Original Article

Prevalence of Bowel Dysfunction after Colorectal Surgery & its Impact on Quality of Life in Khyber Pakhtunkhwa (KPK), Pakistan

Farrukh Ozair Shah[1], Tilal Ahmed Raza[1], Hajra Imtiaz[2] and Asfa Mumtaz[2]

ABSTRACT

Objective: This study aimed to assess the prevalence of bowel dysfunction after colorectal surgery and evaluate its impact on health-related quality of life in patients treated at a tertiary care hospital in Khyber Pakhtunkhwa (KPK), Pakistan.

Study Design: Cross-sectional observational study

Place and Duration of Study: This study was conducted at the department of general surgery, Hayatabad Medical Complex, Peshawar, Pakistan between February 2020 and January 2024.

Methods: Total 240 patients were enrolled using consecutive non-probability sampling. Patients of any gender who were 18 years or older and who underwent emergency or elective surgery at our institute for a benign or malignant colorectal disease were included in the study.

Results: Surgical characteristics revealed that 62.5% of the patients were operated upon for colorectal cancer and 37.5% for benign disease. Resection at the rectum was performed in 45.8%. Right hemicolectomy was the most frequently performed colon surgery (25%), followed by left hemicolectomy (16.7%) and sigmoid colectomy (12.5%).

Conclusion: Postoperative bowel dysfunction is a frequent postoperative complication among colorectal surgery patients in KPK that affect their quality of life greatly. This underscores the need for functional outcome evaluation and multidisciplinary management in the routine follow-up of postoperative patients. Early identification and targeted interventions are necessary to enhance the long-term health of these patients.

Key Words: Bowel dysfunction, colorectal surgery, quality of life, LARS, stoma, rectal cancer

Citation of article: Shah FO, Raza TA, Imtiaz H, Mumtaz A. Prevalence of Bowel Dysfunction after Colorectal Surgery & its Impact on Quality of Life in Khyber Pakhtunkhwa (KPK), Pakistan. Med Forum 2025;36(6):13-17. doi:10.60110/medforum.360603.

INTRODUCTION

Colorectal surgery is a cornerstone of treatment for many benign and malignant diseases such as colorectal cancer, diverticular disease, inflammatory bowel disease and benign anorectal diseases. Although the development of surgical procedures (such as laparoscopic and sphincter-preserving surgery) has resulted in enhanced oncological outcomes and decreased perioperative morbidity, a considerable proportion of patients still experience postoperative bowel dysfunction[1].

[1.] Department of General Surgery / Family Medicine[2], Hayatabad Medical Complex Peshawar, KPK, Pakistan.

Correspondence: Dr. Tilal Ahmed Raza, Assistant Professor Department of General Surgery, Hayatabad Medical Complex, Peshawar, KPK, Pakistan.
Contact No: 03359614546
Email: tilalahmad@yahoo.com

Received: January, 2025
Reviewed: February, 2025
Accepted: March, 2025

Bowel dysfunction include a spectrum of symptoms including fecal incontinence (FI), urgency, frequent bowel movements, clustering, and constipation that cumulatively lead to the long-term physical and psychosocial health of patients[2,3].

Low Anterior Resection Syndrome (LARS), which occurs in around 80% of patients following low-anterior resection for rectal cancer, is a well-known example[3]. However, even after right or transversal colectomies, some patients continue to have postoperative changes in their bowel habits, such as increased frequency and urgency of stools, which are often overlooked in clinical practice[4,5]. The quality of life can be significantly impacted by these symptoms, which can significantly disrupt everyday activities, cause social isolation, and trigger anxiety and despair[6].

In high income countries, standardized long-term follow up and validated tools such as the LARS score or the EORTC QLQ-CR29 questionnaire are routinely applied for assessment and management of these symptoms[7,8]. However, there is a dearth of information in underdeveloped nations like Pakistan, particularly when it comes to KPK, where initiatives are focused on problems related to the frequency and severity of bowel

dysfunction following colon surgery[9]. Additional factors contributing to under diagnosis and under treatment include a lack of patient and physician education, social stigma around bowel symptoms, and inadequate access to expert colorectal care[10].

Given the rising incidence of colorectal diseases and the rise in surgical procedures in Pakistan, it is critical to assess the incidence and outcomes of postoperative bowel dysfunction in this population. This study aims to determine the prevalence of bowel dysfunction following colorectal surgeries in KPK and how it affects quality of life (QoL) by utilizing validated instruments.

METHODS

This cross-sectional observational study was carried out in the department of general surgery, Hayatabad Medical Complex, Peshawar, from February 2020 to January 2024. Approval from the ethics committee was taken prior to study initiation under reference # 1109. Participants provided written informed consent following explanation of the study's aim, procedures, potential risks and benefits.

Total 240 patients were enrolled using consecutive non-probability sampling. Patients of any gender who were 18 years or older and who underwent emergency or elective surgery at our institute for a benign or malignant colorectal disease were included in the study. Eligible subjects were those who had been postoperatively followed for at least 6 months to ensure that bowel function had stabilized. Patients with insufficient medical records, metastatic or recurring disease, loss of bowel control due to a prior underlying neurological condition, and those who declined to participate were excluded.

Patients' information was derived from medical records and direct interviews with a structured questionnaire including demographic data of the patients (age, sex, address, and comorbidities), details of surgery (type of surgery, surgical indication, surgical technique, anastomotic level, and stoma), follow up information along and the use of neo-adjuvant and adjuvant therapy. Functional outcome was evaluated by matching LARS score for patients with a rectal resection with the validated LARS score and modified bowel function questionnaire for other types of colorectal transactions. The (LARS) score is a validated instrument that has been developed for the purpose of evaluating bowel function after rectal resection. It is an evaluation of five major symptoms incontinence for flatus, incontinence for liquid stool, frequency of evacuations, cluster of stools and urgency. The specific score is provided for each symptom, which add up to a total score of 42. A score between 0 and 20 denotes no LARS (normal bowel function). Major LARS (severe dysfunction) is indicated by numbers 30–42, whereas minor LARS (moderate dysfunction) is indicated by numbers 21–29.

The European Organization for Research and Treatment of Cancer (EORTC) QLQ-CR29, a colorectal-specific module that includes functional and symptom measures, was used to measure health-related quality of life. It primarily targets the problems of patients with colorectal cancer and is an add-on to the EORTC QLQ-C30 core questionnaire. It contains 29 entries that deal with:

Functional scales (such as sexual function, anxiety, and body image) and symptom scales/items (such as fecal incontinence, abdominal pain, bloating, and frequency of stools). All items are rated on a scale of 1 (not at all) to 4 (very much), and higher scores for functional scales are better, and for symptom scales they are worse. The final board scores are linearly translated to a 0–100 scale for analysis.

SPSS version 25 was used for statistical analysis. Descriptive statistics were used to summarize clinical factors and demographics. Continuous variables were represented by means and standard deviations, whereas categorical variables were displayed as numbers and percentages. To examine the relationships between bowel dysfunction and categorical factors, chi-square and Fisher's exact tests were used. Groups' quality-of-life values were compared using ANOVA and independent t tests. At $p \leq 0.05$, the results were deemed statistically significant.

RESULTS

The cohort comprised 140 (58.3%) males and 100 (41.7%) female, with a mean age of 52.4 ± 11.3 years. Urban residents constituted 54.2% of the sample, while 45.8% were from rural areas. Table 1 provides a summary of the demographic distribution.

Table No. 1: Demographic profile of study participants

Variable	N (%) / Mean ± SD
Total Patients	240 (100%)
Male	140 (58.3%)
Female	100 (41.7%)
Mean Age (years)	52.4 ± 11.3
Urban Residents	130 (54.2%)
Rural Residents	110 (45.8%)

Surgical characteristics revealed that 62.5% of the patients were operated upon for colorectal cancer and 37.5% for benign disease. Resection at the rectum was performed in 45.8%. Right hemicolectomy was the most frequently performed colon surgery (25%), followed by left hemicolectomy (16.7%) and sigmoid colectomy (12.5%). Stomas were created, either temporary or permanent in 29.2% of patients. Neo-adjuvant therapy was received in 41.7% patients and adjuvant therapy by 50% of patients. Table-2

Table No.2: Surgical and oncological details

Variable	N (%)
Indication: Colorectal Cancer	150 (62.5%)
Indication: Benign Disease	90 (37.5%)
Rectal Resections	110 (45.8%)
Right Hemicolectomy	60 (25.0%)
Left Hemicolectomy	40 (16.7%)
Sigmoid Colectomy	30 (12.5%)
Stoma Creation (Temporary or Permanent)	70 (29.2%)
Neoadjuvant Therapy	100 (41.7%)
Adjuvant Therapy	120 (50.0%)

In 165 (68.8%) patients bowel dysfunction was identified. Based on the LARS score, 16.7% had mild LARS, 22.9% had moderate LARS, and 29.2% experienced severe LARS. The remaining 31.2% of patients had no postoperative bowel dysfunction. Table-3

Table No. 3: Postoperative Bowel Dysfunction (LARS Score)

Variable	N (%)
Patients with Bowel Dysfunction (Any)	165 (68.8%)
No Dysfunction	75 (31.2%)
Mild LARS	40 (16.7%)
Moderate LARS	55 (22.9%)
Severe LARS	70 (29.2%)

Body image (75.2 ± 12.1) and emotional function (62.3 ± 15.4) were also moderate in the quality of life questionnaire (EORTC QLQ-CR29). But the scores were much lower for social function (58.6 ± 18.2), stool frequency (42.1 ± 17.6), incontinence (38.4 ± 20.3) and pain (45.7 ± 14.9), indicating significant impact of bowel dysfunction on daily quality of life. Table-4

Table No. 4: Quality of Life Scores (EORTC QLQ-CR29 Domains)

Domain	Mean Score ± SD
Body Image	75.2 ± 12.1
Emotional Function	62.3 ± 15.4
Social Function	58.6 ± 18.2
Stool Frequency	42.1 ± 17.6
Incontinence	38.4 ± 20.3
Pain	45.7 ± 14.9

DISCUSSION

In our study 68.8% of patients experienced some form of bowel dysfunction, which demonstrate the significant prevalence of postoperative functional problems in this patient population. This is similar to that of Berger et al[11], who introduced Low Anterior Resection Syndrome (LARS) as a complication in nearly 70% of patients undergoing surgery for rectal cancer. Similarly, Sebastian et al[12] in their multicenter assessment with the LARS score reported severe symptoms in approximately 30% of patients—almost exactly mirroring our severe LARS rate of 29.2%. The commonality of these findings indicates that despite regional differences in the level of health care services, the pathophysiology for post-surgical bowel dysfunction is similar throughout the world.

Among our cohort, a striking observation was the association between rectal resections and particularly high rates of dysfunction compared to colonic resections. This is substantiated by Ali et al[13] who reported low anastomosis, below 5 cm from the anal verge, as an independent risk factor for bowel symptoms, presumably due to constraint in rectal capacity and damage to pelvic nerves. The anatomical and neurophysiological basis to our findings is thus supported by our study.

Stoma diversion (n =31) was not related to protection against dysfunction (not significant), consistent with the findings of Raza et al[14] who mentioned that defunctioning stomas may slow down LARS but possibly do not prevent it. However, a discrepancy is present in comparison to the study by Rubio et al[15], who argued that ileostomy diversion may alleviate early postoperative symptom. This discordance might be explained by differences in the time point of stoma closure and patient observation time.

Bhama et al[16] also noted in a study that patients with neoadjuvant therapy had more dysfunction, who connected preoperative chemoradiotherapy with worsening of bowel symptoms as the effect of radiation-induced pelvic fibrosis and nerve damage. Our findings support this conclusion and argue for considering oncological benefit balanced against functional preservation in treatment selection.

Regarding quality of life, domains such as body image and emotional function were less affected by reduction of QoL while social function and stool frequency, degree of incontinence scores were much lower. Daluvoy et al[17] also found that incontinence and urgency were the most distressing symptoms and caused social withdrawal. Goret et al[18] found a significant psychological burden in patients with moderate to severe LARS, which in line with our findings, (lower) emotional and social function scores.

Our mean age of 52.4 years is slightly younger than the typical Western cohort studied in colorectal research. This might be due to the pattern of demography in our region and earlier presentation of the disease in Pakistani Population as reported by Khan et al[19]. Younger age might also affect the recovery after surgery, but it did not seem to reduce the frequency of dysfunction.

Finally, cultural elements in KPK, including stigmatized conversation of bowel symptoms and lack of postoperative rehab access, may lead to underreporting and delay in recognition of dysfunction.

This is consistent with Rashid et al[20] highlighted the essential component of culturally sensitive patient education and structured follow-up in Pakistan to focus on postoperative QOL.

Despite its strengths, it is important to recognize the limitations of this study. Due to the cross-sectional character of the study, it is not possible to draw conclusions about the causes of bowel dysfunction and associated factors. The findings of a single-center study conducted at the Hayatabad Medical Complex might not be generalizable to other regions of the nation. There was no adjustment made for pertinent confounding factors such availability of rehabilitation, psychosocial support, and diet. Additionally, the power of our subgroup comparisons can be hampered by the absence of a formal sample estimation. To better understand postoperative bowel dysfunction, A multi-disciplinary approach is required for the best oncological and functional results in colorectal surgery patients in resource limited areas like Khyber Pakhtunkhwa, Pakistan.

CONCLUSION

The significant prevalence of bowel dysfunction following colorectal surgery is highlighted in this study, and many of the patients in our sample experienced moderate to severe symptoms, which had a detrimental effect on their quality of life. The findings showed that the key operation-related risk factors for dysfunction were stoma development, neoadjuvant treatment, and rectal resection. The high prevalence and morbidity of these symptoms are described, despite geographical and demographic variations. These findings highlight the necessity of patient-cantered therapies such early counselling, physical therapy, and long-term follow-up, as well as the use of functional outcome evaluation in early postoperative care.

Acknowledgment:

The authors express their gratitude to the participants for their participation and time spent on this study.

Recommendations:

Further randomized, multi-center studies with extended follow-up are recommended to validate and generalize these findings.

Author's Contribution:

Concept & Design or acquisition of analysis or interpretation of data:	Farrukh Ozair Shah, Tilal Ahmed Raza
Drafting or Revising Critically:	Hajra Imtiaz, Asfa Mumtaz
Final Approval of version:	All the above authors
Agreement to accountable for all aspects of work:	All the above authors

Conflict of Interest: The study has no conflict of interest to declare by any author.

Source of Funding: None

Ethical Approval: No. 1109 Dated 19.01.2020

REFERENCES

1. Van Heinsbergen M, den Haan N, Maaskant-Braat AJ, Melenhorst J, Belgers EH, Leijtens JW, et al. Functional bowel complaints and quality of life after surgery for colon cancer: prevalence and predictive factors. Colorectal Dis 2020;22(2): 136–45.
2. Al Rashid F, Liberman AS, Charlebois P, Stein B, Feldman LS, Fiore JF Jr, et al. The impact of bowel dysfunction on health-related quality of life after rectal cancer surgery: a systematic review. Tech Coloproctol 2022;26(7):515–27.
3. Justiniano CF, Temple LK, Swanger AA, et al. Readmissions with dehydration after ileostomy creation: rethinking risk factors. Dis Colon Rectum 2018;61:1297–305.
4. Boyce SA, Harris C, Stevenson A, Lumley J, Clark D. Management of low colorectal anastomotic leakage in the laparoscopic era: more than a decade of experience. Dis Colon Rectum 2017;60:807–14.
5. Menahem B, Lubrano J, Vallois A, Alves A. Early closure of defunctioning loop ileostomy: is it beneficial for the patient? A meta-analysis. World J Surg 2018;42:3171–8.
6. Pisarska M, Gajewska N, Małczak P, et al. Defunctioning ileostomy reduces leakage rate in rectal cancer surgery – systematic review and meta-analysis. Oncotarget 2018;9:20816–25.
7. Ramanaiah J, Kumar CP, Indla RJ. Protective ileostomy in ileal perforation and its outcome compared to primary repair. JMSCR 2019;7: 1341–5.
8. Ellebæk MB, Dilling Kjaer M, Spanggaard K, El-Faramawi M, Møller S, Qvist N. Protective loop-ileostomy in ileal pouch-anal anastomosis for ulcerative colitis – advantages and disadvantages: a retrospective study. Colorectal Dis 2021;23: 145–52.
9. Waterland P, Goonetilleke K, Naumann DN, Sutcliff M, Soliman F. Defunctioning ileostomy reversal rates and reasons for delayed reversal: does delay impact on complications of ileostomy reversal? A study of 170 defunctioning ileostomies. J Clin Med Res 2015;7:685–9.
10. Hajibandeh S, Hajibandeh S, Sarma DR, et al. Meta-analysis of temporary loop ileostomy closure during or after adjuvant chemotherapy following rectal cancer resection: the dilemma remains. Int J Colorectal Dis 2019;34:1151–9.
11. Berger NG, Chou R, Toy ES, Ludwig KA, Ridolfi TJ, Peterson CY. Loop ileostomy closure as an overnight procedure: institutional comparison with

the national surgical quality improvement project data set. Dis Colon Rectum 2017;60:852–9.
12. Sebastian A, Stupart D, Watters DA. Loop ileostomy reversal after laparoscopic versus open rectal resection. ANZ J Surg 2019;89:E52–5.
13. Ali I, Fayyaz A, Anwar Z, Saif I, Khan I, Jahangir M, et al. Mutation analysis of TP53 in colorectal cancer, Peshawar, Khyber Pakhtunkhwa, Pakistan. J Clin Med Kaz 2021;18(2):25–30.
14. Raza S, Memon AI, Bhatti AM, Kumar H, Nayab, Iqbal SH. Role of inflammatory and prognostic markers and its outcome among patients with pre & post-operative colorectal carcinoma. PJHS 2024;5(7):67–72.
15. Rubio-Perez I, Leon M, Pastor D, Diaz Dominguez J, Cantero R. Increased postoperative complications after protective ileostomy closure delay: an institutional study. World J Gastrointest Surg 2014;6:169–74.
16. Bhama AR, Batool F, Collins SD, Ferraro J, Cleary RK. Risk factors for postoperative complications following diverting loop ileostomy takedown. J Gastrointest Surg 2017;21:2048–55.
17. Daluvoy S, Gonzalez F, Vaziri K, Sabnis A, Brody F. Factors associated with ostomy reversal. Surg Endosc 2008;22:2168–70.
18. Goret NE, Goret CC, Cetin K, Agachan AF. Evaluation of risk factors for complications after colostomy closure. Ann Ital Chir 2019;90:324–9.
19. Khan A, Haris M, Rehman M, et al. Early postoperative complications and surgical anatomy after ileostomy reversal among the population of Khyber Pakhtunkhwa, Pakistan. Cureus 2021; 13(11):e19660.
20. Rashid F, Liberman SC, Patrick SB, Feldman L, Fiore JF Jr, Lee L. The impact of bowel dysfunction on health-related quality of life after rectal cancer surgery: a systematic review. Tech Coloproctol 2022;26:515–27.