

PREDICTORS OF QUALITY OF LIFE IN PATIENTS WITH DECOMPENSATED CHRONIC LIVER DISEASE

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Abstract To determine the predictors of quality of life in patients with decompensated chronic liver disease. Cross-sectional observational research at Combined Military Hospital, Peshawar, from 14-October 2021 to 14-April 2022 included 170 CLD patients. The study assessed HRQOL using the Chronic Liver Disease Questionnaire, a 29-item Likert scale. High CLDQ scores for Abdomen Symptoms (AS), Fatigue (FA), Systemic Symptoms (SS), Activity (AC), Emotional Function (EF), and Worry (WO) predicted greater HRQOL. CLDQ scores ≥ 5 indicate "good" HRQOL, while < 5 indicates "poor." Statistical study utilized IBM SPSS 24 and Chi-Square testing to assess associations ($p < 0.05$). Regarding disease severity, 43.5% of patients were classified as Child-Pugh class B, while 56.5% were classified as Child-Pugh class C. In terms of the mean CLDQ score, 109 patients (64.1%) exhibited a mean CLDQ score < 5 , while 61 patients (35.9%) had a mean CLDQ score ≥ 5 . Notably, a significant association was observed between the mean CLDQ score and Child-Pugh class ($P = 0.0001$), BMI ($P = 0.03$), smoking status ($P = 0.006$), and the presence of cardiovascular diseases ($P = 0.03$). We identified Child-Pugh Class, BMI, smoking, and cardiovascular diseases as predictors of poor quality of life in decompensated chronic liver disease patients.

Keywords: Child-Pugh Score, Chronic Liver Disease, Predictors, Risk factors

Introduction

Chronic Liver Disease (CLD) represents a complex and debilitating condition that poses a substantial global health burden. Among its diverse manifestations, decompensated CLD stands out as a critical stage, marked by the onset of severe complexities like ascites, variceal bleeding, hepatic encephalopathy, and hepatorenal syndrome (D'Amico et al., 2022; Ezhilarasan, 2018). These complications drastically diminish affected individuals' quality of life (QoL) and often necessitate urgent medical intervention, including liver transplantation, to prevent further deterioration (Khangte et al., 2020). As the prevalence of CLD continues to rise worldwide, understanding the predictors of QoL in patients with decompensated CLD has become an imperative aspect of clinical research and patient care (Mandorfer and Simbrunner, 2021). A myriad of clinical factors influence the QoL of patients with decompensated CLD. Symptom burden, severity of liver disease, comorbidities, and the efficacy of medical interventions all play pivotal roles (Nagel et al., 2020). The presence of ascites, a common complication, leads to abdominal distension, discomfort, and impaired mobility, significantly impacting an individual's daily life (Biggins et al., 2021). Hepatic encephalopathy, marked by cognitive

impairment and altered mental status, further erodes QoL by interfering with personal relationships and employment opportunities (Ridola et al., 2018). Therefore, these complications' severity and therapeutic measures' effectiveness are integral determinants of QoL (Montagnese and Bajaj, 2019). Beyond the clinical aspects, psychosocial factors profoundly influence the QoL of patients with decompensated CLD. The stigma associated with liver disease, particularly alcohol-related, can lead to social isolation and reduced self-esteem (Grønkvær and Lauridsen, 2021). The economic burden imposed by the need for continuous medical care, medication, and potential liver transplantation can exacerbate financial distress (Cheemerla and Balakrishnan, 2021). Moreover, anxiety and depression are prevalent in this patient population, further undermining QoL. The interplay between these psychosocial factors and clinical manifestations underscores the complexity of QoL assessment in decompensated CLD (Häuser et al., 2011). Access to timely and effective healthcare services is a critical determinant of QoL in patients with decompensated CLD. Factors such as the availability of transplant centers, organ allocation policies, and the affordability of medications significantly impact patient outcomes. Additionally, the quality of care

provided by healthcare professionals and the level of patient education can influence adherence to treatment regimens and QoL. Thus, optimizing healthcare delivery and patient education is essential to enhance the QoL of individuals with decompensated CLD (Duan et al., 2013; Lee et al., 2012; Serper and Volk, 2018; Wong et al., 2013). Decompensated CLD represents a critical stage in the natural progression of chronic liver disease, characterized by severe complications that profoundly impact the QoL of affected individuals. A comprehensive understanding of the predictors of QoL, including clinical, psychosocial, and healthcare-related factors, is crucial for healthcare providers and researchers alike. By addressing these multifaceted determinants, clinicians can tailor patient care plans to optimize QoL outcomes and ensure that individuals with decompensated CLD receive the comprehensive support they need to navigate the challenges posed by this complex condition. This study aims to determine the predictors of quality of life in patients with decompensated chronic liver disease (Asrani et al., 2019; Duan et al., 2013).

Material and methods

A cross-sectional observational study was carried out inside the Department of Medicine at Combined Military Hospital, Peshawar, covering the period from 14-October 2021 to 14-April 2022. Prior to initiating the study, the researchers sought ethical clearance from the formal ethics committee of the hospital. The study included 170 patients diagnosed with CLD by attending physicians or hepatologists. The diagnosis was performed based on biochemical, clinical, imaging, and serological evidence that indicated the presence of portal hypertension and/or liver dysfunction. Additionally, all patients had a disease duration of more than six months. The study excluded individuals younger than 35 years old, with cognitive impairment, a history of stroke, and chronic obstructive pulmonary disease. These factors were not included due to their potential influence on Health-Related Quality of Life (HRQOL) and their potential to introduce confounding variables. A standardized questionnaire was utilized to gather data on patients' demographic factors, clinical information, and lab results. The disease severity assessment utilized the Child-Pugh staging approach, specifically focusing on stages B and C. The BMI was calculated for every patient and classified into three categories: Normal (18 to 24.9 kg/m²), Overweight (25.4 to 29.9 kg/m²), or Obese (> 29.9 kg/m²). The HbA1c screening was conducted on patients diagnosed with diabetes, and the presence of cardiovascular illnesses was determined by examining the patients' medical records. The smoking status of patients who reported consuming more than five cigarettes daily was recorded as

"yes". This study utilized the Chronic Liver Disease Questionnaire (CLDQ), a disease-specific tool used to evaluate HRQOL. The Chronic Liver Disease Questionnaire (CLDQ) consists of 29 items, each assessed using a seven-point Likert scale. The scale allows respondents to rate their experiences from "All of the time" to "None of the time." A positive correlation exists between a higher score on the CLDQ and a lower symptom burden, as well as improved HRQOL. Conversely, a lower score on the CLDQ implies a higher symptom burden. The instrument in question contains various dimensions of emotional, social, physical, and mental well-being. These dimensions are categorized into six distinct categories, namely Abdomen Symptoms (AS), Fatigue (FA), Systemic Symptoms (SS), Activity (AC), Emotional Function (EF), and Worry (WO). The quantity of questions inside each domain exhibits variability, as the Abdomen and Activity domains consist of three questions each, while the Fatigue, Worry, and Systemic domains encompass five questions, and the Worry domain encompasses six questions. To assess the frequency of HRQOL impairment, the mean scores of the CLDQ were classified as "good" if they were equal to or greater than 5, and as "poor" if they were less than 5. The statistical analysis was conducted using IBM SPSS version 24. The Chi-Square test was employed to evaluate the relationships between variables. A p-value of less than 0.05 was considered statistically significant.

Results

This study enrolled 170 patients presenting with decompensated liver kidney disease. The mean age of the patients was 55.93±12.41 years. In our study, there were 71.2% male while 28.8% female patients. Regarding the severity of the disease, 43.5% of patients had Child Pugh class B while 56.5% of patients had Child-Pugh class C. Regarding the mean CLDQ score, 109 (64.1%) patients had a mean CLDQ < 5, while 61 (35.9%) had a mean CLDQ ≥ 5. Cardiovascular diseases were found in 32.9% of patients. Frequency of diabetic patients was 17.1%. The frequency of smokers was 43.5%. We found that 66.4% of patients had BMI > 24.9 kg/m². We found a significant association of mean CLDQ score with Child-Pugh class (P = 0.0001) (Table 1), BMI (P = 0.03) (Table 2), smoking (P = 0.006) (Table 3), and cardiovascular diseases (P = 0.03) (Table 4).

Figure 1 Gender distribution

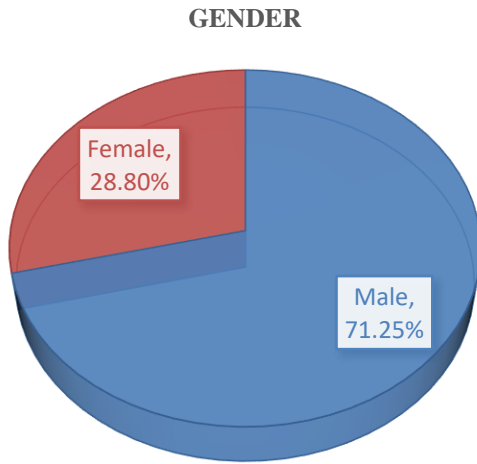


Figure 2 Child Pugh Class

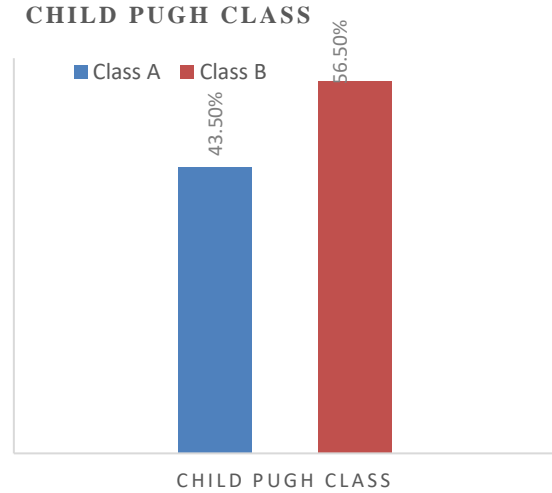


Table 1 Association of Child Pugh Class with Mean CLDQ

		Child Pugh		Total	P value
		Class B	Class C		
Mean CLDQ score	< 5	33	76	109	0.0001
		30.3%	69.7%	100.0%	
>= 5		41	20	61	
		67.2%	32.8%	100.0%	
Total		74	96	170	
		43.5%	56.5%	100.0%	

Table 2 Association of BMI with Mean CLDQ

		BMI kg/m2			Total	P value
		Normal (18 to 24.9 kg/m2)	Overweight (25.4 to 29.9 kg/m2)	Obese (> 29.9 kg/m2)		
Mean CLDQ score	< 5	29	45	35	109	0.03
		26.6%	41.3%	32.1%	100.0%	
>= 5		28	20	13	61	
		45.9%	32.8%	21.3%	100.0%	
Total		57	65	48	170	
		33.5%	38.2%	28.2%	100.0%	

Table 3 Association of smoking with Mean CLDQ

		Smoking		Total	P value
		Yes	No		
Mean CLDQ score	< 5	56	53	109	0.006
		51.4%	48.6%	100.0%	
>= 5		18	43	61	
		29.5%	70.5%	100.0%	
Total		74	96	170	
		43.5%	56.5%	100.0%	

Table 4 Association of cardiovascular diseases with Mean CLDQ

		Diabetes		Total	P value
		Yes	No		
Mean CLDQ score	< 5	19	90	109	0.03

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		17.4%	82.6%	100.0%
	>= 5	10	51	61
		16.4%	83.6%	100.0%
Total		29	141	170
		17.1%	82.9%	100.0%

Discussion

The main goal of medical care has shifted towards improving patients' Quality of Life (QOL). This movement increasingly emphasizes patients as the central focus of healthcare, the maintenance of their functional capacities, and their general well-being. As a result, there is an increasing focus on the valuation of a patient's HRQOL within medical research (Asrani et al., 2019). HRQOL is a multidimensional and subjective construct that incorporates various dimensions, including functional status, emotional and social well-being, and general health. Over the latter two decades, the incorporation of HRQOL into the assessment of psychosocial outcomes has become a widely accepted practice in conjunction with conventional biomedical outcomes. Since its inception, it has been a crucial measure for assessing the effectiveness of disease management (Zhuang et al., 2014). The knowledge of the idea of HRQOL has experienced significant advancement due to an increased recognition of the significance of comprehending the effects of health-related interventions on an individual's everyday functioning, extending beyond the treatment of their physical well-being. The notion holds special importance for persons afflicted with illnesses that may not offer a promising prospect of a complete remedy, such as patients experiencing decompensated liver cirrhosis. The significance of HRQOL is evident for patients concerning their physical and psychosocial well-being (Afodun et al., 2017). Decompensated liver cirrhosis, specifically categorized as Child-Pugh B/C, is distinguished by the occurrence of distinct complications such as hepatic encephalopathy, ascites, spontaneous bacterial peritonitis. The consequences are correlated with a significant rise in mortality compared to the compensated stage of the disease, often known as CP A. In present times, there is a growing recognition of the significance of patient-reported outcomes (Bhandari et al., 2018). Several studies have shown evidence that individuals with liver cirrhosis experience a lower life quality in terms of their health compared to the overall healthy population. The affiliation between HRQOL and the chronic liver disease severity is inverse. Previous studies have found some markers, such as ascites, lower albumin levels, and covert hepatic encephalopathy (CHE), linked to impaired HRQoL in individuals with chronic liver disease. Nevertheless, most of these research have approached liver cirrhosis as a unified condition, failing to differentiate between the compensated (CP A) and decompensated (CP B/C)

phases of the ailment (Bhandari et al., 2018; Souza et al., 2015). We conducted our study on 170 patients of chronic liver disease with child Pugh B and C. Patients had mean age 55.93±12.41 years. We observed that the male gender's frequency was higher than the female gender, similar observations have been reported by a study, they observed that the median age of their patients was 60 years while more than 60 percent were male patients (Labenz et al., 2019). We distributed the questionnaire for chronic liver disease and made an effort to identify the predictors of quality of life in these decompensated chronic liver disease patients. We found significant association of lower CLDQ with increased BMI, Child Pugh C, smoking and cardiovascular diseases, we identify these as independent predictors of poor life quality among decompensated chronic liver disease patients. According to a study, reported increase Child Pugh score and BMI as an independent predictors of lower life quality in chronic kidney disease (Thiele et al., 2013). Another study reported smoking to be the one of the independent predictors of poor life quality in chronic liver disease patients (Souza et al., 2015; Thiele et al., 2013).

Conclusion

From our study we conclude that the predictors of poor quality of life in patients with decompensated chronic liver disease were Child Pugh Class, BMI, smoking and cardiovascular diseases. Timely identification and treatment of these predictors can lead to a better quality of life in these patients.

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Declarations**Data Availability statement**

All data generated or analyzed during the study are included in the manuscript.

Ethics approval and consent to participate

Not applicable

Consent for publication

Not applicable

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Not applicable

Conflict of Interest

Regarding conflicts of interest, the authors state that their research was carried out independently without any affiliations or financial ties that could raise concerns about biases.



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