

Research Article

Improved quality of life for Eritrean patients before and after hemorrhoidal surgery

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Abstract

This case-control study was carried out from January 2021 to October 2021. Cases were defined as patients diagnosed with hemorrhoid during the study period who wished to participate in the study and provided written informed consent for the study. In the case group, patients with hemorrhoids, aged 18-65 years. Patients who were unable to communicate, mentally ill, and severely ill, pregnant women were excluded from the study. This survey questionnaire was compiled by the researchers themselves after reviewing peer-reviewed literature on risk factors for hemorrhoids. A total of 60 patients were included in this study. Post-surgery pain was significantly reduced with the passage of time. Thirty days after the operation, the pain had reduced in some patients. Sixty days after the surgery, none of the patients experienced any pain. We used one-way repeated measures analysis of variance and determined whether there is a significant improvement in the QoL of patients before surgery and at 30 and 60 d after surgery. The data was presented in the form of mean \pm SD. The PCS before surgery was 41.11669 ± 4.20 and MCS was 38.71996 ± 3.66 recorded. The mean physical health score 60 d after surgery (37.62793 ± 6.21). The mean psychological health score 60 d after surgery (43.26657 ± 4.66) was observed. The goal of treatment is to address symptoms and improve haemorrhoid-specific QoL. Improvement in certain symptoms may also contribute to the improvement in HRQoL.

Keywords: haemorrhoid, MCS, PCS, QoL, quality of life

Abbreviations

HRQoL = Health-Related Quality of Life;

SF12v2 = Short Form 1 Version2

BMI: Body Mass index

HD: hemorrhoidal disease

MCS and PCS: Mental and physical component summary measures

Introduction

Hemorrhoidal disease is a very common anorectal disease that causes significant discomfort, disability, and a worse quality of life. Hemorrhoids, which are distinguished by the development of elongated, dilated blood vessels and supporting tissue within the anal canal, are among the most common anal disorders [1]. They are often classed as internal or external based on their location. Internal hemorrhoids arise above the dentate line and are covered by columnar epithelium, while external hemorrhoids emerge below the dentate line and are covered by squamous epithelium [2–4]. Eritrea, located in the Horn of Africa, achieved its independence in 1991. At the time, the country's overall health status, particularly maternal health indices, was quite poor. A critical shortage of health services, an insufficient number of health care providers, poor health-seeking behavior, deeply rooted harmful traditional practices like female genital mutilation, domestic violence, early marriage and childbirth, low levels of education, low contraceptive use, and traditional gender roles that limit women's autonomy and decision-making power were widespread throughout the nation [5]. These improvements have been largely due to emphasizing on the functional components of essential maternal health services (quality ANC, health facility delivery, emergency obstetric care, family planning, and postpartum care) and centralization of obstetric services in high density population areas [15]. The evidence base on preventable risk factors for hemorrhoidal disease, however, is limited. Older age, female gender, lower socioeconomic status, lack of physical activity, pregnancy, alcohol consumption, constipation, diarrhea, prolonged abdominal straining, sedentary lifestyle, and obesity have been proposed as risk factors, but the findings are inconsistent across studies [6-11]. Studies conducted elsewhere indicated that inadequate dietary fiber, constipation, diarrhea, hypertension, high body mass index (BMI), pregnancy and old age are the commonly identified risk factors for the development of

hemorrhoids [1, 12,13]. From the multivariable logistic regression analysis constipation and BMI had a significant association with the occurrence of hemorrhoid. The odds of having hemorrhoid was 4.32 times higher among participants who had constipation as compared to their counterparts (AOR = 4.32, 95%CI; 2.20, 8.48). The patients who had BMI higher than 25 kg/m² were 2.6 times higher odds of having hemorrhoid as compared to BMI < 25 kg/m² (AOR = 2.6, 95%CI; 1.08, 6.23)[14]. It has social impact, as it is inter-linked to lifestyles, such as interpersonal, and impacted by food and hygienic and sexual habits, and also has economic burden on health systems in direct costs and working days lost [16]. The hemorrhoidal disease creates physical and psychological discomfort and significantly affects the quality of life of the patients due to its sensitive symptoms such as anal bleeding, pain and itching sensation [6, 17]. Besides, hemorrhoids hinder patient's ability to live normally and work efficiently even after management due to its frequent recurrence, incomplete elimination of discomfort and postoperative pain [15]. Health-related quality of life (HRQoL) is the impact of health on quality of life and can be defined as "how well a person functions in their life and his or her perceived wellbeing in physical, mental, and social domains of health" [18,19]. Regarding treatment outcomes, assessments now frequently include evaluations of quality of life. Post-surgery quality of life typically drops by 10% immediately following the procedure but sees a rapid improvement of 60% within a week and reaches 80% within a month, highlighting the dynamic nature of recovery and the critical need for ongoing monitoring [20]. The present study is aimed to determine the quality of life of hemorrhoid patients visiting the Department of Medicine, Maiaini Community hospital, Ad Mocada, Eritrea.

Methods

This case-control research was conducted from January, 2021 to October, 2021. Cases were

defined as patients diagnosed with hemorrhoids during the research period who consented to participate in the study and gave written informed permission. The study population included all adult patients who attended the medical department during data collection at the Maiaini Community Hospital in Ad Mocada, Eritrea. Patients who were unable to communicate, mentally ill, and severely ill were excluded from the study. The exclusion criteria for case and control subjects are as follows. Patients aged 18 to 65 with internal, external, or mixed hemorrhoids were included in the case group. The research excluded patients who were unable to communicate, as well as those who were mentally ill, extremely sick, or pregnant. The control group research subjects are non-hemorrhoid patients between the ages of 18 and 65. To reduce any potential selection bias, the controls were selected from the same population as the cases.

Data Collection: These data were collected through questionnaire. The interview was done following the patient's colonoscopy examination. The sample size was determined using a single population proportion formula, by using a 95% confidence interval, 0.05 margin of error, 5% non-response rate. As far as our search is concerned, no previous study has been undertaken in the region, and the final total number of participants with hemorrhoids was 60. A trained physician took involved in data collecting. The researchers prepared this survey questionnaire after analyzing peer-reviewed literature on hemorrhoid risk factors. The questionnaire has the following sections. 1. basic personal information on the study subject, including gender, age, education level, and family income. 2. The research subjects' dietary and physical activity habits, as well as their family history. and 3. Describe the quality of life (QoL) of haemorrhoids patients before and after surgery. QoL, health-related: SF-12 (SF-12 Health Survey); a higher score relates to better QoL [38 – 41]. Both patients and controls completed each of these surveys. Weight and height were measured using

calibrated equipment, and BMI was determined by dividing weight in kilograms by height in square meters. BMI <18.5 kg/m² was deemed underweight, 14-17.9 kg/m² was normal, 18-24.9 kg/m² was overweight, and >25.0 kg/m² was obese. During each screening exam, study participants completed a questionnaire that asked about their medical history, smoking habits, alcohol intake, physical activity, and educational level. The final category of parameters studied was behavioral and obstetric factors, which mostly focused on smoking, alcohol consumption, and diets. Following at least five minutes of rest, blood pressure (BP) was taken three times in a sitting posture using a standard mercury sphygmomanometer BP cuff with the appropriate cuff size that covers two-thirds of the upper arm.

SF-12 (SF-12 Health Survey): The Short-Form 12 Health Survey (SF-12) [38 –41] is a 12-item questionnaire used to assess generic health outcomes from the patient's perspective. The survey are validated multidimensional measures that assess health-related quality of life. The SF-12 questionnaires were converted to local language. [40,41]. The SF-12 physical and mental health measures include physical functioning (PF, two items), role limitations due to physical functioning (role-physical (RP), two items), bodily pain (BP, one item), general health (GH, one item) perceptions, vitality (VT, one item), social functioning (SF, one item), role limitations due to emotional problems (role-emotional (RE), two items), and mental health (MH, two items). A higher domain score indicates a better health state. The SF-12 health survey includes categorical items (e.g., yes/no) to measure limits in role functioning due to physical and mental health. This test also includes Likert response formats with a three-point scale (e.g., limited a lot, limited a bit, or not restricted at all) for assessing limits in physical activity and physical role functioning. It also includes a five-point scale (e.g., not at all, a little bit, moderately, quite a bit, and extremely) that assesses pain, and a five-point scale that

assesses overall health (excellent, very good, good, fair, and poor). In addition, this tool contains a six-point scale (e.g., all of the time, most of the time, a good bit of the time, some of the time, a little of the time, and none of the time) to assess mental health, vitality, and social functioning. The confirmed cases were total 60 Hemorrhoidal patients.

Statistical Methods—Data Analyses

After data collection, each questionnaire was checked visually for completeness. Multiple linear regression analysis was performed to adjust for the confounding variables age, sex, and body mass index (BMI). PCS and MCS are considered clinically relevant, analysed using SF-12 (SF-12 Health Survey). The research data were entered using Excel software and analyzed using SAS 9.0 software (SAS Institute, Cary, North Carolina, USA). All P

values less than 0.05 were considered statistically significant.

Results

The research comprised a total of 60 patients. Table 1 shows the socio-demographic features of the patients. Post-surgery pain/discomfort decreased dramatically over time. Some patients' pain/discomfort had subsided thirty days following their procedure. Sixty days following surgery, none of the patients reported pain/discomfort. We conducted one-way repeated measures analysis of variance to see if there was a significant increase in patients' quality of life before surgery and 30 and 60 days thereafter. The data was presented in the form of mean \pm SD. The PCS before surgery was 41.11669 ± 4.20 and MCS was 38.71996 ± 3.66 recorded. The mean physical health score 60 d after surgery (37.62793 ± 6.21). The mean psychological health score 60 d after surgery (43.26657 ± 4.66) was observed.

Variable	Cases (%) (n=60)	Controls (%) (n=60)
Sex		
Male	37 (61.66)	31 (51.66)
Female	23 (38.33)	29 (48.33)
Age		
18-30	9 (15)	7 (11.66)
31-45	32 (53.33)	36 (60)
45-65	19 (31.66)	17 (28.33)
Residence		
Urban	46 (76.66)	50 (83.33)
Rural	14 (23.33)	10 (16.66)
Occupation		
Service	19 (31.66)	15 (25)
Business	6 (10)	9 (15)
Farmer	13 (21.66)	10 (16.66)
Labourer	7 (11.66)	5 (8.33)

House wife	10 (16.66)	12 (20)
Student	4 (6.66)	3 (5)
Unemployed/No work	1 (1.66)	6 (10)
Educational status		
No education	3 (5)	4 (6.66)
Primary education	11 (18.33)	15 (26)
Secondary education	26 (43.33)	22 (36.66)
Diploma and above	20 (33.33)	19 (31.66)
Marital status		
Married	48 (80)	51 (85)
Divorced	2 (3.33)	1 (1.66)
Widowed	0	0
Single	10 (16.66)	8 (13.33)
Family income (Per Month)		
Poor	9 (15)	10 (16.66)
Rich	51 (85)	50 (83.33)

Table 1: Socio-demographic characteristics of patients visiting Hospital, (n = 60).

The sociodemographic observations are shown in above table are the total participants are 60 among females are 23 (38.33%) and males are 37(61.66%) mean age was 38.96 and in Control Males were 31(51.66%) and females 29 (48.33%) mean age was 37.29. The prevalence of hemorrhoids by age was highest among those aged between 45 and 65 years in the study by Riss et al.[6] Johanson [11] reported the age range with the highest prevalence of hemorrhoids as between 45 and 65 years of age. Urban population is higher in patients 46 (76.66) in case control 50 (83.33) and rural population was in Participants were 14(23.33) in cases 10(16.66). Participants about their employment we found 19(31.66%) were doing service, 6(10%) were businessperson, 13(21.66%) were farmers, 7(11.66%) leborers, 10(16.66%) housewives, 4(6.66%) students and 1(1.66%) were unemployed. In control cases 15 (25%) were doing service, 9(15%) were businessperson, 10(16.66%) were farmers, 5(8.33%) leborers, 12(20%) housewives, 3(5%) students and 6(10%) were unemployed.

Among the 60 participants 26(43.33%) were educated upto secondary education, 20(33.33%) were graduated, 11 (18.33%) primary education and 3(5%) were uneducated. In control cases 22(36.66%) were educated upto secondary education, 19(31.66%) were graduated, 25 (26%) primary education and 4(6.66%) were uneducated. Marital status of the cases were 48(80%) married, 10(16.66%) were single and 2 (3.33%) were divorced, whereas in Control cases 51(85%) married, 8(13.33%) were single and 1(1.66%) were divorced. Regarding the Family income status of the cases were 51(85%) rich, 9(15%) were poor, whereas in Control cases 55(83.33%) %) rich, 10(16.66%) were poor in societal class of income.

Prevalence of haemorrhoids

Variables	Cases n=60	Percentage (%)	Control n=60	Percentage (%)	OR(95%CI)	p Value
High fiber diet intake						
Yes	52	86.66	14	23.33	1(ref)	
Occasionally	5	8.33	29	48.33	0.9770 (0.2070, 4.6103)	0.97
No	3	5	17	28.33	1.0235 (0.2169, 4.8298)	0.97
Fat meal						
Yes	32	53.33	9	15	1(ref)	
Occasionally	18	30	19	31.66	3.0316 (1.1618, 7.9102)	0.0234
No	10	16.66	32	53.33	0.3299 (0.1264, 0.8607)	0.0234
Physical exercise						
Daily	9	15	36	60	1(ref)	
Two days per week	29	48.33	16	26.66	0.6591(0.2392 to 1.8161)	0.4202
No	22	36.66	8	13.33	1.5172 (0.5506, 4.1808)	0.4202
BMI						
>25.0	36	60	6	10	1(ref)	
14–17.9	8	13.33	16	26.66	1.1875 (0.4238, 3.3272)	0.7437
18–24.9	16	26.66	38	63.33	0.8421 (0.3006, 2.3595)	0.7437
Constipation						
Yes	41	68.33	9	15	12.2281(5.0048 to 29.8766)	<0.0001
No	19	31.66	51	100	0.0818 (0.0335 to 0.1998)	<0.0001
Blood pressure						
<120/80mmhg	39	65	36	60	1.2381 (0.5905, 2.5960)	0.1619
>120/80	21	35	24	40	0.8077 (0.3852, 1.6936)	0.1619
Alcohol intake						
Current drinker	45	75	8	13.33	1(ref)	
Former drinker	9	15	16	26.66	3.3750(1.0277, 11.0837)	0.0450
Never	6	10	36	60	0.2963(0.0902, 0.9731)	0.0450
Smoking to Tobacco						
Current smoker	32	53.33	14	23.33	1(ref)	
Former smoker	10	16.66	18	30	0.8642(0.3264, 2.2883)	0.7689
Never	18	30	28	46.66	0.6429 (0.2232, 1.8514)	0.4130
Family history of hemorrhoids						
Yes	19	31.66	12	20	1.8537(0.8048, 4.2693)	0.1471
No	41	68.33	48	80	0.5395(0.2342, 1.2425)	0.1471

Table 2: Clinical, behavioral and obstetric characteristics and Multiple logistic regression of participants/patients visiting Hospital (n = 60). OR-Values are presented as odds ratio (95% confidence interval).

High fibre diet intake patients were 52 (86.66%), whereas control having 14(23.33%), fat meat taking in case were 32(53.33%) in

control only 9 (15%), in case exercises two days per week were higher 29(48.33%), in control case higher numbers in Daily exercise

26(60%). In cases BMI greater than 25 were observed in 36 (60%) as compared to control 6 (10%), constipation in cases were 41 (68.33%) whereas in control 9(15%). Previous studies suggested obesity as a risk factor for hemorrhoids [6, 21] and our study also found a significant association between hemorrhoids and obesity. Increased intra-abdominal pressure in an obese person with high body fat and visceral fat [22] is thought to provoke venous congestion of distal rectum and, thus, contribute to the development of hemorrhoids [23, 25]. Same results in blood pressure <120/80mmhg in cases were 39 (65%) and in control 36(60%). Current drinker in cases were 45(75%) and in control 8(13.33%), Current smoker in cases 32(53.33%) and in control were 14 (23.33%) observed.

Quality of life (QoL)

Variables	Score
PCS-12 (Physical Score)	41.11669 ± 5.22
MCS-12 (Mental Score)	38.71996 ± 4.32

Table3: PCS and MSC score before the surgery. (Before surgery)

Observations before surgery (cases)

Pertinent Positives: Experiencing discomfort that interferes with everyday chores indicates that, while overall health is strong, there are occasional physical obstacles that require care. Frequent feelings of calm and tranquillity indicate a favourable state of emotional well-being and resilience, which helps buffer against stress. Variations in energy levels. While there are moments when you have a lot of energy, there may also be occasions when you feel tired or have less vitality. Regular sensations of sorrow or poor mood are troubling and indicate a need for additional investigation into emotional wellness. This might reveal underlying difficulties that require assistance or attention. Moderate interference with social activities suggests that both physical discomfort and mental health might have an influence on social participation. This might lead to feelings of loneliness if not addressed. Physical health difficulties are restricting productivity and hindering the individual from

achieving their professional objectives. This might signal persistent pain, exhaustion, or other health issues that require treatment. The individual's ability to conduct certain sorts of job or hobbies is limited, which may have an impact on their sense of fulfilment and general quality of life. Anxiety, despair, and stress are all emotional issues that have an influence on the individual's productivity. This suggests the need for assistance in managing emotional health in order to improve overall functioning.

Pertinent Negatives: Not limited in moderate activities; Works as carefully as usual (unaffected by emotional problems)

Variables	Score
PCS-12 (Physical Score)	37.62793 ± 6.21
MCS-12 (Mental Score)	43.26657 ± 4.66

Table4: The observations of score after 60 days of surgery.

Observations after Surgery (cases)

Pertinent Positives: A good impression of general health, implying that the individual is likely to have few serious health problems. Feeling energized often indicates good physical health and a favourable mental mood. It denotes the capacity to perform everyday tasks and pursue hobbies. Feelings of sorrow are typical and might reflect normal mood changes. However, it emphasizes the significance of monitoring mental wellness and detecting triggers. Mild interference with social activities indicates that, while physical or emotional health difficulties may have an influence, it is insufficient to preclude participation in social contacts. This demonstrates perseverance and the capacity to interact with people despite obstacles. Accomplished less work than would like due to emotional problems; Felt calm and peaceful a little of the time

Pertinent Negatives: The individual is free to go about his or her daily activities. It suggests a high level of physical function and mobility. This suggests that the individual feels capable of accomplishing their work and obligations

without being hampered by physical health difficulties, indicating general well-being and productivity. The individual feels free to participate in a variety of employment or hobbies, indicating a good condition of health and no physical constraints. Emotional wellness does not interfere with the individual's capacity to perform efficiently, suggesting mental stability. The individual does not feel discomfort that interferes with their ability to conduct everyday duties, which is a good indication of both physical health and quality of life. We suggested to patients, Walk more than 30 minutes each time for 5 or more times per week. Intake less calories than recommended amount according to by relevant age and sex, and avoid the smoking, alcohol consumption for better life.

Discussion

In order to assess the impact of a disease, it is necessary to assess HRQoL. This is because haemorrhoids, a benign but common chronic disease, can disrupt patients' lives by affecting their daily lives and well-being [26]. The goal of treatment is to address symptoms [27] and improve haemorrhoid-specific QoL. Improvement in certain symptoms may also contribute to the improvement in HRQoL. However, there are some limitations to this study, such as the fact that it could not establish a cause-and-effect relationship because of the cross-sectional nature of the study design. Additionally, because this was an institution-based study, the findings may not fully reflect the entire population, and recall bias may have been introduced. One of this study's major strengths is that it is one of the only a few of its attempt in Eritrea, a country where precise health statistics are often inadequate. This study adds crucial information to the medical community, both locally and worldwide, by focusing on particular demographic and socioeconomic aspects that impact treatment results. The study did not analyze the frequency of fiber diet intake according to WHO guidelines. The conclusions of this investigation are immediately relevant.

The current study applied widely used general self-reported questionnaires (SF12) to study health-related quality of life (HRQoL) in people with Hemorrhoidal disease (HD). We found that patients' reported symptoms improved significantly after surgery, as did HRQoL tests. Most HRQoL indicators improved following HD surgery. However, our results show that when surgery reduces symptoms, HRQoL increases. The population in the current study should be reflective of most colorectal or general surgeons, however the results cannot be generalized to all patients with hemorrhoids. This knowledge can help healthcare professionals prepare for post-treatment support, enhancing patient outcomes in an environment where such concerns are frequently ignored in medical research and practice.

Ethics approval

This study was performed according to the latest version of the Declaration of Helsinki. The Institutional Review Board of the Maiaini Community hospital, Ad Mocada, Eritrea, approved the study. Signed and Written consent was obtained from the study participants after detailed explanation about the objective of the study. All the information collected from the respondents was kept confidential.

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Availability of data and materials

The complete dataset supporting the conclusions of this article is available from the corresponding author and can be provided upon reasonable request.

Consent for publication

This manuscript has not been published elsewhere and is not under consideration by another journal. All authors have approved the final manuscript and agreed for its publication

Competing interests

The authors declare that they have no competing interest.

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