinate uncontrollably?	47(73.5)	10(16.0)	4(6.3)	3(4.2)	64(100.0)
Have you had painful urination?	48(75.0)	11(17.2)	4(6.3)	1(1.5)	64(100.0)
Have you had abdominal pain?	39(61.0)	14(22.0)	9(14.2)	2(2.8)	64(100.0)
Have you lost hair due to therapy?	51(79.6)	5(7.9)	4(6.3)	4(6.3)	64(100.0)
Have you had any problems with the sense of taste?	45(70.4)	14(22.0)	3(4.8)	2(2.8)	64(100.0)
Were you worried about your health?	30(47.3)	10(15.7)	12(18.5)	12(18.5)	64(100.0)
Were you worried about your weight?	29(45.4)	15(23.4)	10(16.1)	10(16.1)	64(100.0)
Were you dissatisfied with your appearance?	52(46.8)	27(24.3)	17(15.3)	8(12.3)	64(100.0)
Have you had stool leakage from your stoma?	31(48.5)	22(34.4)	8(12.5)	3(4.6)	64(100.0)
Have you had painful skin around the stoma?	40(62.3)	17(26.7)	6(9.4)	1(1.6)	64(100.0)
Did you change your pouches more often during the day?	31(48.5)	18(28.2)	12(18.8)	3(4.5)	64(100.0)
Did the stoma make you feel uncomfortable?	29(45.4)	18(28.2)	9(14.1)	8(12.5)	64(100.0)
Have you had problems caring for a stoma?	32(50.0)	19(29.8)	8(12.5)	5(7.79)	64(100.0)

Many patients were concerned about their health (18.5%), their weight (16.1%), 17 (15.3%) said they were very dissatisfied with their appearance, only 29.8% had little trouble taking care for the stoma, 35 patients felt uncomfortable (54.8%), 25 patients experienced abdominal pain (39%) and 7 patients (10.5%) uncontrolled and painful urination.

We also tested the gender differences in assessed parameters. There was no statistically significant difference in the assessment of general health ($p = 0.680$) and quality of life ($p = 0.721$) during the past month in relation to gender. Although women rated their physical (6.5 (4.7 - 7)) compared to 5.9 (4.6 - 7.2)) and spiritual well-being (5.3 (4 - 7.3))

compared to 4.9 (4.1 - 6)) (median (interquartile range)) slightly better than men, no statistically significant difference by gender was found in relation to physical, social, mental and spiritual well-being as well as the overall scale.

Then we compared general health and quality of life during the past month between the patients with and without stoma and found a statistically significant difference in "General health during the past month" between these groups of patients ($p = 0.035$). Patients without a stoma rated their health better. There was no statistically significant difference in the assessment of quality of life between the group of patients with stoma and without stoma.

Table 7. Assessments of subscales and whole scales of quality of life of patients with colostomy

	Median (interquartile range)	Minimum - maximum
Physical well-being	5.9 (4.6 – 7.2)	1.5 – 9.3
Social well-being	5.3 (4.1 – 6.1)	1.9 – 8.6
Mental well-being	5.3 (4.1 – 6.1)	3.4 - 7.5
Spiritual well-being	5.0 (4.1 – 6.0)	0.9 – 7.4
Overall scale	5.4 (4.7 – 6.0)	3.0 – 7.4

Patients rated physical well-being with the highest score in average 5.9 (interquartile range 4.6-7.2), ranging from 1.5-9.3 and spiritual well-being with the lowest score, median 5.0 (interquartile range 4.1-6.0) ranging from 0.9-7.4.



Table 8. Assessments of subscales and whole scales of quality of life of patients with colostomy by duration of living with colostomy

	Median (interquartile range) of duration of living with stoma				p*
	Up to 3 years (N=25)	3-10 years (N=29)	11 and more years (N=10)	Total (N=64)	
Physical well-being	6.1 (4.8 – 7.4)	5.4 (4.3 – 6.7)	7 (5.5 – 7.8)	5,9 (4.6 – 7.2)	0.255
Mental well-being	5.2 (4.4 – 5.7)	5.2 (4.8 – 5.8)	5.5 (5.2 – 5.8)	5.2 (4.8 – 5.8)	0.413
Social well - being	5.1 (4.2 – 6.1)	4.8 (3.2 – 5.3)	5.9 (4.8 – 6.8)	5.0 (4.1 – 6.0)	0.110
Spiritual well-being	4.7 (4.1 - 6)	5.4 (4.3 – 6.1)	4.6 (3.6 – 7.3)	5.3 (4.1 – 6.1)	0.657
Overall scale	5.3 (4.7 – 6.2)	5.3 (4.4 – 5.6)	5.6 (5.3 – 6.2)	5.4 (4.7 – 6.0)	0.489

*Kruskal-Wallis test

There was no statistically significant difference in the assessment of the quality of life of patients with colostomy in relation to the time elapsed since the implantation of colostomy.

Next, we grouped patients according to age into three groups: the youngest patients (31 – 50-year-olds), the middle-aged group (51 – 70-year-olds) and the oldest patients (70 years old and older), in order to test the differences in their quality of life assessments.

Assessment of physical well-being revealed that the youngest patients reported fatigue and sleep disorders as their biggest problems, patients from the middle-aged group peristomal skin changes while the biggest physical issues in the oldest group of patients were sleep disorders and physical strength. No statistically significant difference in the tested aspects of physical well-being was found between the mentioned age groups.

The youngest group of patients rated their mental well-being with the lowest score, and their biggest fear was recurrence of the disease. The biggest mental issue in the middle-aged group was dissatisfaction with their appearance, while the oldest patients were dissatisfied with their life and its quality. We found no statistically significant difference in the

tested aspects of mental well-being between the mentioned age groups.

In terms of social well-being, in patients aged 31-50 years stoma mostly limits them in intimate activities and makes it more difficult to travel due to stoma care. The biggest problems of patients aged 51-70 years are family stress due to stoma, restrictions in intimate activities and travel, and worsening of their financial situation due to the treatment of the disease. Worsening of the financial situation has reached statistical significance in the age group of 51-70 years (Kruskal-Wallis test, $p = 0.017$). In the oldest age group of 71 and over, the biggest problem is lack of support from family and friends and difficulties in stoma care.

On the scale of spiritual well-being, the youngest patients assessed the claim that the support they receive by going to church meets their needs and that the stoma has brought some value to their lives. In the same category, patients aged 51-70 rated the statement that they have reasons to live and that going to church meets their needs with the lowest score. They were the most hopeful group of patients, but the difference did not reach statistical significance. Lack of reasons to live was the biggest issue in the oldest age group of patients in terms of their spiritual well-being.



DISCUSSION

The study included 64 patients, 39 male (61.0%) and 25 female (39.0%), of whom 45 (70.0%) were married. Most of them were aged 51-70 years (71.9%), while the the least numerous age group was 31-50 years (10.9%), and no patients younger than 30 years old were in the study. The mean age of patients was 62.55 ± 9.365 years. Most patients included in the study have a high school degree (45.3%), while the smallest number of them has a university degree or more (17.2%). There were no patients without any formal education. In terms of employment status, most patients were retired (48.5%), and the least unemployed (12.5%). 26 patients (41.0%) underwent surgery without stoma formation, and 38 patients (59.0%) had stoma, of whom 9 had permanent stoma (23.7%), while 29 patients had temporary stoma (76.3%).

The literature shows that patients with stoma face many challenges in terms of their quality of life. (19, 24, 25, 26) The findings of our study similarly highlighted a number of problems and challenges regarding the quality of life. The impact of stoma on patients' quality of life was explored in many dimensions. The stoma-related physical problems, including irritated parastomal skin and unpleasant odor, noted in our study, were also reported by other researchers (19, 27, 28).

While the patient is in the hospital, the biggest problem is the psychological adjustment to the new condition. Of course, there are many other problems after leaving the hospital, such as leakage of liquid stool under the stoma disc, problems with putting on or changing the stoma pouch, odor, stoma size, "sound" of gas in the stoma pouch, stoma visibility, and hernias. After leaving the hospital, the adjustment begins, a period characterized by a high level of uncertainty and insecurity. (8, 19, 20) During the recovery period after the formation of the stoma, patients try to get involved in everyday life. The goal of the procedures in the recovery period is to help the patient take control and get involved in life as much as possible and allowed, to continue to live at the same pace as before. After a certain period, 6 months after colorectal cancer surgery and stoma formation, the priorities change leaving consequences on the patient and reducing his quality of life.

The formation of a temporary or permanent stoma reduces the patient's quality of life regardless of the diagnosis. The authors state that in these cancer patients, the embarrassment associated with ostomy outweighs all other patient concerns that is even greater than the concerns regarding stoma formation itself. (26) The impact of stoma on physical, mental, social and spiritual well-being is not unexpected, but it is little described in the literature. Research shows that quality of life is increasingly recognized as an important measure of the outcome of survival after major surgical interventions. (29) For these purposes, quality of life is seen as a multidimensional concept that defines the level of well-being and satisfaction with one's life because the patient's life is affected by the treatment of the disease. Research shows that

the stoma has a great impact on the patient's quality of life and patient's everyday life as well (24). The patient is happy to see his quality of life and lifestyle change after the formation of a stoma.

Many studies have shown a reduction in the quality of life in patients with stoma (2, 19, 24, 25, 26). Dissatisfaction with preoperative preparation and postoperative care, negative thoughts and beliefs associated with stoma contribute to the reduction of quality of life. Conversely, stoma gives many patients hope, prolongs their life, gives them ability to act and continue life plans (25). Adaptation to a new life situation lasts from several months to two years and is influenced by several factors that include the level of medical knowledge and skills that the patient possesses (4, 30). Quality of life is an important measure for a patient with stoma. Assessing the quality of life of patients with stoma will lead to a better understanding and improvement of life (19, 24). The impact of psychosocial needs on quality of life has been researched, but a small number of studies suggest interventions that would address problems patients with stoma face that reduce their quality of life. In the hardships of life, the patient feels and lives worse due to the presence of malignant disease or its consequences. And his quality of life depends not only on how sick the patient is, but also on how the patient experiences his illness. Nowadays, the therapeutic effects of the treatment of patients should be evaluated not only based on improved laboratory findings and clinical status of the patient, but also considering the improvement of the quality of their lives (9). Difficulties adjusting to life with a stoma make the patient's current problem, which is associated with fear, feeling of helplessness and loss of control. All this is accompanied by daily challenges, loss of self-confidence and the problem of intimacy, long-term fears and worries that often lead to low self-esteem and loss of socialization (21, 31).

Results of our study show that the patients have no problem in terms of privacy during stoma care. For most patients, their condition has been a burden to the family, some of them state that the stoma interfered with their intimate life or limits them in sports and recreation. Dabirian et al. noted that patients reported changes of skin around the stoma, sleep problems, unpleasant odor and gas (32). The results of our study show that, in the context of spiritual well-being, most patients have the reasons to live, and some are completely uncertain about their future. In contrast, some authors state that the minority of patients have a reason to live, they are insecure about their future while others have emotional support and inner peace and are hopeful for further life and healing. They highlighted family problems as the patient's biggest problem, as well as troubles in recreational activities and the disturbances in intimate relationships, the feeling of isolation from society and difficulties adapting to the new situation (19, 24).

Most patients agreed that they needed information before and after the operation, that they were very satisfied with the information they received from the surgeon, the ward nurse, and that they would recommend surgery and a stoma to any



patient with the same diagnosis. For the patient to consciously accept the operation and life with the stoma, it is certainly necessary for the operating surgeon to talk to the patient before performing the procedure. The patient should be told what the reason is for performing such an intervention and what he gains from it. How and where the stoma will be formed, the functioning and maintenance of the stoma, and what kind of life awaits him after the treatment should be explained to the patient (22, 33). A good relationship between the patient and the nurse who takes care of the stoma is considered key to patient's successful adaptation to life with the stoma. This relationship promotes continuity of stoma care, and psychosocial adjustment, increases patients' ability to develop practical stoma care skills, and reduces the risk of rehospitalization (15). Healthcare professionals should always strive to improve the quality of life of patients with stoma, as their knowledge and skills can help improve the patient's quality of life before and after surgery.

Problems of emotional functioning are more or less pronounced as more or less patients are irritable or depressed. Some studies have shown that 70% of patients with stoma experience dissatisfaction and depression. The results of our research show that stoma affects the quality of life, however, patients rated their general health and overall quality of life during the past month mostly well, only a small part of them rated it as unsatisfactory (19, 24).

Our results show that there is a significant difference only when comparing "General health during the past month" (Mann-Whitney U test $p = 0.035$) with respect to the presence of stoma. Patients who have a stoma rated their general health as worse than those without a stoma. Likewise, the assessment of general health as worse did not affect the assessment of quality of life, i.e., the item „Quality of life during the past month" did not show a statistically significant difference between groups (Mann-Whitney U $p = 0.492$). Considering the functional scales, there were no significant difference in relation to the stoma and sex, except in one, which is the assessment of general health (QL). Patients with and without stoma, patients of both sexes haven't shown any significant difference in physical, social and emotional functioning. Ostomy type may influence patients' general health, as colostomy carriers perceive their general health as better than ileostomy carriers (34). Nevertheless, colostomy and ileostomy have similar impact on patients' life quality (21, 35, 36).

The results of our study show that in the context of mental well-being, most patients are afraid of recurrence of the disease. It was difficult for them to adjust to the stoma, they feel useless, the stoma makes them feel uncomfortable, they find it difficult to look at and take care of the stoma, and they are dissatisfied with their lives (5, 13). However, our findings can still be useful to physicians and nurses in creating a supportive environment to improve the quality of life of patients with stoma. Using a quality of life questionnaire gives stoma patients the opportunity to express their concerns about quality of life issues. Due to the qualitative approach in this study,

we could not show a correlation between demographic characteristics and quality of life.

CONCLUSION

The analysis of the results of our research has shown that the patients with stoma rated their general health as worse, but not their quality of life. The quality of life of a patient with stoma after cancer surgery largely depends on how much the patient is willing to cooperate in treatment, regular examinations and adherence to guidelines for stoma care, depending on the level at which the patient adopted certain procedures for taking care of stoma and accepted life with it. Nowadays, most patients lead an orderly and fulfilled life, continue to work as before, and partially perform social activities, lead a normal family life, normal communication and socializing with friends, and engage in recreation and sports. Contemporary assessment of the therapeutic effects of the treatment of patients should include not only the evaluation of improved laboratory findings and clinical status of the patient, but also the improvement of the quality of their lives.

DECLARATION OF INTEREST

The authors declare that they have no competing interests.

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