

Research Article

QUALITY OF LIFE OF COLORECTAL CANCER SURVIVORS IN A TERTIARY CARE CENTRE IN NORTH INDIA: A CROSS-SECTIONAL STUDY.

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ABSTRACT

Background: Advances in diagnosis and treatment have improved survival in colorectal cancer (CRC), shifting focus toward long-term health-related quality of life (HRQoL). However, Indian data on HRQoL in CRC survivors remain limited.

Aim: To assess HRQoL among CRC survivors and identify associated clinical and socio-demographic factors.

Methods: A cross-sectional observational study was conducted among 129 CRC survivors treated between 2014–2024. HRQoL was assessed using the validated EORTC QLQ-C30 (version 3.0). Scores were transformed to a 0–100 scale. Statistical analysis was performed using SPSS; $p < 0.05$ was considered significant.

Results: Mean global QoL score was 71.3 ± 19.8 . Male patients demonstrated significantly better global QoL ($p = 0.015$), physical ($p = 0.001$), role ($p = 0.001$), cognitive ($p = 0.002$), and social functioning ($p = 0.003$) than females. Rural patients had significantly lower QoL across most functional domains ($p < 0.05$). Higher education and regular physical activity were strongly associated with improved QoL ($p < 0.01$). Symptom burden (fatigue, diarrhea, insomnia) was significantly higher in females and less active individuals.

Conclusion: HRQoL in CRC survivors is influenced by gender, education, residence, and lifestyle factors. Targeted survivorship programs focusing on physical activity and psychosocial support may improve outcomes.

Keywords: Colorectal cancer, Quality of life, EORTC QLQ-C30, Survivorship, India

INTRODUCTION

Colorectal cancer (CRC) is one of the most common malignancies worldwide and represents a significant global health burden. According to recent global cancer statistics, CRC ranks third in incidence and second in cancer-related mortality, accounting for approximately 10% of all cancer cases and deaths worldwide [1]. Although traditionally considered a disease of high-income countries, its incidence is steadily rising in low- and middle-income nations, including India, due to urbanization, dietary changes, and aging populations [2,3].

In India, CRC incidence remains relatively low compared to Western countries; however, regional cancer registry data indicate a gradual upward trend, particularly in urban populations [3]. Improved awareness, screening programs, and advances in diagnostic modalities have contributed to earlier detection. Simultaneously, advancements in surgical techniques, chemotherapy, and radiotherapy have significantly improved survival outcomes in CRC patients [4].

With increasing survival rates, the focus of cancer care has shifted beyond traditional endpoints such as mortality and morbidity to include patient-centered outcomes like health-related quality of life (HRQoL). HRQoL is a multidimensional construct that encompasses physical, emotional, cognitive, and social functioning, as well as symptom burden [5]. It reflects the patient's subjective perception of their health status and overall well-being.

Cancer survivors often experience long-term physical and psychological sequelae due to the disease and its treatment. Surgical interventions such as low anterior resection or abdominoperineal resection, along with chemotherapy and radiotherapy, may result in complications such as bowel dysfunction, fatigue, sexual dysfunction, and psychological distress, all of which can significantly impact HRQoL [6,7].

The European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Core-30 (EORTC QLQ-C30) is a validated and widely used instrument for assessing HRQoL in cancer patients. It evaluates multiple domains, including global health status, functional scales, and symptom scales, providing a comprehensive assessment of patient well-being [8].

Several international studies have evaluated HRQoL among CRC survivors and reported that although overall QoL may improve over time, specific domains such as physical functioning, emotional health, and social interaction may remain impaired [9,10]. Factors such as age, gender, socioeconomic status, education, disease stage, and treatment modality have been shown to influence HRQoL outcomes [11].

Despite the growing burden of CRC in India, there is a paucity of data evaluating HRQoL among CRC survivors in the Indian context. Cultural, socioeconomic, and healthcare access factors may uniquely influence survivorship outcomes in this population. Therefore, this study was undertaken to assess HRQoL among CRC survivors in a tertiary care center in North India and to identify factors associated with variations in QoL.

Materials and Methods

Study Design and Setting

- Cross-sectional observational study
- Conducted at Fortis Hospital, Mohali, India

Study Population

- CRC survivors treated between 2014–2024
- Age ≥ 18 years

Sample Size

- Calculated minimum: 103
- Final sample: 129 patients

Inclusion Criteria

- Histologically confirmed CRC
- Completed treatment
- Provided consent

Exclusion Criteria

- Deceased patients
- Multiple malignancies
- Severe psychiatric illness

Data Collection

- Telephonic interviews using EORTC QLQ-C30 (v3.0)
- Scores converted to 0–100 scale

Statistical Analysis

- Software: SPSS
- Tests: t-test, ANOVA
- Significance: $p < 0.05$

Results

Demographic Characteristics

- Total patients: 129
- Male: 75.2%
- Female: 24.8%

Global QoL

- Mean score: 71.3 ± 19.8

1. Gender Differences

- Males had significantly better QoL
- Females had higher symptom burden (fatigue, insomnia, diarrhea)

2. Age

- No major QoL difference
- Younger patients had more financial stress ($p=0.007$)

3. Residence

- Urban patients showed significantly better QoL
- Rural patients had worse functional scores

4. Education

- Strong positive correlation with QoL
- Higher education → better physical and global functioning

5. Physical Activity

- Most significant predictor
- Regular exercise → highest QoL scores ($p<0.001$)

A total of 129 colorectal cancer survivors were included in the study, of whom 97 (75.2%) were male and 32 (24.8%) were female. The mean global health status/quality of life (QoL) score for the overall study population was 71.3 ± 19.8 , indicating a moderately good quality of life among the participants.

Gender-based analysis demonstrated that male patients had significantly higher global QoL scores compared to female patients. In addition, males showed significantly better physical, role, cognitive, and social functioning. In contrast, female patients reported a higher symptom burden, including significantly increased nausea/vomiting, dyspnea, insomnia, and diarrhea.

When stratified by age, no statistically significant difference was observed in global QoL between patients aged ≤ 60 years and those aged >60 years. However, younger patients reported significantly greater financial difficulties, while older patients demonstrated slightly lower physical functioning.

Place of residence was found to significantly influence QoL outcomes. Patients residing in urban areas had higher global QoL scores and better functional outcomes across physical, emotional, cognitive, and social domains compared to those from rural areas. Rural patients also reported a higher burden of certain symptoms, particularly constipation.

Education level showed a strong positive association with QoL. Patients with higher education levels demonstrated significantly better global QoL and physical functioning. In contrast, uneducated patients reported poorer outcomes along with a higher symptom burden, including dyspnea and loss of appetite.

Physical activity emerged as a key determinant of QoL. Patients who engaged in regular exercise

had significantly higher global QoL scores and better functional outcomes compared to those who were physically inactive. Additionally, physically active patients reported lower levels of fatigue and overall symptom burden.

Marital status did not show any statistically significant association with global QoL, functional scales, or symptom scales.

Overall, the findings indicate that quality of life among colorectal cancer survivors is influenced by multiple demographic and lifestyle factors, with gender, residence, education, and physical activity being the most significant determinants.

Discussion

The present study evaluated health-related quality of life among colorectal cancer survivors in a tertiary care setting and identified several demographic and lifestyle factors influencing HRQoL. The mean global QoL score observed in this study (71.3 ± 19.8) suggests that most survivors achieve a relatively satisfactory level of overall well-being following treatment. This finding is consistent with previous studies reporting comparable QoL outcomes among long-term CRC survivors [9,10].

A significant gender disparity in HRQoL was observed, with female patients reporting lower global QoL and higher symptom burden compared to males. This aligns with findings from previous studies, which suggest that women are more likely to experience fatigue, psychological distress, and treatment-related side effects [11,12]. The reasons for this disparity may include biological differences, hormonal factors, and psychosocial influences such as caregiving responsibilities and social support systems.

Age did not significantly influence overall QoL in this study, which is consistent with findings from several previous studies indicating that older patients may adapt better to disease-related changes over time [13]. However, younger patients reported greater financial difficulties, highlighting the economic burden of cancer in working-age populations. This underscores the need for financial counseling and support mechanisms for younger cancer survivors.

The study also demonstrated a significant association between place of residence and QoL, with urban patients reporting better outcomes. This disparity likely reflects differences in access to healthcare facilities, follow-up care, and support services. Rural patients often face barriers such as limited healthcare infrastructure, lower health literacy, and delayed access to treatment, which can adversely impact QoL [14].

Education level emerged as an important determinant of QoL, with higher education associated with better functional outcomes and lower symptom burden. Educated patients are more likely to have better understanding of their disease, adhere to treatment protocols, and adopt healthier lifestyles, contributing to improved outcomes [15].

One of the most notable findings of this study was the strong positive impact of physical activity on HRQoL. Patients who engaged in regular exercise demonstrated significantly better global QoL and functional scores, along with reduced symptom burden. This is supported by existing literature, which emphasizes the role of physical activity in improving physical functioning, reducing fatigue, and enhancing psychological well-being in cancer survivors [16].

The findings of this study have important clinical implications. Incorporating structured

survivorship programs that focus on physical rehabilitation, psychological support, and patient education may significantly improve QoL outcomes in CRC survivors. Additionally, targeted interventions should be developed for vulnerable groups, including females, rural populations, and individuals with lower education levels.

However, this study has certain limitations. Being a single-center study, the findings may not be generalizable to the broader population. The cross-sectional design limits the ability to assess changes in QoL over time. Furthermore, data collection via telephonic interviews may introduce recall bias.

Clinical Implications

- Structured survivorship clinics needed
- Incorporation of:
 - Psychological counseling
 - Physical rehabilitation programs
 - Nutritional guidance

Limitations

- Single-center study
- Cross-sectional design
- Telephonic data collection bias
- Lack of longitudinal follow-up

Conclusion

HRQoL among CRC survivors in India is moderately good but significantly affected by gender, education, and lifestyle factors. Interventions focusing on physical activity and psychosocial support can substantially improve outcomes.

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