

Quality of life among patients living with stoma

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Abstract: Stoma surgery has a major effect on patient's quality of life (QOL).

Objective: Identify QOL among patients living with stoma.

Setting: The study was performed at the outpatient clinics of colorectal and urological surgical departments at Alexandria Main University Hospital.

Subjects: A convenience sample of 100 adult patients with stoma was comprised, 50 patients with colostomy and 50 patients with urostomy.

Tool: One tool was used to gather the necessary data: Ostomy patient QOL structured interview schedule measured the stoma patient's QOL which composed of two sections. The 1st section includes two parts: Part one: concerned with sociodemographic and clinical data. Part two: includes 33 closed and open questions about personal data. The 2nd section contains 43 QOL items measured by using 10-point scales. The QOL items are split into 4 domains: physical, social, psychological and spiritual well-being.

Results: The results revealed that educational level, type of residence, resumed sexual activity since ostomy, suicide attempt and problems of stoma had significant effects on overall QOL among colostomy and urostomy patients, where $p \leq 0.05$.

Conclusion: It was concluded that the QOL among colostomy and urostomy patients were poor in all domains of physical, psychological, social, and spiritual with statistically significant differences between them.

Recommendations: Stoma patients must be informed about the life with stoma before the operation and must be supported throughout the life.

Keywords: Stoma, colostomy, urostomy, quality of life.

1. INTRODUCTION

Ostomy is a surgery that is actualized to treat a few conditions. An extensive number of patients experience ostomy surgery yearly. Using stoma, either temporary or permanent, incredibly diminishes the patients' QOL⁽¹⁻⁴⁾. Nowadays, the conditions prompting ostomy surgery are in the ascent^(5,6). In colostomy and urostomy surgeries, ordinary bowel or urinary function is disturbed, and waste is passed through the abdominal wall through an opening called a stoma into an appliance that must be exhausted periodically. Reasons for this surgery are varied, but the most well-known causes are colorectal and bladder cancer^(1, 2, 7, 8,9).

Globally, bladder cancer considers approximately 450,000 new cases and 165,000 deaths⁽¹⁰⁾. In the U.S., bladder cancer is the fourth ultimate common cancer and the eighth driving reason of cancer-related death in humans⁽¹¹⁾. In Egypt, colorectal and bladder cancer is the 7th ultimate common cancer. The estimated number of colon cancer patients (excluding rectal cancer) in 2015 was slightly more than three thousand⁽¹²⁾. Bladder cancer represent (6.9%) in both genders in Egypt in 2014, age-standardized incidence per 100,000 were 166.6 (both genders), 175.9 (males), and 157.0 (females). It is evaluated that around 13,000 individuals experience stoma surgery every year in the UK⁽¹³⁾.

Despite every efforts is made to treat these diseases, annually, thousands of individuals experience stoma surgery⁽¹⁴⁾. In numerous cases stoma prompts intensified trouble and suffering, and causes serious stress such as skin irritation (76%),

pouch leakage (62%), offensive smell (59%), decrease in pleasurable activities (54%), and anxiety/depression (53%). All of these issues negatively affected their physical activity, psychological performance and social function. Also, those patients were experiencing challenges and alterations of coming back to work, diminished sexual activity, and difficulties in travel and relaxation activities^(8, 9, 15).

Furthermore, stoma surgery majorly affects patients QOL, having a critical antagonistic impact on patients' mental prosperity and body image. Numerous studies exhibited that stoma surgery influences a patient everyday life^(1, 2, 10, 16). The term QOL refers to a multidimensional concept that incorporates physical, mental, social and spiritual dimension⁽¹¹⁾. Somani et.al(2010) expressed that the concept of "QOL" is a dynamic, exceptionally subjective, and multidimensional construct that can be impacted by different factors⁽¹⁷⁾. Moreover, Nieves et. al (2017) stressed that enhancing the QOL of stoma patients are the principle objectives of treatment⁽¹⁸⁾.

Moreover, Khan et al (2011), Shabbir and Britton (2010) stated that poor QOL is slightly because of insufficient management and directing services furnished to stoma patients and with the help of proper education and management, standards could be improved considerably^(19, 20). Thus, QOL appraisal of stoma patients is essential and can be helpful for choices made so as to control disease, inconveniences, treatment and better comprehension of patient's QOL pattern and enhancing their QOL⁽¹²⁾.

Nurses are vital individuals of the health care team and have a significant role to help them effectively adapt to the unique concerns caused by these surgeries, specifically in distinguishing the patients' requirements and their families, constraining the disease complications, and improving QOL⁽¹³⁻¹⁵⁾. Furthermore, this research could provide health professionals with an in depth understanding related to such patients which could be reflected positively on the patients' QOL. Besides, this examination could give wellbeing professionals an inside and out understanding identified with such patients which could be pondered emphatically the quality of patients life.

Aim of the study:

To identify QOL among patients living with stoma

Research question:

What is the QOL among patients living with stoma?

2. MATERIALS AND METHOD

Materials:

Research Design:

A descriptive design was used in the current study.

Setting:

The study was conducted at the outpatient clinics of colorectal and urological surgical departments, Alexandria Main University Hospital, Egypt.

Subjects:

A convenience sample of 100 adult stoma patients admitted to the previously mentioned settings. The subjects were sequentially recruited into two groups: colostomy (50) patients and urostomy (50) patients. Statistical program Epi info was used to estimate the sample size using the following parameters:

Population size = 200 over 12 months

Expected frequency = 50 %

Acceptable error = 5%

Confidence coefficient = 95%

Minimum sample size = 100 patients.

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The patients, who participated in this study, were selected according to the following criteria:

- Age ranging 21- 60 years.
- Both sexes (male and female).
- Has an ostomy in place for at least 3 months and more
- Able to give consent and willing to participate in the study.
- Free from psychological, emotional problems and a chronic disease.
- Free from history of ostomy in their family members that might influence the study results.

Tool:

One tool was used to gather the essential data about the study subjects.

Ostomy patient QOL structured interview schedule. It was developed by the City of Hope Quality of Life-Ostomy(COH-QOL-Ostomy) questionnaire⁽²¹⁾ and adapted by the researchers after reviewing of related literature⁽¹⁶⁻²³⁾ to identify the stoma patient's QOL. It is constituted of two sections.

The first section includes two parts:

Part one: concerned with sociodemographic and clinical data. It included structured questions related to patient's age, sex, marital status, education level, occupation, residence, socioeconomic status, type of ostomy, reason for ostomy creation, and time since ostomy surgery.

Part two: includes 33 closed and open questions about personal data included job, sexual activity, psychological support, clothing, diet, time taken to feel comfortable with daily stoma care, diet and appetite returned, mean length of time taken to do stoma care and problems of stoma.

The second section contains 43 QOL items measured by using a 10-point scale. The QOL items are divided into the four domains or subscales. Following is the items list identified by subscale.

Physical wellbeing: It included 11 items related to physical strength, fatigue, skin surrounding the stoma, sleep disorders, aches or pain, gas, odor, constipation, diarrhea, leakage from pouch or around the appliance and overall physical wellbeing.

Psychological well being: It included 13 items related to adjustment of stoma, embarrassed, anxiety, fear, depression, enjoyment on life, difficulties for looking at and caring of stoma, satisfaction with appearance.

Social well being: It included 12 items related to ability to meet new people, financial burden, travel, effect of stoma on relation with family, on recreational or sport activities and social activities, intimate, family and friends support, privacy at home and when traveling for doing stoma care.

Spiritual well being: It included 7 items related to feeling about future, hopeful, sense of inner peace, receive spiritual support.

Scoring system: each positively oriented response toward QOL dimensions was scored from 1-10. A score of 10 assigned to the item response choice no problem and 1 for severe problem. Total score will be ranged from 43 to 430. High score of quality of life indicated positive quality of life and low score indicated negative QOL. A total QOL score was calculated by adding the scores on all 10-point items and dividing by the total number of items. Total score was calculated and transferred to percentage scores. The level of QOL and sub items was presented as the following: <50% considered poor QOL, from 50<75% considered fair QOL, from equal or more than 75 % considered good QOL

Method

- An official letter from the Faculty of Nursing addressed to head of Colorectal and Urological surgical department at Alexandria Main University Hospital to obtain permission to carry out the study, after explaining study aim.

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- The research tool was adapted by the researchers based on current recent review of relevant literature⁽¹⁶⁻²³⁾ and was translated into Arabic language by the researcher.
- Content and construct validity of tool was ascertained by a jury of five experts in the field of medical surgical nursing and colorectal and urological surgeon. The necessary modifications were in traduced accordingly.
- Reliability of the tool was measured by Cronbach's alpha coefficient($r=0.7$).
- A pilot study was carried on 10% of the studied patients after the final tool was developed to test the clarity, and applicability. Pilot study patients were excluded from the study subjects.
- Patients who fulfilled the inclusions criteria were assigned by the researchers.
- Each patient was interviewed individually once for 30 – 45 minutes by the researchers in the waiting room at the outpatient clinics of colorectal and urological surgical departments to answer the structured interview schedule (Tool I) at the morning shift in the Alexandria Main University Hospital.
- The data was collected throughout 8 months period from August2017 to end of March 2018.

Ethical considerations:

- Written consents were obtained from patients before participation in the study after explaining that the gathered data would be used only for study purposes, confidentiality and privacy were assured. The patient was asked to answer question honestly. The subjects could withdraw from the study at any time.

Statistical analysis:

Data were fed to the computer and analyzed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp)⁽²⁴⁾ Qualitative data were described using number and percent. Quantitative data were described using range (minimum and maximum), mean, and standard deviation. Significance of the obtained results was judged at the 5% level.

The used tests were: Chi-square test for categorical variables, to compare between different groups. **Fisher's Exact or Monte Carlo correction** for chi-square when more than 20% of the cells have expected count less than 5. **Student t-test** for normally distributed quantitative variables, to compare between two studied groups. **F-test (ANOVA)** for normally distributed quantitative variables, to compare between more than two groups. **Regression** to detect the most independent/affecting factor for QOL

3. RESULTS

Table (1) shows frequency distribution of the colostomy and urostomy patients according to sociodemographic and clinical data. More than two third of colostomy and urostomy patients (68% and 84%) were male. The highest percentages of studied patients were between 50 to 60 years old, the mean age of colostomy and urostomy patient was (48.96 + 11.25 and 51.40+ 9.77) years respectively. Also, it was noticed that most colostomy and urostomy patients (82% & 66%) were illiterate and knew to read & write. In addition, the table showed that the majority of colostomy and urostomy patients (88% and 96%) were married and (72% & 76%) were working, respectively. It was found that over two third of colostomy and urostomy patients were from a low socioeconomic status (76% and 68%) respectively. Concerning stoma type, it was illustrated that, 92% and 100% of colostomy and urostomy patients had permanent stoma, respectively. Stomas were made for all patients in both groups due to cancers. Also, it was found that 60% and 50% of colostomy and urostomy patients had surgery for more than 6 months, respectively. These results also display that there were no statistically significant differences among colostomy and urostomy groups in relation to sociodemographic and clinical data

Table (2) represents frequency distribution of colostomy and urostomy patients according to personal data. This table illustrated that most colostomy & urostomy patients (80% and 56%) had been forced to change their job after stoma surgery and 88% , 100% of studied patients on both groups reported being sexually active before stoma surgery. While, most colostomy and urostomy patients (68% and 72%) resumed sexual activity after surgery. 68% of studied patients on both groups reported being dissatisfied with sexual activity. Concerning clothes, the results revealed that majority of colostomy and urostomy patients (88% and 100%) respectively reported having a problem with the location of stoma

which made 84% and 76% of colostomy and urostomy patients to change their clothes style after stoma surgery. Considering the psychological implications after stoma surgery, 88% & 100% of colostomy and urostomy patients had feeling of depression, respectively. As regards to dietary intake, it was found that 58% and 96% of colostomy and urostomy patients felt comfortable within 1 to 2 months with dietary pattern modifications after stoma surgery and 54%, 82% of colostomy and urostomy patients resumed their normal appetite from 1-2 months after stoma surgery.

The results also display that there were statistically significant differences among colostomy and urostomy groups in relation to change in job after stoma surgery, depression, problems with location of stoma, time taken to feel comfortable with dietary pattern modifications, and time taken to resume their normal appetite after stoma surgery, where $p \leq 0.05$.

Table (3) shows frequency distribution of colostomy and urostomy patients according to stoma care, the results revealed that most of colostomy patients (40%) spend over 30 minutes for daily stoma care while, 26% of urostomy patients spend the same time. In relation to time taken to feel convenient with stoma care the results showed that all urostomy patients (100%) had taken 1 to 2 months to feel comfortable with stoma care, compared to 54% of colostomy patients. Regarding problems of stoma, 76% of urostomy patients did not experience problems, while colostomy patients suffered from leakage, redness around pouch and mal odor (20%, 20% & 18%) respectively. Moreover, this table showed that there were statistical significant differences between colostomy and urostomy patients regarding to mean length of time for daily stoma care, time taken to feel comfortable with stoma care and problems of stoma, where $p \leq 0.05$.

Table (4) illustrates frequency distribution of percent score of QOL domains among colostomy and urostomy patients, the results revealed that, most of colostomy patients had poor QOL related to physical, psychological, social, and spiritual domains (98%, 92%, 92% and 66%) respectively. Compared to 64%, 82% & 90% of urostomy patients had poor QOL related to physical, psychological, and social domains respectively, while, 92% of the urostomy patients had fair QOL in spiritual domains, with statistically significant differences between colostomy and urostomy patients in relation to physical, psychological, social and spiritual at the QOL domains ($p \leq 0.001, 0.001, 0.005$ and 0.002 respectively).

Moreover, it can be noted that, the percent score of each domains of QOL among urostomy patients were better significantly than colostomy patients, $P < 0.001$.

Table (5 a & b) represents univariate analysis for over all mean QOL score with sociodemographic and personal characteristics among colostomy and urostomy groups, the table showed that educational level, type of residence, resumed sexual activity since ostomy, suicide attempt and problems of stoma had significant effects on overall QOL among colostomy and urostomy patients, where $p \leq 0.05$.

Table (6) shows multivariate linear regression for factor affecting QOL domain among colostomy patients, the results revealed that there were no statistical significant predicting factors affecting physical domain of QOL among colostomy patients, while, level of education, type of residence, suicide attempt were statistically significant predicting factors affecting psychological and spiritual domain of QOL. In addition to being depressed after stoma, stoma care and problems of stoma were statistically significant predicting factors affecting social domain of QOL.

Table (7) shows multivariate linear regression for factor affecting QOL domain among urostomy patients, the results revealed that suicide attempt was statistically significant predicting factor affecting physical, social and spiritual domain of QOL among urostomy patients, while, mean length of stoma care was statistically significant predicting factor affecting physical and social domain of QOL. In addition to, problems of stoma was statistically significant predicting factor affecting physical and psychological domain of QOL, where $p \leq 0.05$.

4. DISCUSSION

Stoma surgery often changes a person's lifestyle and body image permanently and can negatively influence QOL. So, an important issue for the nurse is to try to discover those aspects in a patient's well being and QOL⁽⁹⁾. The current study identifies QOL among patients living with stoma.

The study finding revealed that the cause of stoma among all of studied patients in colostomy and urostomy group had cancer related colorectal and bladder. These results are in line with Gado et al (2013) and Burger et al (2013) who stated that stoma surgery is one of the major treatment modalities for colorectal and bladder cancer^(25,26).

Regarding changing job after stoma surgery, most of colostomy & urostomy patients had to change their job after surgery. This may be due to stoma led problems at work as being absent from work and decrease working hours which lead to reduced work productivity and impact on health related QOL. Also, those patients fear from unexplained spilling or odor or even a noisy gas expulsion over which they have no control which may cause them to seek other types of work. This result is supported by Ceylan and Vural (2017) who found that stoma is significantly associated with reduced work productivity and that it significantly has impacts on health related QOL⁽²⁷⁾.

Concerning the sexual activity after stoma creation, the present study showed that, the majority of patients in both groups were resumed their sexual activity after surgery but were not satisfied in both groups. This finding was in accordance with Anaraki et.al (2014) and Reese et. al (2012) who reported that most of the participants resumed sexual function with low satisfaction level^(16,28). Also, these results are consistent with Sadovsky et.al (2010) who stated that stoma has a significant negative impact on sexual function and satisfaction⁽²⁹⁾. From the researcher point of view sexuality is closely linked with body image and many patients with stoma have worries about sexual issues, which lead to decreased sexual activity and enjoyment. In addition, the partner will be anxious about sex, too, and may be afraid of hurting stoma or dislodging the pouch. This may be due to lack of proper knowledge on sexuality issues to stoma patients in Egypt. Therefore, it may be useful to refer patient with stoma to counseling and teach them about sexual health.

As regards depression, our study finding revealed that the majority of the patients in colostomy and urostomy groups were still experiencing depression after 3 to 6 months from stoma surgery. This may be due non adjustment to loss of control over their elimination of feces or urine, body image change, sexual function change, social isolation, stigma, embarrassment and decreased mood. This result is similar with other studies showed that over half of the patients in their study were experiencing depression after stoma surgery⁽³⁰⁻³²⁾. Several studies call attention to that help from both professional health care individuals and family or caregivers enhances recuperation following stoma surgery and adaptation to the new life situation resulting from a new ostomy^(26,28,29). Backes et.al (2012) stressed that it is basic and vital that health team predestine and guide the patient and his family before introducing the ostomy for the adaption process⁽³³⁾.

The present study noted that most patients in both groups had changed their clothing style due to stoma surgery and location of stoma. This may be due to patient with stoma had a few constraints on style of wear and avoided tight clothing that may constrain the body waste flow into pouch and make the bag under clothes visible. Our result is on the same line with Grant et.al (2011) and Gemmill et.al (2010) who stated that ostomy location, weight changes, and body appearance changes, forced patients with stoma to change their clothing style, which itself reduced their QOL^(30,31). In addition, Mahjoubi et.al (2010) found that about 40% of patients had issues with the stoma location which could be because of poor placement, improper appliance usage, and leakage from stoma⁽¹⁴⁾.

The results also display that there were statistically significant differences among colostomy and urostomy groups in relation to dietary pattern modifications, and appetite following stoma surgery. The current study revealed that the highest percentage of urostomy patients adapted to dietary pattern modifications and returned to normal appetite faster than colostomy patients. This may be due to gastrointestinal disturbance is a common problem related to colostomy in form of constipation, diarrhea, nausea, vomiting, gases, distention perpetually from some food and loss appetite perpetually. This result is explained by Akbulut (2011) who reported that the majority of colostomy patients had gastrointestinal problems such as flatulence, diarrhea, constipation, nausea, vomiting, loss of appetite and odors⁽³⁴⁾. Those problems delayed dietary pattern modification and increased the period of returning to normal appetite.

Regarding to stoma care, the majority of urostomy patients took less time during daily stoma care than colostomy patients. This may be due to colostomy patients always facing some difficulties during the daily care of their stoma. These difficulties are emptying and changing pouch needs bath room with privacy, water and work space. Rafiei et.al (2017) supported this finding stating that, pouch change could require a significant amount of time and interrupt daily activities⁽³⁵⁾. Also, Kafa (2010) found that the majority of patient sometimes don't like to perform colostomy care, this may be related to frequently changing pouch and cleaning it and others equipment used to care with colostomy⁽³⁶⁾.

Regarding problems of stoma, the majority of urostomy patients did not experience problems, while, colostomy patients suffered from leakage, redness around pouch and malodor. The stoma problem among colostomy patients may be due to fecal contact with skin can cause the bag to lift and the output to come into contact with the skin, which can cause sore

and irritated skin. Also, stoma leakage typically results from a stoma bag that hasn't been fitted effectively or from the bag surprisingly filling rapidly or the output becoming loose. These findings are also consistent with other studies which gave similar results⁽³¹⁻³³⁾.

The current study showed that the QOL among colostomy and urostomy patients were poor in all domains of psychological, physical, social and spiritual with statistically significant differences between them. However, the QOL scores among urostomy patients achieved higher score than colostomy. This result can be explained by the facts that patients in urostomy group took less time during daily stoma care, did not experience stoma problems as leakage, malodor, and gas emission in the presence of others. In addition, the urostomy patients had adapted to dietary pattern modification and returned to normal appetite faster than colostomy. These findings are in consistent with, the study done by Kafa (2010) and Shurafi (2018) who revealed that, most patients with stoma had a poor QOL in relation to psychological, physical, social and spiritual domain^(36,37). Also, the study done by Hubbard et.al (2017) demonstrated that living with a stoma impacts the overall QOL negatively⁽³⁸⁾.

Regarding, univariate analysis for overall QOL with different parameters, the current study results revealed that education level, type of residence, suicide attempt, and problems of stoma had significant effects on overall QOL among colostomy and urostomy patients. This may be related to the fact that most study subjects are illiterate and came from rural areas with low socioeconomic status that meant lack to obtain knowledge and health care services. Also, the educational level has an obvious effect on patients understanding and perception of information presented to them. This result is supported by Liao and Qin (2014) who found that patients with high level of education had sufficient knowledge to cope with any problem facing them and had better skills to perform daily stoma care. Also, income in rural areas is minimal and patients are governmental employees in this leads to instability in income and lack of money for treatment and which marks psychological stress⁽³⁹⁾.

Also, from the researchers' point of view, the suicidal attempt at some point after stoma creation may be related to majority of people had misconceptions that cancer disease is fatal disease. In addition to pouch leak issues and stoma bag/appliance issues which cause inconvenience and suffering and the fear of this happening can intensely affect everyday life activities, and social life which can result in impaired QOL. This result is in line with Hubbard et. al(2017),Harper et al (2016) and Samawi(2017)who identified that pouch leak and stoma bag/appliance issues are the top stoma-related quality of life research priority^(38,40,41).

So, it can be concluded that living well with colostomy and urostomy and improved QOL can be accomplished through proper patient preparation, education, and planning. It is incumbent on entire health care team to provide patient facing ostomy surgery with individualized, comprehensive care to facilitate physical and psychological rehabilitation and promote quality of and self-care practices.

5. CONCLUSION AND RECOMMENDATIONS

Based on the findings of the present study, it can be concluded that:

- The QOL among colostomy and urostomy patients were poor in all domains of physical, psychological, social, and spiritual with statistically significant differences between them. In addition, the percent score of each domains of QOL among urostomy patients were better significantly than colostomy patients.
- Level of education, type of residence, suicide attempt, and problems of stoma had significant effects on overall QOL among colostomy and urostomy patients.

Recommendations:

- Patients must be informed about the life with stoma before the operation and must be supported throughout the life.
- Stoma nurse must be qualified and prepared to provide holistic management of stoma patients.
- Implementing an ostomy care team from specialist surgeons, stoma nurse, psychotherapist, dietitians and social worker is important for providing specific stoma care.
- Patients should be included in program provided by ostomy care team for the prevention and treatment of physical and psychological complications.

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- Support groups must be formed for individuals with stoma to discuss, share their positive/negative experiences after the operation and help them to take part in a group.
- Qualitative studies must be held to examine the physical, spiritual, social and sexual experiences of the individuals with stoma separately.

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APPENDICES –A

List of Table:

Table (1): Frequency distribution of the colostomy and urostomy patients according to sociodemographic and clinical data. (n = 100)

Sociodemographic and clinical data	Colostomy (n = 50)		Urostomy (n = 50)		Test of Sig.	p
	No.	%	No.	%		
Sex					$\chi^2=3.509$	0.061
Male	34	68.0	42	84.0		
Female	16	32.0	8	16.0		
Age					$\chi^2=5.951$	MC p=0.116
20 – 30	6	12.0	1	2.0		
30 – 40	6	12.0	11	22.0		
40 – 50	6	12.0	3	6.0		
50 – 60	32	64.0	35	70.0		
Min. – Max.	26.0 – 60.0		26.0 – 60.0		t=1.158	0.250
Mean ± SD.	48.96 ± 11.25		51.40 ± 9.77			
Educational level					$\chi^2=3.319$	MC p=0.192
Illiterate+ Read and write	41	82.0	33	66.0		
Primary	6	12.0	12	24.0		
Secondary	3	6.0	5	10.0		
Marital status					$\chi^2=2.459$	MC p=0.324
Single	0	0.0	0	0.0		
Married	44	88.0	48	96.0		
Divorced	4	8.0	2	4.0		
Widow	2	4.0	0	0.0		
Occupation					$\chi^2= 0.208$	0.648
Working	36	72.0	38	76.0		
Not working	14	28.0	12	24.0		
Residence					$\chi^2=3.560$	0.059
Urban	22	44.0	13	26.0		
Rural	28	56.0	37	74.0		

Socioeconomic status						
Low	38	76.0	34	68.0	$\chi^2=0.794$	0.373
Medium	12	24.0	16	32.0		
High	0	0.0	0	0.0		
Type of ostomy:					$\chi^2= 4.167$	FEp = 0.117
Permanent	46	92.0	50	100		
Temporary	4	8.0	-	-		
Reason for stoma surgery					-	-
Non cancer	0	0.0	0	0.0		
Caner	50	100.0	50	100.0		
Duration (months)					$\chi^2=1.010$	0.315
3 months - less than 6months	20	40.0	25	50.0		
More than 6months	30	60.0	25	50.0		

χ^2 : Chi square test for comparing between the two groups

^{MC}p: p value for Monte Carlo for Chi square test for comparing between the two groups

*: Statistically significant at $p \leq 0.05$

Table (2): Frequency distribution of colostomy and urostomy patients according to personal data (n = 100).

Stoma patients Personal data	Colostomy (n = 50)				Urostomy (n = 50)				χ^2	P
	Yes		No		Yes		No			
	No.	%	No.	%	No.	%	No.	%		
Job data										
Change their job after stoma	40	80.0	10	20.0	28	56.0	22	44.0	6.618*	0.010*
Sexual activity										
Sexually active before stoma surgery	42	84.0	8	16.0	46	92.0	4	8.0	1.515	0.218
Resumed sexual activity after surgery	34	68.0	16	32.0	36	72.0	14	28.0	0.190	0.663
Satisfying with sexual activities	16	32.0	34	68.0	16	32.0	34	68.0	0.00	1.000
Psychological support/anxiety										
Depressed after stoma	44	88	6	12	50	100.0	0	0	6.383*	FEp=0.027*
Suicidal attempt after stoma	20	40.0	30	60.0	13	26.0	37	74.0	2.216	0.137
Belong to an ostomy support group	4	8.0	46	92.0	0	0.0	50	100.0	4.167	FEp=0.117
Clothes style										
Problem with stoma location	44	88	6	12	50	100	0	0	6.383*	FEp=0.027*
Change in clothing style	42	84.0	8	16.0	38	76.0	12	24.0	1.000	0.317
Diet										
Change in diet style	30	60.0	20	40.0	28	56.0	22	44.0	0.164	0.685
Time taken to feel comfortable with Diet	No.	%		No.	%					
1 – 2 months	29	58.0		48	96.0				20.384*	<0.001*
2 – 4 months	21	42.0		2	4.0					
Time taken to return Appetite										
1 – 2 months	27	54.0		41	82.0				9.007*	0.003*
2 – 4 months	23	46.0		9	18.0					

χ^2 : Chi square test for comparing between the two groups

^{MC}p: p value for Monte Carlo for Chi square test for comparing between the two groups

^{FE}p: p value for Fisher Exact for Chi square test for comparing between the two groups

*: Statistically significant at $p \leq 0.05$

Table (3): Frequency distribution of colostomy and urostomy patients according to stoma care (n = 100)

Items of stoma care	Colostomy (n = 50)		Urostomy (n = 50)		χ^2	p
	No.	%	No.	%		
Mean length of time to complete stoma care daily						
15 – 20 minutes	6	12.0	19	38.0	10.136*	0.006*
20 – 30 minutes	20	40.0	18	36.0		
>30 minutes	24	48.0	13	26.0		
Time taken to feel comfortable with stoma care						
1 – 2 month	27	54.0	50	100.0	29.870*	<0.001*
2 – 4 month	23	46.0	0	0.0		
Stoma Problems					53.112*	MC P <0.001*
Leakage	10	20.0	9	18.0		
Redness around pouch and pain	10	20.0	2	4.0		
Feeling of uncomfortable	8	16.0	0	0.0		
Shame on people	8	16.0	0	0.0		
Malodor	9	18.0	1	2.0		
No problem	5	10.0	38	76.0		

χ^2 , p: χ^2 and p values for **Chi square test** for comparing between the two groups

^{MC}p: p value for **Monte Carlo** for Chi square test for comparing between the two groups

*: Statistically significant at $p \leq 0.05$

Table (4): Frequency distribution of percent score of quality of life domains among colostomy and urostomy patients. (n = 100)

Percent score QOL domains	Colostomy (n = 50)		Urostomy (n = 50)		Test of Sig.	p
	No.	%	No.	%		
Physical						
Poor <50%	49	98.0	32	64.0	$\chi^2 =$ 18.778*	<0.001*
Fair 50 - <75%	1	2.0	18	36.0		
Good $\geq 75\%$	0	0.0	0	0.0		
%score					t=9.847*	<0.001*
Min. – Max.	21.82 – 54.55		30.91 – 61.82			
Mean \pm SD.	32.0 \pm 7.65		47.05 \pm 7.64			
Psychological						
Poor <50%	46	92.0	41	82.0	$\chi^2 =$ 2.210	0.137
Fair 50 - <75%	4	8.0	9	18.0		
Good $\geq 75\%$	0	0.0	0	0.0		
%score					t=3.526*	0.001*
Min. – Max.	20.0 – 57.69		30.0 – 60.0			
Mean \pm SD.	37.97 \pm 10.31		44.57 \pm 8.30			
Social						
Poor <50%	46	92.0	45	90.0	$\chi^2 =$ 0.122	^{FE} p= 1.000
Fair 50 - <75%	4	8.0	5	10.0		
Good $\geq 75\%$	0	0.0	0	0.0		
%score					t=2.892*	0.005*
Min. – Max.	21.67 – 55.0		33.33– 51.67			
Mean \pm SD.	38.80 \pm 8.54		43.07 \pm 5.99			

Spiritual						
Poor <50%	33	66.0	4	8.0	$\chi^2=$ 42.884*	^{MC} p= <0.001*
Fair 50 - <75%	15	30.0	46	92.0		
Good ≥75%	2	4.0	0	0.0		
%score					t=3.191*	0.002*
Min. – Max.	28.57 – 75.71		47.14 – 57.14			
Mean ± SD.	46.51 ± 13.43		52.69 ± 2.59			
Overall quality of life						
Poor <50%	48	96.0	43	86.0	$\chi^2=$ 3.053	^{FE} p= 0.160
Fair 50 - <75%	2	4.0	7	14.0		
Good ≥75%	0	0.0	0	0.0		
%score					t=5.898*	<0.001*
Min. – Max.	23.26 – 53.49		39.77 – 39.77			
Mean ± SD.	38.07 ± 8.06		46.11 ± 5.30			

χ^2 : **Chi square test** for comparing between the two groups

^{MC}p: p value for **Monte Carlo** for Chi square test for comparing between the two groups

^{FE}p: p value for **Fisher Exact** for Chi square test for comparing between the two groups

t, p: t and p values for **Student t-test** for comparing between the two groups

*: Statistically significant at $p \leq 0.05$

Table (5a): Univariate analysis for over all mean quality of life score with sociodemographic and personal characteristics among colostomy and urostomy groups (n = 100)

Sociodemographic and personal characteristics	Overall mean QOL score	
	Colostomy(n = 50)	Urostomy(n = 50)
	Mean ± SD.	Mean ± SD.
Sex		
Male	39.03 ± 8.32	46.73 ± 5.38
Female	36.02 ± 7.29	42.85 ± 3.51
t(p)	1.240 (0.221)	2.596*(0.021*)
Age		
20 – 30	38.18 ± 6.80	43.49
30 – 40	40.31 ± 4.46	46.47 ± 3.55
40 – 50	29.92 ± 9.16	45.04 ± 2.55
50 – 60	39.15 ± 7.96	46.16 ± 6.0
F(p)	2.632 (0.061)	0.133(0.940)
Educational level		
Illiterate+ Read and write	38.91 ± 7.53	47.88 ± 5.22
Primary	29.77 ± 8.86	40.58 ± 1.17
Secondary	43.18 ± 0.54	47.67 ± 1.27
F(p)	4.600*(0.015*)	12.703*(<0.001*)
Residence		
Urban	41.87 ± 5.83	49.71 ± 6.84
Rural	35.07 ± 8.38	44.84 ± 4.03
t(p)	3.376*(0.001*)	2.424*(0.028*)
Socioeconomic status		
Low	38.90 ± 7.65	47.74 ± 5.20
Medium	35.43 ± 9.07	42.65 ± 3.64
t(p)	1.311 (0.196)	3.520*(0.001*)

Duration (months)		
<6	39.44 ± 9.84	47.82 ± 6.13
>6	37.15 ± 6.63	44.39 ± 3.68
t(p)	0.913(0.368)	2.400*(0.021*)
Change in job after stoma		
Yes	37.72 ± 8.63	46.23 ± 4.79
No	39.47 ± 5.30	45.95 ± 5.99
t(p)	0.810(0.426)	0.182(0.856)
Sexual activity		
Sexually active before getting ostomy		
Yes	37.65 ± 7.71	46.54 ± 5.30
No	40.23 ± 9.98	41.16 ± 1.07
t(p)	0.828(0.412)	2.006 (0.051)
Resumed sexual activity since ostomy		
Yes	36.53 ± 7.98	47.62 ± 5.29
No	41.34 ± 7.42	42.23 ± 2.79
t(p)	2.032*(0.048*)	4.667* (<0.001*)
Satisfying with sexual activity		
Yes	37.34 ± 6.89	50.10 ± 6.22
No	38.41 ± 8.62	44.23 ± 3.56
t(p)	0.433(0.667)	3.516*(0.002*)

t, p: t and p values for Student t-test

F,p: F and p values for ANOVA test

*: Statistically significant at p ≤ 0.05

Table (5b): Univariate analysis for over all mean quality of life score with sociodemographic and personal characteristics among colostomy and urostomy groups (n = 100)

sociodemographic and personal characteristics	Overall quality of life	
	Colostomy(n = 50)	Urostomy (n = 50)
	Mean ± SD.	Mean ± SD.
Psychological support/anxiety		
Depressed after stoma		
Yes	37.66 ± 8.51	46.11 ± 5.30
No	41.01 ± 1.42	–
t(p)	2.378*(0.022*)	–
Suicide attempt		
Yes	43.66 ± 4.63	51.81 ± 5.57
No	34.33 ± 7.72	44.10 ± 3.46
t(p)	5.336*(<0.001*)	4.677*(<0.001*)
Belong to an ostomy support group		
Yes	37.12 ± 9.21	49.81 ± 4.97
No	40.28 ± 3.69	42.95 ± 3.08
t(p)	1.733(0.090)	5.737*(<0.001*)
Clothes		
Problem with location of stoma		
Yes	37.45 ± 8.32	46.11 ± 5.30
No	42.56 ± 3.61	–
t(p)	2.639*(0.019*)	–
Change in clothes style		
Yes	37.64 ± 8.74	47.39 ± 5.21
No	40.29 ± 0.62	42.05 ± 3.17
t(p)	1.940(0.059)	3.341*(0.002*)
Diet		
Change in diet style		

Yes	36.93 ± 9.04	46.46 ± 5.25
No	39.77 ± 6.12	45.66 ± 5.45
t(p)	1.323(0.192)	0.530(0.598)
Mean length of time for daily stoma care		
15 – 20 minutes	38.06 ± 10.87	42.36 ± 2.74
20 – 30 minutes	37.63 ± 9.33	49.68 ± 6.42
>30 minutes	38.43 ± 6.36	46.64 ± 1.83
F(p)	0.052(0.949)	13.415* (<0.001*)
Time taken wit stoma care		
1 – 2	39.34 ± 8.81	46.11 ± 5.30
2 – 4	36.57 ± 6.97	–
t(p)	1.215 (0.230)	–
Time taken to return Appetite		
1 – 2	35.56 ± 9.40	45.83 ± 5.74
2 – 4	41.0 ± 4.84	47.36 ± 2.25
t(p)	2.625* (0.012*)	1.312(0.198)
Stoma problems		
Yes	36.22 ± 6.86	44.31 ± 3.37
No	43.33 ± 9.12	53.30 ± 5.63
t(p)	2.945* (0.005*)	4.837* (0.001*)

t, p: t and p values for Student t-test F,p: F and p values for ANOVA test

*: Statistically significant at p ≤ 0.05

Table (6): Multivariate Linear regression for factor affecting quality of life domains among colostomy patients. (n = 50)

Factor affecting QOL	Physical			Psychological			Social			Spiritual		
	Beta	t	p	Beta	t	p	Beta	t	p	Beta	t	p
Educational level	–	–	–	0.266	2.834*	0.007*	–	–	–	0.458	4.223*	<0.001*
Residence	-0.200	1.383	0.173	-0.277	2.736*	0.009*	0.022	0.196	0.846	-0.386	3.340*	0.002*
Duration (months)	–	–	–	–	–	–	-0.069	0.520	0.606	–	–	–
Resumed sexual activity since ostomy	–	–	–	0.181	1.820	0.076	–	–	–	–	–	–
Depressed after stoma	–	–	–	–	–	–	0.408	3.557*	0.001*	–	–	–
Suicideattempt	-0.249	1.712	0.094	-0.292	2.663*	0.011*	-0.175	1.394	0.171	-0.331	3.136*	0.003*
Belong to an ostomy support group	–	–	–	–	–	–	–	–	–	0.483	4.176*	<0.001*
Problem with location of stoma	0.099	0.718	0.476	0.100	1.062	0.294	–	–	–	–	–	–
Change in clothes style	–	–	–	-0.018	0.171	0.865	–	–	–	–	–	–
Stoma care	–	–	–	–	–	–	0.491	3.862*	<0.001*	0.143	1.198	0.237
Time taken to return Appetite	–	–	–	0.344	3.145*	0.003*	–	–	–	–	–	–
Problem of stoma	–	–	–	0.392	3.377*	0.002*	0.381	2.989*	0.005*	–	–	–
Overall level of significant	F=2.986*, p=0.041*, R ² =0.163			F=12.231*, p<0.001*, R ² =0.705			F=8.064*, p<0.001*, R ² =0.573			F=12.636*, p<0.001*, R ² =0.589		

R: coefficient of regression

B: Unstandardized Coefficients

SE: Estimates Standard error

Beta: Standardized Coefficients

t: t-test of significance

F,p: F and p values for ANOVA test

*: Statistically significant at $p \leq 0.05$

Table (7): Multivariate Linear regression for factor affecting quality of life domains in urostomy group (n = 50)

Factor affecting QOL	Physical			Psychological			Social			Spiritual		
	Beta	t	p	Beta	t	p	Beta	t	p	Beta	t	p
Sex	-	-	-	-0.024	0.288	0.775	-	-	-	-0.171	1.383	0.174
Educational level	-	-	-	0.556	3.205*	0.003*	-0.166	0.898	0.375	-	-	-
Residence	-	-	-	-0.070	0.564	0.576	-	-	-	0.218	1.140	0.261
Socioeconomic status	-	-	-	0.595	3.974*	<0.001*	-0.143	0.844	0.404	-	-	-
Duration (months)	-	-	-	-0.216	1.461	0.153	-	-	-	-0.245	1.153	0.256
Sexually active before getting ostomy	-	-	-	-0.223	2.726*	0.010*	-0.083	0.970	0.338	-	-	-
Resumed sexual activity since ostomy	-	-	-	0.051	0.517	0.608	0.115	1.033	0.308	-0.236	1.667	0.103
Satisfying with sexual activity	-	-	-	-0.046	0.372	0.712	0.246	1.974	0.056	-0.278	1.468	0.150
Suicide attempt	-0.293	2.239*	0.030*	-0.069	0.617	0.541	-0.558	4.545*	<0.001*	-0.330	2.259*	0.029*
Belong to an ostomy support group	-0.172	1.235	0.223	-0.259	1.656	0.106	-0.286	2.460*	0.019*	0.019	0.088	0.931
Change in clothes style	-	-	-	0.050	0.587	0.561	0.019	0.199	0.843	-	-	-
Mean length of time for daily stoma care	-0.289	2.428*	0.019*	0.050	0.423	0.675	0.361	3.496*	0.001*	-0.119	0.788	0.436
Time taken to feel comfortable with Diet	0.057	0.466	0.643	-	-	-	-	-	-	-	-	-
Time taken to return Appetite	-	-	-	-	-	-	0.441	4.212*	<0.001*	-	-	-
Problem of stoma	0.358	2.649*	0.011*	0.359	3.819*	0.001*	0.096	0.881	0.384	0.112	0.748	0.459
Overall level of significant	F=7.893*, p<0.001*, R ² =0.473			F=15.287*, p<0.001*, R ² =0.847			F=12.643*, p<0.001*, R ² =0.785			F=5.550*, p<0.001*, R ² =0.555		

R: coefficient of regression

B: Unstandardized Coefficients

SE: Estimates Standard error

Beta: Standardized Coefficients

t: t-test of significance

F,p: F and p values for ANOVA test

*: Statistically significant at $p \leq 0.05$