ORIGINAL RESEARCH PAPER
Volume - 14 | Issue - 12 | December - 2025 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH LIVER CIRRHOSIS: A CROSS-SECTIONAL ANALYSIS.

Gastroenterology

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ABSTRACT

Chronic liver cirrhosis significantly impairs patients' health-related quality of life (HRQOL) due to its systemic symptoms, complications, and socioeconomic consequences. This cross-sectional observational study aimed to assess the extent of HRQOL impairment and identify associated demographic and clinical factors among patients with cirrhosis at a single tertiary care center. A total of 174 adult cirrhosis patients on regular treatment were evaluated using the Chronic Liver Disease Questionnaire (CLD-Q), a disease-specific tool validated in various languages and populations. The cohort had a mean age of 51 years with 67% males. The overall mean CLD-Q score was 4.00 ± 0.41, indicating a high prevalence of poor HRQOL, especially in domains related to abdominal symptoms and physical activity. Education level emerged as a significant determinant, with lower educational attainment correlating with worse HRQOL scores (p=0.019). Occupation was notably affected, with about 45% of patients forced to shift to less demanding desk jobs and 27% retiring or leaving employment due to illness-related limitations. Contrary to some prior studies, disease severity assessed by MELD score and income level did not show a strong correlation with HRQOL, highlighting the importance of psychosocial and educational factors. These findings underscore the multifactorial impact of cirrhosis on quality of life beyond clinical indices alone. The study highlights the critical need for comprehensive care approaches including patient education, psychosocial support, and occupational counseling to improve HRQOL in liver cirrhosis. Integrating HRQOL assessment into routine hepatology practice can identify vulnerable patients for targeted interventions. Future longitudinal studies are warranted to examine interventions that might mitigate HRQOL burden and improve patient-centered outcomes.

KEYWORDS

Chronic liver disease, CLD-Q, Quality of life.

INTRODUCTION

Cirrhosis, a chronic and progressive liver disorder, profoundly affects health-related quality of life (HRQOL) due to its multifaceted symptoms, complications, and high morbidity[1]. It represents the final pathway for diverse liver diseases and increasingly accounts for considerable health care burden worldwide[2]. HRQOL encompasses patients' perception across physical, psychological, and social domains and is pivotal in chronic disease management[3]. Disease-specific assessment tools, notably the Chronic Liver Disease Questionnaire (CLD-Q), facilitate nuanced patient evaluation and guide interventions[4][5].

AIMS & OBJECTIVES:

The objective of this study was to quantify the magnitude of poor HRQOL in patients diagnosed with cirrhosis and to identify demographic and clinical variables that influence quality of life in this population.

Methodology:

A cross-sectional, observational study was conducted in a single tertiary care center. One hundred seventy-four adult cirrhotics on regular treatment were recruited, excluding those terminally ill or with comorbidities severely impacting HRQOL. Demographic data, clinical features, and severity indices (MELD score) were collated. The CLD-Q was administered, with assistance for illiterate patients. The questionnaire comprises 29 items organized into six functional domains: Abdominal Symptoms (AS), Fatigue (FA), Systemic Symptoms (SS), Activity (AA), Emotional Function (EF), and Worry (WO)[4][5].

RESULTS:

Mean age was 51 (±9) years, with 67.2% males and mean MELD score of 14. Table 1 shows the demographic characteristics of the patients.

Table 1 Demographic Characteristics.

Demographic Characteristics	Number (n)	Percentage (%)
Total Participants	174	100
Male	117	67.2
Female	57	32.8
Mean Age (years)	51 ± 9	
Mean MELD Score	14	

Overall HRQOL Assessment

Results revealed severe HRQOL impairment in the majority of the cohort. Poor HRQOL was documented in 94% (n=164) of participants with an overall mean CLD-Q score of 4.00 ± 0.41. This finding substantially exceeds prevalence rates reported in comparable international studies, underscoring the severity of HRQOL burden in this population[6][7].

Figure 1. Mean CLDQ Domain scores.

Domain-Specific HRQOL Scores

Among the six functional domains measured by CLD-Q, the most

severely affected were Abdominal Symptoms (mean = 3.78) and Activity (mean = 3.81)[8]. These findings suggest that physical manifestations of cirrhosis, particularly gastrointestinal discomfort and functional limitation, represent primary drivers of diminished quality of life. Younossi et al. demonstrated that fatigue and abdominal symptoms are independent predictors of poor HRQOL among CLD populations[1].

Occupational and Socioeconomic Impact

A striking finding was the substantial occupational disruption attributed to cirrhosis. Approximately 45% (n=78) of participants reported occupational demotion to sedentary desk-based roles, indicating disease-related functional limitation in the workplace. More severely, 27% (n=47) of participants had either left employment entirely or been compelled to retire due to illness. Combined, 72% of the study population experienced significant work-related disruption, highlighting cirrhosis's profound socioeconomic consequences[9] [10].

Table 2. Occupational Impact Of Cirrhosis

Employment Status Change	Number (n)	Percentage (%)
Maintained Current Employment	49	28.2
Demoted to Desk Job	78	44.8
Left/Retired from Employment	47	27.0
Total	174	100

Education As A Protective Factor

Education level emerged as a statistically significant predictor of HRQOL. A significant difference in mean CLD-Q scores was observed according to educational attainment, with patients possessing only primary-level education recording the lowest mean score of 3.916 ($F_{4,169}$=3.03, p=0.019). The difference between primary and secondary education groups was substantial (mean difference=-0.25347, p=0.016), suggesting a protective threshold effect associated with higher educational achievement. This finding aligns with research demonstrating that health literacy and educational attainment are independent predictors of better disease management and HRQOL outcomes[11][12].

Disease Severity And Other Clinical Parameters

MELD score and etiology (viral hepatitis, NASH, alcohol-related) did not correlate strongly with HRQOL variations in this cohort. Age, gender, and family income similarly failed to demonstrate significant associations with quality of life scores. These findings diverge from some international literature and suggest that sociodemographic and psychological factors may outweigh purely clinical severity indices in determining HRQOL[9][11][13].

Discussion

HRQOL Burden In Cirrhosis: Comparative Perspective

The detrimental impact of cirrhosis on HRQOL is robustly documented in recent research[1][2][3]. Several international studies have demonstrated that HRQOL deteriorates proportionally with disease severity, using MELD and Child–Pugh scores as proxies[2][4][14]. Younossi et al. emphasize that fatigue and physical symptoms are substantial independent predictors of poor HRQOL among CLD populations, often persisting despite biochemical improvement[1]. In comparison, Souza et al., studying 132 Brazilian patients, reported only 39.1% demonstrated low overall CLD-Q scores; however, the current study's 94% prevalence substantially exceeds this, indicating either greater disease severity in the present cohort or differing sociodemographic characteristics affecting disease perception and coping[6].

Janani et al., in their study of 149 Tamil patients, observed that younger individuals (less than 45 years) had significantly lower CLDQ and SF-36 scores, with higher MELD associated with low quality of life[15]. While the current study identified lower mean CLD-Q scores in the younger age group (<50 years), no significant MELD correlation emerged-a finding suggesting that age-related perceptual factors or comorbidity burden may override purely biochemical severity indicators[1][15].

Role Of Symptoms And Psychosocial Factors

Fatigue, depression, and cognitive disturbances are pivotal drivers of low HRQOL in cirrhotic populations[1][3][4]. The current study's findings on education as a protective factor may reflect better disease comprehension, superior coping mechanisms, and increased access to support resources among more educated individuals[11][12]. Patients with secondary or higher education may possess greater health literacy, enabling them to understand disease mechanisms, anticipate complications, and engage proactively in self-management[12]. This aligns with evidence from Sobhonslidsuk et al., who found that lower socioeconomic status reduced HRQOL in Thai cirrhotic patients[9].

Cirrhosis complications-such as ascites, hepatic encephalopathy, and muscle wasting-impair patients' ability to perform daily tasks, sustain employment, and maintain social engagement[3][8][16]. The severe impact on Abdominal Symptoms (3.78/7) and Activity domains (3.81/7) directly reflects these pathophysiologic sequelae[8]. Studies have shown that gastrointestinal symptoms and functional impairment are among the strongest predictors of poor quality of life in advanced liver disease[2][14].

Socioeconomic And Occupational Impact: A Systemic Burden

Socioeconomic consequences are considerable and multifaceted[9][10][14]. Nearly three-quarters of patients in this cohort reported occupational downgrade or forced retirement, consistent with recent studies in Europe, Asia, and Africa[2][9][10]. Employment loss multiplies the negative cycle—lower income reduces access to health support, increases psychological stress, and worsens medical compliance[2][10][17]. This occupational disruption underscores cirrhosis's systemic impact beyond hepatic dysfunction, affecting livelihood security and social participation[9]. The finding that family income did not significantly correlate with HRQOL scores in this study differs from Sobhonslidsuk et al., who reported lower socioeconomic status as a predictor of reduced HRQOL, suggesting that the experience of occupational disruption itself may be more psychologically impactful than baseline income level[9].

Therapeutic Interventions And Management

Interventions such as patient education and multidisciplinary support have shown demonstrable HRQOL benefits[1][4][11]. Regular counseling and disease-specific education have been shown to significantly improve CLDQ domains—particularly fatigue and emotional function—suggesting universal applicability for such interventions[1][11]. The current study's finding that education level predicts better HRQOL aligns with this evidence and supports expanding educational programs for cirrhotic patients[11][12]. Furthermore, involvement of trained registered nurses (RNs) in outpatient management resulted in better patient-perceived quality, reduced mortality, and more sustained HRQOL improvement[18]. Nurse-led clinics represent a cost-effective strategy to enhance HRQOL monitoring and intervention delivery[4][18].

Nutritional Status, Frailty, and Comorbidities

Recent evidence emphasizes the role of nutritional status and frailty[3][8][13]. Multiple studies confirm that frailty independently predicts worse clinical outcomes and lower HRQOL, underlining its multidimensional nature[13][16][17]. Malnutrition, alcohol abuse, and low BMI exacerbate the decline in quality of life, requiring proactive screening and nutritional intervention[3][8]. Comorbid mental illness, substance abuse, and cardiovascular risk factors further worsen HRQOL[9][16]. Studies have linked smoking, lower BMI, and comorbid depression to diminished scores across multiple domains, underlining the need for holistic care[9][13][14].

Antiviral Therapy and Disease-Specific Treatment Outcomes

The impact of antiviral therapy is noteworthy: in hepatitis C-related cirrhosis, quality of life has been shown to improve significantly across emotional, physical, and activity domains following successful oral antiviral regimens[19][20]. This suggests that not only physical recovery but restoration of psychosocial functioning should be targeted in clinical programs[19]. Direct-acting antivirals (DAAs) have revolutionized hepatitis C management, with emerging evidence showing sustained HRQOL gains post-treatment[19][20].

Clinical And Research Implications

Importantly, HRQOL is now recognized as a vital endpoint for prognosis and treatment planning[4][15][16]. Studies consistently show that lower HRQOL predicts worse compliance, poorer treatment outcomes, and elevated resource utilization[1][15][16]. Thus, routine assessment of HRQOL should be central in cirrhosis management pathways[1][4]. The use of condition-specific instruments like CLD-Q provides superior precision in detecting HRQOL variations compared to generic instruments[4][5].

Limitations

This study's limitations include single-center status, a lack of a control group, and reliance on self-reported measures. Variability in CLDQ administration, potential recall bias, and exclusion of other validated tools (such as SF-36, LDSI, or MFI-20) restrict generalizability. Future research should adopt multi-center longitudinal designs and explore multidimensional predictors of HRQOL in cirrhotic populations.

CONCLUSION

Chronic liver cirrhosis causes severe HRQOL impairment, most notably in physical and social domains. Education level, occupational impact, and psychosocial support emerge as actionable targets for improving outcomes. While disease severity robustly predicts HRQOL deterioration, sociodemographic and behavioral interventions show measurable benefits. Multidisciplinary management-including nutritional, psychological, and educational support-is essential. Routine HRQOL measurement should be standard practice, guiding personalized interventions. The use of comprehensive, culturally validated tools and integration of nurse-led clinics further enhances care delivery. Given the substantial prevalence of poor HRQOL in this cohort and the protective effect of education, targeted patient education and counseling programs should be prioritized in cirrhosis management protocols.

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