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Predictors of Health-Related Quality of Life among Decompensated Chronic Liver Disease Patients in Peshawar

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ABSTRACT

This study aims to evaluate the overall health-related quality of life among patients with decompensated chronic liver disease and to identify clinical factors (e.g., severity of liver disease, comorbidities) and demographic factors that significantly predict health-related quality of life.This descriptive cross sectional study was conducted in Khyber teaching hospital during a period of October to December 2024. A pre designed questionare was used to gather data Data were collected using an interviewer-administered structured questionnaire which was adopted from the Medical Outcomes Study (MOS) 36-item SF-36 health survey. Data was analyzed using spss and Microsoft excel software.Among the total subjects, 61 (61.0%) were male and 39 (39.0%) were female. The average age was 68.6 ± 16.5 years ranging from 41 to 95 years. Among the subjects, about more than half of the subjects had acute complications, i.e. spontaneous bacterial peritonitis in 61 (61.0%) and 61 (61.0%) had porto-systemic encephalopathy Health-Related Quality of Life (HRQoL) with their mean scores and standard deviations, reflecting individuals' physical, emotional, and social well-being. It shows moderate scores for physical functioning, energy, and role limitations, while emotional well-being and general health are lower. The overall HRQoL score is also relatively low, indicating a generally poorer quality of life in this sample. There is a pressing need to develop better healthcare measures that can address the needs of patients with liver diseases, especially older and uneducated patients with severe comorbidities. There is a need to manage socioeconomic barriers and enhance the level of patient education to improve health outcomes and QoL.

Introduction

CLD is among the most common causes of morbidity and mortality worldwide. It is a broad term which refers to a broad range of progressive hepatic disorders, the most prevalent of which are viral hepatitis, alcohol abuse, and NAFLD. A significant number of patients throughout the progression of their disease would enter a decompensated CLD phase of the natural history, where the disease is characterised by life-threatening events such as ascites, variceal bleeding, and hepatic encephalopathy (1). DCLD refers to the most developed form of the disease with liver dysfunction, and the onset of the advanced form is usually associated with a lack of quality of life, both physical and psychological (2). Health-related quality of life is a global assessment that incorporates numerous aspects of well-being, such as physical and emotional functioning, which are negatively impacted in patients with DCLD (3). DCLD has a significant role in the significant effect on HRQoL since patients who develop advanced liver disease tend to be hospitalised often, have complicated medications, and exhibit debilitating symptoms, rendering day-to-day living an overwhelming challenge (4). The cause of poor HRQoL in such populations can be associated with both disease-specific factors, such as the degree of liver dysfunction, and psychosocial factors, such as emotional distress, anxiety, and social isolation (5). Although research on HRQoL in patients with chronic liver diseases is becoming more popular, few studies have primarily aimed to provide predictors of HRQoL in patients with DCLD. HRQoL predictors in this population are multifactorial and complex, involving clinical, psychosocial, and sociodemographic factors. An example is the use of disease severity parameters, including the Child-Pugh and MELD scores, which are commonly used in DCLD to assess liver performance and prognosis (6). Such scores not only provide the necessary information regarding prognosis but also indicate a correlation with HRQoL because the worse the liver function, the poorer the QoL (7). Other psychosocial issues, such as depression, anxiety, and social support, have also been cited as important determinants of HRQoL in patients with liver disease. The origin of psychological distress is the chronicity of DCLD and the stress associated with the life of a patient with a progressive and life-threatening illness, posing a further burden on physical symptoms and well-being. This negative relationship between psychological distress and HRQoL, which has been repeatedly demonstrated in studies involving patients with liver disease, implies that medical services should be provided with a focus on the psychological peculiarities of the disease. Moreover, demographic factors (age, sex, and socioeconomic status) have been noted to play a role in the literature. This is because older patients tend to report lower HRQoL due to the cumulative effect of aging and comorbidity, whereas persons with lower socioeconomic status may have other difficulties, such as, but not limited to, poor healthcare and social support, which exacerbate the disease outcomes and quality of life (11). Gender differences in HRQoL have also been documented, although some scholars state that women are more likely to experience a decrease in HRQoL than men, perhaps because of hormonal factors, caregiving, or differences in access to healthcare as related to gender (12). Although some of these variables have been examined in individual studies, no research has been conducted extensively on the interaction of clinical, psychosocial, and demographic predictors in the determination of HRQoL in patients with DCLD. This literature gap also supports the need for a comprehensive approach to understanding the predictors of HRQoL in this population. Enhancing our understanding of these predictors in improving overall well-being is crucial, as well as custom-made interventions for the various complex issues that patients with DCLD experience. Proper control of HRQoL among this group may lead to improved patient outcomes, greater compliance with therapy, and less expensive healthcare. In the current study, we examined the key predictors of HRQoL in patients with decompensated chronic liver disease. The evaluation of the two clinical variables, such as liver functioning score, and psychosocial variables, such as mental health status and social support, will contribute valuable knowledge to the effects of the interrelated variables on the overall well-being of the patients. The results of this study may also be reflective of clinical practice through the identification of intervention targets that can enhance HRQoL, which, in turn, can help improve the quality of care that patients with DCLD receive.

Objectives:

- To evaluate the overall health-related quality of life among patients with decompensated chronic liver disease.
- To identify clinical factors (e.g., severity of liver disease, comorbidities) and demographic factors that significantly predict health-related quality of life.

Methodology

Study design: Descriptive cross sectional study

Study setting: Khyber Teaching Hospital Peshawar

Study duration 1st Oct 2024 to 31st dec 2024

Sample size 100

Sampling technique Stratified random sampling is used

Inclusion criteria: All cases of any age and gender

Data collection procedure

Following ethical committee approval, I collected data from chronic liver disease patients. A predesigned questionnaire was used to collect data. Data were collected using an interviewer-administered structured questionnaire adapted from the Medical Outcomes Study (MOS) 36-item SF-36 health survey. The instrument (questionnaire) is made up of WHO SF-36 item questionnaires adapted from the MOS 36-SF instrument, as well as sociodemographic and economic data. The SF-36 is made up of 36 questions covering physical functioning (10 items), role limitation due to physical health (4 items), body pain (2 items), vitality (4 items), social functioning (2 items), role limitation due to emotional problems (3 items), mental health (5 items), and general health (6 items).

Data analysis technique

Data was analysed using spss v.25.0. the categorical variables were described using frequencies and percentages. the meanand standard deviation were used to conduct descriptive analysis on numerical data. each item on the sf-36 was graded on a linear scale. the score of each domain was calculated by adding the related items. the scores were then linearly translated to a 0-100 scale. mean scores were then adjusted to make the domain scores equal to the mos (0-100) (lower scores indicate lower quality of life). multiple linear regression was utilised to create the final model. tables and figures will be utilised to present the analysis.

RESULTS

A total of 100 patients of liver disease were included in the analysis. Among the subjects, 61 (61.0%) were male and 39 (39.0%) were female. The average age was 68.6 ± 16.5 years ranging from 41 to 95 years, of which 93 (93.0%) were married and 70 (70.0%) of the subjects were uneducated. Table 1 shows demographic data of the subjects. Figure 1 shows residence of the subjects according to the city.

Table 1: Demography of the subjects

Variables	Frequency (n=100)	Percentage (%)
Marital Status		
Yes	93	93.0
No	7	7.0
Occupations		
Housewife	39	39.0
Retired	33	33.0
Government	8	8.0
Merchant	8	8.0
Farmer	7	7.0
Labour	5	5.0
Educational status		
Uneducated	70	70.0
Primary	16	16.0
Secondary	13	13.0
Higher	1	1.0
Gender		
Male	61	61.0
Female	39	39.0
Residence		
Rural	65	65.0
Urban	35	35.0

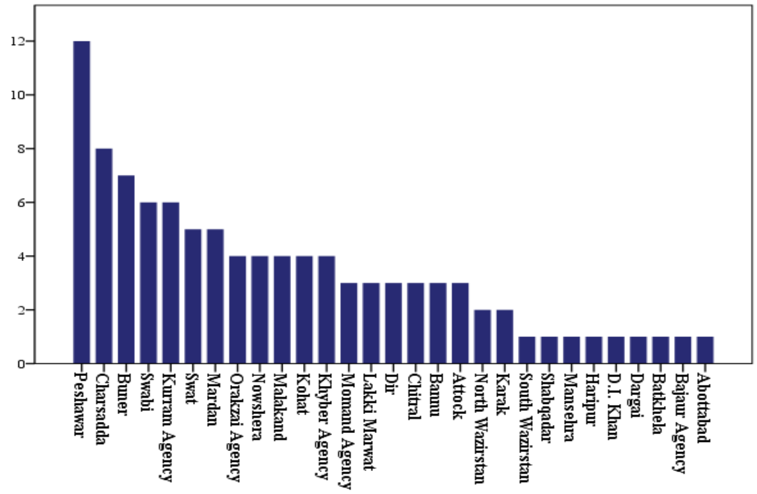

Figure 1: Residency according to the cities

In the subjects, 42 (42.0%) of the subjects had co-morbidities, and nearly half of the subjects 46 (46.0%) were of upper lower socioeconomic status. Seventy three (73.0%) were non-smokers, with more than half (55, 55.0%) had normal liver function test. The average Model for End-Stage Liver Disease (MELD) score was 21.8 ± 5.3 ranging 8 to 30, with maximum subjects of 50 (50.0%) in Child-Pugh grade C. However, the quality of life was poor in 56 (56.0%) of the patients. Table 2 reveals health-related conditions of liver patients.

Table 2: Health-Related Condition in Liver disease patients

Variables	Frequency (n=100)	Percentage (%)
History of Smoking		
Yes	27	27.0
No	73	73.0
Socioeconomic Status		
Lower middle	40	40.0
Upper lower	46	46.0
Upper middle	14	14.0
Co-morbidities		
Yes	42	42.0
No	58	58.0
Quality of Life (QoL)		
Average	38	38.0
Good	6	6.0
Poor	56	56.0
Liver Function Tests		
Normal	55	55.0
Deranged	45	45.0
Child-Pugh grade		
A	2	2.0
B	48	48.0
C	50	50.0
MELD score		
Mean (SD)	21.8	5.3

In the liver disease patients, the duration of the disease was average 7.8 ± 2.9 years ranging from 5 to 15 years, whereas 54 (54.0%) were using medications. Among the subjects, about more than half of the subjects had acute complications, i.e. spontaneous bacterial peritonitis in 61 (61.0%) and 61 (61.0%) had porto-systemic encephalopathy. The chronic complications like vitamin D deficiency were developed in 50 (50.0%) and hepatocellular carcinoma in 45 (45.0%) of subjects. Table 3 shows disease-related problems in patients.

Table 3: Disease Related Condition in liver disease patients

Variables	**Frequency (n=100)**	**Percentage (%)**
Acute complications		
Spontaneous Bacterial Peritonitis	61	61.0
Porto-systemic encephalopathy	61	61.0
Chronic complications		
Vitamin D deficiency	50	50.0
Hepatocellular carcinoma	45	45.0

Table 4 shows indicators of overall quality of life

Domains of HRQoL, overall HRQoL	**Mean**	**SD**
Physical functioning	65.4	21.4
Role limitation due to physical health	50.2	14.1
Role limitation due to emotional problem	50.7	6.1
Energy/fatigue (vitality)	57.1	11.3
Emotional well-being (mental health)	41.6	20.4
Social functioning	50.6	11.6
Bodily pain	67.2	13
General health	25	9
Overall HRQoL	41	14

Table 5: Multiple linear regression analysis of patients with liver disease patients

Variables	**Unstandardized Coefficients**		**Standardized Coefficients**	**95.0% Confidence Interval for B**		**p-value**
	B	**Std. Error**	**Beta**	**Lower Bound**	**Upper Bound**	
(Constant)	.850	.880		-.899	2.598	.337
Gender	-.492	.234	-.252	-.958	-.027	.039
Co-morbidities	.182	.203	.094	-.220	.585	.371
Use of Medications	-.140	.373	-.073	-.880	.601	.708
Smoking	.349	.260	.163	-.167	.866	.182
Socioeconomic Status	-.153	.145	-.110	-.440	.134	.293
Marital Status	.462	.421	.124	-.374	1.298	.275
MELD	.038	.021	.215	-.003	.080	.071
LFTs	.374	.388	.195	-.396	1.145	.337
Spontaneous Bacterial Peritonitis	-.043	.197	-.022	-.434	.349	.828
Porto-systemic encephalopathy	-.072	.310	-.037	-.687	.544	.818
Vitamin D deficiency	.649	.488	.341	-.321	1.619	.187

Hepatocellular carcinoma	-.747	.448	-.390	-1.637	.143	.099
Dependant Variable: Quality of Life (QoL)						

DISCUSSION

This study involved one hundred patients suffering from liver disease and the findings drawn provided significant information on demographic profile, medical history, and quality of life (QOL). The subjects were predominantly male (61.0%) and with a mean age of 68.6 years. These results are in consonance with the existing literature that liver diseases such as cirrhosis and hepatocellular carcinoma are more common in older people [10].

A high proportion of the patients are married 93.0% and this has implications for support in terms of the family amongst the patients 70.0% had no education and this has an implication on the health literacy of the patients this is in agreement with a study done that showed that education has an effect on the health outcomes of patients [11].

Furthermore, nearly half of the participants (46.0%) were actually classified as upper lower socioeconomic status which is in parity with the current economic status of many of the patient in similar regions affecting their ability to access health care needs and quality treatments [12] the high percentage of non-smokers (73.0%) depicted here indicates that may be lifestyle choices are not major influences in this regard.

The health indicators reflect the severity of the problem. meld score was 21.8 showing a significant level of hepatic dysfunction and worsening since half of the patients belonged to Child-Pugh grade c indicating advanced liver disease [13] the assessment of quality of life was poor with 56.0% of patients having poor QOL. acute complication were seen in 61.0% of patients, such as spontaneous bacterial peritonitis and portosystemic encephalopathy.

There are also long term consequences including vitamin d deficiency and hepatocellular carcinoma which occur in 50.0% and 45.0% of patients respectively still pointing to the fact that these patients have other serious health challenges [14,15].

The existence of these complications requires the use of a complex of approaches to patient care, including constant monitoring and prevention.

The multiple linear regression analysis gave other information about the factors influencing the quality of life With a negative value, gender was found to be a significant variable, this could mean that male patients may have worse QOL than female patients[15].While the meld score was nearly significant with the qol score, it is important to further study this relationship because other variables, including comorbid illnesses as well as socioeconomic status, were not found to carry any relationship with qol, although they are fundamentally important, they may well be drowned by the direct effects of liver diseases and its complications on qol.

CONCLUSION

This study highlights the urgent need for enhanced healthcare strategies targeting liver disease patients, particularly among older, uneducated populations with significant comorbidities. Addressing socioeconomic barriers and improving patient education are essential to improve health outcomes and qol.

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