Quality of Life, Levels of Anxiety and Depression Among Sudanese Patients With Surgical Stoma in Khartoum State, Sudan.

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Research Article

Keywords: quality of life, colostomy, ileostomy, stoma, FIQOL, HADS

Posted Date: March 8th, 2022

DOI: <https://doi.org/10.21203/rs.3.rs-1307595/v2>

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Abstract

Background: The objectives of this study are to assess the quality of life, levels of anxiety, and depression among Sudanese ostomates with special emphasis on sociodemographic data and ostomy-related data.

Methods: This is a facility-based cross-sectional study in Khartoum state between 2018 and 2019. 100 patients participated in the study with a response rate of 80 in seven hospitals throughout Khartoum state. Standardized fecal incontinence quality of life (FIQOL) and hospital anxiety and depression scale (HADS) questionnaires were used and data obtained were analyzed by multiple statistical tests to identify any group differences and associations to the sociodemographic data.

Results: Quality of life total score was found to be below the average. Depression scale scores at the average, and religious score account for the worst. While there is a strong correlation between the QOL subscales, there was no significant association between quality of life score and the sociodemographic data. Regarding anxiety and depression levels 51.3% of the participants are normal for anxiety level while 25% and 23.8% were borderline and abnormal respectively. For depression level, the score was 45% normal, 26.3% borderline and 28.8% were abnormal. neither some significant association nor subgroup differences were found regarding sociodemographic and ostomy-related data.

Conclusions: Respondents had a quality of life below the average and high levels of anxiety and depression. Religious and spiritual QOL is marginally influenced by the intestinal stoma, qualitative comments also lend insight to the spiritual aspect. this finding can assist in the provision of holistic care in our stoma patients.

Background:

A stoma could be defined as an opening that could be natural or surgically made to connect a viscus body organ with the exterior. This is usually made for a hollow organ (small intestine, large intestine, stomach, urinary bladder) within the abdomen. Two of the common procedures usually done in the gastrointestinal tract are ileostomy (small intestine stoma) and colostomy (large intestine stoma).

The first proper percutaneous colostomy was performed by Littre in 1710. After this, different surgeons started to practice this procedure with different techniques as medical sciences and technologies continue to develop. The history of stoma surgery goes a long way back to the 4th century B.C when the medical intervention for patients having abdominal pathologies for improving the quality of health of patients, specifically for patients suffering from colon cancers⁽¹⁾.

There is an increase in abdominal conditions and diseases which require a stoma formation. Stomas are usually indicated for patients suffering from cancers, intestinal tuberculosis, enteric perforation, penetrating injuries, blunt trauma, inflammatory bowel disease, diverticulitis, bowel ischemia, radiation enteritis, fistula, incontinence, intestinal obstruction, and spinal cord injuries ⁽²⁻⁴⁾.

Patients with stomas face many problems, both physical and psychological. Leakage caused by failure of adhesive or bag welds, ballooning of bags, poor siting, and difficulty in keeping bags in place are some of the daily problems, early complication includes metabolic derangements, skin irritation, ischemia, and stoma retraction ⁽⁵⁻⁷⁾.

Stoma produces social, domestic, and psychological upsets. Anxiety and embarrassment over a stoma may alter lifestyle, including the ability to work, desire to travel, and overall self-image. The way patients feel about the changes in their bodies can affect their behavior toward family and friends. Some patients have initial problems with diet and clothing. Problems with sex life also occur ⁽⁸⁻¹⁰⁾.

A person's body image and sexuality are major factors in determining the effect of a stoma on the quality of life. A person's sexuality is closely associated with their body image and feelings. A lot of ostomates were found to have impaired sexual functions. Their concern is that their sexual attractiveness has been diminished. A lot of relationships had been failed due to stoma ^(5, 11).

Few studies have been conducted to seek any evidence of QOL among Sudanese stoma patients. Given that intestinal perforations are fairly in swank in our country and many patients are subjected to stoma after surgery. This apparent lack of research interest is surprising because the stoma surgery started very early in Sudan and is associated with social underachievement and the burden on family caregivers is enormous. Accordingly, caregivers of the ostomy patients are at high risk for anxiety, and it is significantly correlated with the patient's QOL, hence there is a need to assess the quality of life for ostomy patients, anxiety, and stress associated with stoma among the local population. Furthermore, there is also a need to understand the demographic and disease-related characteristics which are linked with anxiety, depression, and quality of life.

Because of what was mentioned, counseling, stoma management, and general health education need to be provided to such patients.

Methods:

Based on the literature, the conceptual framework of our study is that the QOL of ostomy patients is lower than that of the general population and ostomy patients will have a high level of anxiety and depression. The objectives of the study were: to assess the quality of life, levels of anxiety, and depression among Sudanese ostomates using a modified Fecal Incontinence Quality of Life questionnaire (FIQOL) and Hospital Anxiety and Depression Scale (HADS) with special emphasis on assessing any associations between QOL, levels of anxiety and depression with the sociodemographic data like the age, gender, level of education, marital status, occupation, family monthly income, and health insurance. Along with assessing any associations to the stoma surgery-related data and this includes the following: stoma site, type of stoma, stoma shape, illness led to a stoma, contact with other ostomy patients, and if underwent regular nursery care after ostomy surgery.

The study was conducted in Khartoum state, which is the capital of Sudan, between 2018 and 2019. The patients were seen in outpatient clinics of six hospitals throughout three localities of Khartoum state: Khartoum, Omdurman, and Khartoum North. The patients were consecutive clinical attendees who were currently receiving follow-up check or drug treatment with inclusion criteria of adult (above 18) Sudanese patients and exclusion criteria of patients with psychiatric illness, patients with other major comorbidities, and patients with ostomy less than three-month durations. For each selected participant who refused to participate; the next patient was invited to participate in the study. All methods performed in this study were in accordance with the relevant guidelines and regulations.

The questionnaire was divided into four parts: Sociodemographic data, information about stoma, Quality of life inquiry, and HADS scale.

For the quality of life, Likert scale was used. Each Scale ranged from 1–5, with 1 indicating the lowest and 4 indicating the best functional status of QOL. Scale scores are the average (mean) response to all items on the scale.

For HADS scale, each statement had a score from 0 to 3 which means that a person can score between 0 and 21 for either anxiety or depression, the scale was normal if scored from 0 to 7, borderline if scored from 8 to 10, and abnormal if scored from 11 to 21. For analysis of data, Statistical Package for Social Sciences software (SPSS) version 25.0 was used. Initially, all information was gathered via questionnaire then coded into variables, reliability for the questionnaire was done by alpha Cronbach and spearman brown coefficients. The normality of data was tested using Shapiro-Wilk test. correlations were done by spearman, subgroup differences by ANOVA, and Mann Whitney tests. A p-value of less than 0.05 was considered statistically significant.

Results:

Quality of life total score was found to be below the average. Depression scale scores at the average, and religious score account for the worst. There was a strong correlation between the QOL subscales. No significant association between quality of life score and the sociodemographic data (Table 1). Regarding anxiety and depression levels 51.3% of the participants were normal for anxiety level while 25% and 23.8% were borderline and abnormal respectively. Regarding the depression level, the score was 45% normal, 26.3% borderline, and 28.8% abnormal. Neither some significant association nor subgroup differences were found regarding sociodemographic and ostomy-related data (Table 2).

Table 1

shows the results of one sample (t) test to Judge the levels of Quality of Life among patients at the recent research population (n = 80)

Quality of Life Scales	Mean	SD	Test value	t	Df	Sig. 2-tailed	Statistical Inference
Life – style	1.96	.69	2.5	-7.086	79	.001	Below Average
Coping / Behavior	2.29	.69	2.5	-2.758	79	.004	Below Average
Dep. / Self p.	2.41	.78	2.5	-1.030	79	.153	At Average
Embarrassment	1.98	.84	2.5	-5.580	79	.001	Below Average
Religious	1.84	.66	2.5	-8.908	79	.001	Below Average
QOL	2.10	.42	2.5	-8.678	79	.001	Below Average

Table 2

shows results of t-test for groups to determine the significance of differences on Anxiety and Depression according to patient's gender at ostomy patients (n = 80)

Variables	Levels	Scores Range	Frequency	%	Std. Error	(95%) confidence interval	
						Lower limit	Upper limit
Anxiety	Normal	0–7	41	51.3	.056	40	62
	Mild	8–10	20	25.0	.048	16	35
	Moderate	11–16	12	15.0	.040	7	23
	Severe	17–21	7	8.8	.032	3	15
Depression	Normal	0–7	36	45.0	.056	34	56
	Borderline	8–10	21	26.3	.049	17	36
	Abnormal	11–21	23	28.8	.051	19	39

Using Pearson correlation coefficient, the quality of life subscales were found to be significantly correlated to each other's and within the total score (Table 3). The lifestyle score was significantly correlated with coping/behavior score ($p \leq .002$) and with the total score ($p \leq .001$). The coping behavior score was also found to be significantly correlated with depression/ self-perception score ($p \leq .001$), embarrassment ($p \leq .001$), and the total score ($p \leq .001$). The depression/ self-perception score was also found to be correlated with the total score ($p \leq .001$). Embarrassment score in addition to the above correlation it was significantly correlated with the total score ($p \leq .001$), and there was a significant

negative correlation between it and the religious score ($p \leq .02$). The religious score in addition to its negative correlation with the embarrassment score ($p \leq .02$), was also found to be positively correlated with the total scale score ($p \leq .01$).

Table 3

shows the results of Pearson's Correlations in between the five scales of quality of life among ostomy patients at the research population (n = 80)

Quality of Life Scales	Indicator	Coping / Behavior	Dep./Self p.	Embarrassment	Religious	QOL
Life - style	Coefficient (r)	.312**	.154	.138	.135	.587**
	Sig. (1-tailed)	.002	.087	.111	.116	.001
Coping / Behavior	Coefficient (r)		.455**	.419**	.005	.773**
	Sig. (1-tailed)		.001	.001	.483	.001
Dep. / Self p.	Coefficient (r)			.174	– .028	.636**
	Sig. (1-tailed)			.062	.402	.001
Embarrassment	Coefficient (r)				– .229*	.577**
	Sig. (1-tailed)				.020	.001
Religious	Coefficient (r)					.259**
	Sig. (1-tailed)					.010
** Correlation is significant at the 0.01 level (1-tailed).						
* Correlation is significant at the 0.05 level (1-tailed).						

Quality of life subscales and the total score were tested for correlation with age, educational level, family income, and insurance status using spearman's correlation and no other correlation was found (Table 4).

Table 4
shows the results of Spearman's Correlations between the scales of quality of life with age, education, family monthly income and having health insurance among ostomy patients at the research population (n = 80)

Quality of Life Scales	Indicator	Age	Education Level	Family income
Life - style	Coefficient (r)	– .075	.092	– .020
	Sig. (1-tailed)	.253	.209	.432
Coping / Behavior	Coefficient (r)	– .075	.060	– .047
	Sig. (1-tailed)	.254	.299	.340
Dep. / Self p.	Coefficient (r)	– .050	– .109	– .131
	Sig. (1-tailed)	.330	.168	.124
Embarrassment	Coefficient (r)	.117	– .077	– .010
	Sig. (1-tailed)	.151	.250	.464
Religious	Coefficient (r)	.032	– .023	.094
	Sig. (1-tailed)	.390	.420	.203
QOL	Coefficient (r)	– .016	.029	.001
	Sig. (1-tailed)	.443	.401	.496
** Correlation is significant at the 0.01 level (1-tailed).				
* Correlation is significant at the 0.05 level (1-tailed)				

Levels of anxiety and depression were tested for correlation with age, educational level, family income using spearman's correlation and no significant correlation was found (Table 5).

Table 5
shows the results of Spearman's Correlations between the scales of Anxiety and Depression with age, education, and family monthly income among ostomy patients at the research population (n = 80)

Variables	Indicator	Age	Education Level	Family income
Anxiety	Coefficient (r)	– .175	– .051	– .016
	Sig. (1-tailed)	.060	.325	.442
Depression	Coefficient (r)	– .031	– .034	.118
	Sig. (1-tailed)	.392	.383	.148
** Correlation is significant at the 0.01 level (1-tailed).				
* Correlation is significant at the 0.05 level (1-tailed).				

Discussion:

Colostomy and ileostomy are essential surgical procedures that may be temporal or permanent. In Many occasions, the surgeon may need to perform them for a particular reason. A colostomy is usually indicated in situations like rectal or colonic tumors, rectovesical or rectovaginal fistulae, and rectal or bowel injury or perforation.

Despite being mandatory procedures on many occasions, colostomy and ileostomy are never free from complications. In addition to general surgery complications like wound infection, bleeding, retraction, prolapse, etc, we must not forget the psychological effects of a stoma. Thus, the main aim of this study was to assess the quality of life, levels of anxiety, and depression among Sudanese patients with a surgical stoma in Khartoum state, Sudan 2018–2019.

A total of 100 patients were approached in the study; however, only 80 participants took part in the study, resulting in an 80% response rate, this response rate is significantly high when compared with the other studies. For example response rate was 59% for a study conducted in California, 49% for United States study, and 39% for an Irish study ^(16–18).

The age was found to be equally distributed between three categories with 19 years as minimum age and 65 years as the maximum. The majority of participants were males who accounted for 61.3% of participants while females accounted for only 38.8%. This consists with other similar studies where males accounted for the majority ^(21, 22, 24). This is mainly because colorectal cancer -which is the commonest cause for ostomy surgery- is common among males despite equal risk factors to females. This is in comparison to an Irish study done on ileostomy association, the majority of the respondents were female 60.5% indicating that IBD commonly runs among females ⁽¹⁷⁾.

A considerable percentage of the patients lost their jobs after stoma operation. The job percentage dropped from 66.3–31.3%. This might be attributable to the fact that stoma affects the physical competence of the patients and the ability to adapt to the external environment. This corresponds to a study done in the Netherlands which revealed that social functioning self-efficacy had a great significance, a low adaptation level correlates positively with many stoma problems ⁽²⁶⁾.

Regarding the educational level of participants, higher educational levels accounted less than high school educational level participants and illiterate participants.

For the majority of the participants who had a permanent colostomy, colorectal cancer was the most common diagnosis that led to stoma. These findings agree with other studies ^(16, 17, 22). The majority of the participants underwent a regular stoma nursery at the hospital before discharge (60%). Yet 40% of patients were found to have a direct family member who provides care to their ostomy immediately after the operation. This is a high percentage to be taken in mind as many studies have revealed the importance of precise nursery care for ostomates ^(28, 29). On the other hand, the majority of the participants had no contact with other ostomy patients (70%) and this is because support groups as a tool for psychotherapy are lacking here in Sudan with a shortage of doctors trained to meet the national mental health needs, yet support groups are a very strong tool for intervention in ostomy patients and many studies have revealed this ^(30, 31).

Patients' quality of life scores were low with a mean of 2.10 (below average), which corresponds with an Egyptian study where the mean was found to be 2.14 ⁽²⁴⁾. Similarly in a study in Pakistan, the rescore 79.63 fell to 55.79 ⁽²²⁾. A comparative study in Denmark stated that 22 out of 27 variables were poorer in ostomates compared to non-ostomates ⁽²⁰⁾. An Indian study revealed the same ⁽³²⁾. Yet this result is significantly low when compared with the other studies of Europe and California ^(16, 19).

Regarding the subscales, the lifestyle score was below the average of 1.96, this indicates ostomates have some problems in adjusting and adapting their lifestyle after stoma operation. This also indicates that impeding in their social life and activity is very poor, and this finding corresponds to many studies ^(17, 20). These results are low if compared to an Egyptian study that found lifestyle to be 2.21 ⁽²⁴⁾.

Regarding the coping/behavior score was found to be 2.29 although it is below the average, the score is high when compared with the other quality of life subscales and it is also high when compared to an Egyptian coping/behavior score of 2.06 ⁽²⁴⁾. An Irish study found that coping /behavior regarding the diet had been changed by 45% after stoma operation⁽¹⁷⁾.

Depression/self-perception scale scored 2.41 this result considers at average and the score was found to be the best score if compared to the other quality of life subscales and its high if compared to the Egyptian study 2.38 (below the average)⁽²⁴⁾. This could be explained by the fact that Sudan's environment is very domestic to accept ostomy patients at least to the level that secures them from depression, this is very true if compared to other western studies ^(17, 20).

On the other hand, the embarrassment scale was found to be below the average of 1.98 and it is low if compared with other quality of life subscales but higher than the Egyptian score of 1.87 ⁽²⁴⁾. A worth finding to mention is that the embarrassment score especially the sexual and self-image domains had always been low and statistically significant in a lot of studies ^(17, 18, 20, 23).

The lowest score found was the religious scale score and it is even low if compared with the Egyptian score of 2.18 ⁽²⁴⁾. This raises an essential issue that ostomates were not aware of their religious legitimate excuse offered in such a situation and this is very clear during the data collection process. Yet many studies revealed that stoma adversely affects the religious aspects of the Muslim population and the spiritual QOL of all populations ^(22, 33, 34).

The lifestyle score was significantly correlated with coping/behavior score ($p \leq .002$) and with the total score ($p \leq .001$), this was a positive correlation meaning that when lifestyle scale score increases the score of coping behavior increase, this corresponds with the Egyptian study but unlike the Egyptian study no correlation was found with the depression, embarrassment and religious scales ⁽²⁴⁾.

The coping behavior score was also found to be significantly positively correlated with depression/ self-perception score ($p \leq .001$), embarrassment ($p \leq .001$), and the total score ($p \leq .001$), this corresponded to the Egyptian study but unlike it, no correlation was found with the religious scale ⁽²⁴⁾.

The depression/ self-perception score was found to be negatively correlated to the religious scale meaning that when the religious score increases the depression will decrease but this was not significant. On the other hand, depression scale score was significantly positively correlated to the total quality of life score ($p \leq .001$).

Embarrassment score in addition to the above correlation was significantly correlated with the total score ($p \leq .001$), and there was a significant negative correlation between it and the religious score ($p \leq .02$) as opposed to the Egyptian study which revealed a significant positive correlation between the embarrassment and the religious scale score ⁽²⁴⁾.

The religious score in addition to its negative correlation with the embarrassment score ($p \leq .02$), was also found to be positively correlated with the total scale score ($p \leq .01$).

No significant differences were observed for age, gender, stoma history, or marital status. Age, gender, stoma history, and marital status were found independently related to the quality of life in stoma patients.

No association was found between ages, education, family income, and the total quality of life total and subscales scores. This corresponds to the Egyptian study but opposes other studies ^(17, 24, 35).

Another Egyptian study revealed that gender has a high statistical significance with the sexual and psychological alteration ⁽¹³⁾. Nevertheless, an Indian study revealed that gender has no significant correlation with the quality of life ⁽³²⁾.

For anxiety, 23.8% were found to be abnormal, 25% borderline and 7% were severely anxious. For depression, the situation was worse with 28.8% abnormal and 26.3% borderline. These results correspond to many other studies ^(1, 12, 20, 25, 27).

No significant differences were observed for gender, age, gender, stoma history, or marital status. Age, gender, stoma history, and marital status were found independently related to anxiety and depression levels in stoma patients.

Age, educational level, and income were found to be non-associated with neither anxiety level nor depression level this corresponded to a study done in Pakistan which revealed that anxiety level was not significantly associated with gender, age, type, and disease led to stoma ⁽²²⁾.

Conclusions:

More attention is needed for ostomates regarding their poor quality of life, high levels of depression, and anxiety. Promoting health and rehabilitation is specifically directed at meeting the real needs of this group.

It is better to establish an ostomy support society among different states in Sudan as this will pour for the well-being of the patients and their families. Addressing the religious legitimization for our ostomates should be focused on and mentioned in the counseling process. Training special nurses to take care of ostomates as the care provided for ostomates was found to be a predictor for their good quality of life.

Abbreviations:

QOL: Quality of life.

FIQOL: Fecal Incontinence Quality of Life questionnaire

HADS: Hospital Anxiety and Depression Scale

IBD: Inflammatory bowel disease.

Declarations:

Authors' contributions

All authors attest that they meet the criteria for authorship and equally contributed to the preparation of this manuscript. R.M. and A.Y. did the data collection. K.M. and M.A. did the analysis. M.A., R.M., and A.Y. wrote the main manuscript text, KM was responsible for editing and supervision. All authors read and approved the final manuscript.

Funding

This study was not funded.

Availability of data and materials

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Ethics approval and consent to participate

Ethical approval from the ethical committee of the Faculty of Medicine – University of Khartoum was obtained, and we confirm that all methods were performed in accordance with the relevant guidelines and regulations.

Consent for publication

Informed written consent for publication was obtained from all patients.

Competing interest

None of the authors has any competing interests.

Acknowledgments

Not applicable.

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