SSR Institute of International Journal of Life Sciences
ISSN (O): 2581-8740 | ISSN (P): 2581-8732
Kumar *et al*., 2026
doi: 10.21276/SSR-IIJLS.2026.12.4.11

Original Article

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Etiological Spectrum and Clinical Profile of Patients with Chronic Liver Disease: A Cross-Sectional Study

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Received: 18 Mar 2026/ Revised: 15 May 2026/ Accepted: 19 Jun 2026

ABSTRACT

Background: Chronic liver disease (CLD) is a major cause of morbidity and mortality worldwide and encompasses a spectrum of progressive hepatic disorders leading to fibrosis, cirrhosis, and liver failure. The etiological profile of CLD varies geographically and has been changing due to increasing metabolic risk factors and alcohol consumption. This study was conducted to evaluate the etiological spectrum and clinical profile of patients with CLD.

Methods: A hospital-based cross-sectional observational study was conducted among 50 adult patients with clinically, biochemically, radiologically, and/or histologically confirmed chronic liver disease at a tertiary care center in Chhattisgarh, India. Demographic data, etiological factors, clinical presentation, examination findings, and relevant laboratory investigations were recorded and analyzed using descriptive statistics.

Results: Among the 50 patients, 78% were males, with a mean age of 49.47 ± 11.86 years. Alcohol-related liver disease was the most common etiology (60%). Ascites (72%), pedal edema (66%), and jaundice (62%) were the predominant symptoms, while pallor (98%), icterus (84%), edema (78%), and spider nevi (62%) were the common clinical signs. Splenomegaly (98%), abdominal distension (76%), ascites (74%), and hepatomegaly (66%) were the major abdominal findings. Alcohol consumption was reported by 64% of patients.

Conclusion: Chronic liver disease predominantly affected middle-aged males, with alcohol-related liver disease emerging as the leading etiology. Most patients presented with manifestations of decompensated liver disease, emphasizing the need for early diagnosis, effective alcohol-control measures, viral hepatitis prevention, and timely specialist referral to reduce disease-related complications and mortality..

Key-words: Chronic liver disease; Cirrhosis; Alcohol-related liver disease; Hepatitis B virus; Hepatitis C virus; Ascites; Splenomegaly; Etiological spectrum; Clinical profile

INTRODUCTION

Chronic liver disease (CLD) comprises a spectrum of progressive hepatic disorders characterized by persistent liver injury, inflammation, fibrosis, and eventual development of cirrhosis and its complications [1].

How to cite this article
Kumar R, Sharma NK, Garad NK. V Etiological Spectrum and Clinical Profile of Patients with Chronic Liver Disease: A Cross-Sectional Study. SSR Inst Int J Life Sci., 2026; 12(4): 10227-10231.

Access this article online
https://iijls.com/

It represents a major public health challenge worldwide, accounting for substantial morbidity, mortality, and healthcare expenditure. Liver diseases are responsible for more than two million deaths annually, contributing approximately 4% of all global deaths. Despite advances in diagnosis and management, the burden of CLD continues to rise, particularly in low- and middle-income countries [2].

The etiological profile of CLD has undergone significant changes over the past two decades. Traditionally, chronic hepatitis B virus (HBV) infection, hepatitis C virus (HCV)

doi: 10.21276/SSR-IIJLS.2026.12.4.11

infection, and alcohol-related liver disease (ALD) were the predominant causes of chronic liver injury. However, the increasing prevalence of obesity, diabetes mellitus, and metabolic syndrome has led to a rapid rise in metabolic dysfunction-associated steatotic liver disease (MASLD; formerly non-alcoholic fatty liver disease), which is now emerging as one of the leading causes of chronic liver disease globally [3]. Current estimates suggest that MASLD affects nearly one-third of the adult population worldwide and continues to increase in parallel with the growing burden of metabolic disorders.

Cirrhosis represents the final common pathway of many chronic liver disorders and remains associated with significant complications, including portal hypertension, ascites, hepatic encephalopathy, variceal bleeding, hepatocellular carcinoma, and liver failure [4]. Recent Global Burden of Disease analyses have demonstrated a substantial increase in the incidence and prevalence of cirrhosis and other chronic liver diseases, with metabolic and alcohol-related liver diseases contributing increasingly to this burden [5].

The clinical presentation of CLD varies widely depending on the underlying etiology and stage of disease [6]. Patients may remain asymptomatic for prolonged periods or present with nonspecific symptoms such as fatigue, anorexia, jaundice, abdominal distension, edema, and manifestations of portal hypertension. Understanding the clinical profile and etiological spectrum of CLD is essential for early diagnosis, risk stratification, implementation of preventive strategies, and optimization of management protocols.

The etiological distribution of CLD differs across geographical regions due to variations in viral hepatitis prevalence, alcohol consumption patterns, metabolic risk factors, socioeconomic conditions, and healthcare access [7]. Data from Central India remain limited, and regional studies are necessary to identify prevailing etiologies and clinical characteristics of affected patients.

Therefore, the present study was undertaken to evaluate the etiological spectrum and clinical profile of patients with chronic liver disease attending a tertiary care center, thereby providing region-specific information that may assist in improving preventive and therapeutic strategies.

MATERIALS AND METHODS

Study Design and Setting- This hospital-based cross-sectional observational study was conducted in the Departments of Gastroenterology and General Medicine at Jawaharlal Nehru Hospital and Research Centre, Bhilai, Chhattisgarh, India. The study was carried out over a period of 35 months, from February 2010 to December 2012.

Study Population- A total of 50 consecutive patients diagnosed with chronic liver disease (CLD) and attending the outpatient departments (OPD) or admitted to the inpatient departments (IPD) of Gastroenterology and Medicine were included in the study.

Inclusion Criteria

- Patients aged ≥18 years.
- Patients with clinical, biochemical, radiological, and/or histological evidence suggestive of chronic liver disease.
- Patients willing to participate and provide informed consent.

Exclusion Criteria

- Patients with acute hepatitis or acute liver failure.
- Patients with incomplete clinical or laboratory data.
- Patients unwilling to participate in the study.

Data Collection- A detailed clinical history was obtained from all participants, including demographic characteristics, alcohol consumption, risk factors for viral hepatitis, comorbid illnesses, and duration of symptoms. A thorough general physical examination and systemic examination were performed. Clinical features such as jaundice, abdominal distension, pedal edema, gastrointestinal bleeding, altered sensorium, hepatomegaly, splenomegaly, and ascites were recorded.

All patients underwent relevant investigations including: Complete blood count (CBC), Liver function tests (serum bilirubin, AST, ALT, ALP, serum albumin), Prothrombin time/INR, Renal function tests, Viral markers (HBsAg and anti-HCV antibody), Blood glucose levels and Ultrasonography of the abdomen

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Outcome Measures- Distribution of etiological factors responsible for chronic liver disease, Clinical profile and pattern of presentation among patients with chronic liver disease were measured

Statistical Analysis- Data were entered into a predesigned and pretested proforma and analyzed using appropriate statistical software. Continuous variables were expressed as mean ± standard deviation (SD), while categorical variables were presented as frequencies and percentages. A p-value <0.05 was considered statistically significant.

RESULTS

A total of 50 patients with chronic liver disease were included in the study. Males predominated (78%), with a male-to-female ratio of 3.5:1. The mean age of the study population was approximately 49.5 years, with no significant age difference between males and females (p>0.05) (Table 1).

Table 1: Demographic Characteristics of Patients with Chronic Liver Disease (n=50)

Variable		Number (%)
Gender	Male	39 (78.0)
	Female	11 (22.0)
Age (years)	Male	49.43 ± 11.09
	Female	49.60 ± 14.73
	Overall	49.47 ± 11.86

Alcohol-related liver disease was the predominant etiology, accounting for 60% of cases, followed by hepatitis B virus infection (14%) and hepatitis C virus infection (12%). Less common causes included Wilson's disease, autoimmune hepatitis, drug-induced liver disease, and cryptogenic CLD (2% each) (Fig. 1).

Ascites (72%) was the most common presenting symptom, followed by pedal edema (66%) and jaundice (62%). Fever was the least common presenting complaint (4%) (Table 2).

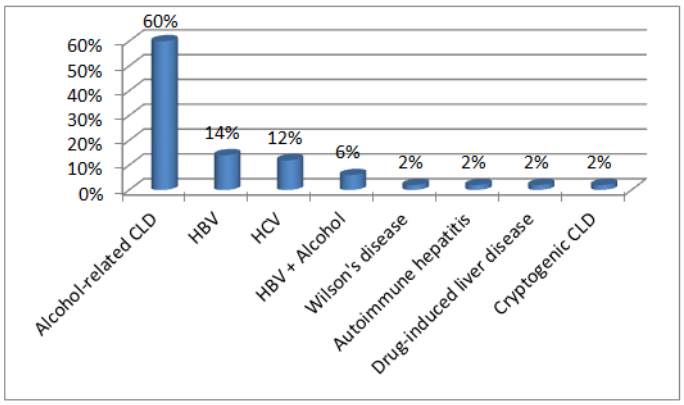

Fig. 1: Etiological Spectrum of Chronic Liver Disease

Table 2: Clinical Presentation of Patients with Chronic Liver Disease

Symptom	Frequency (%)
Ascites	36 (72%)
Pedal edema	33 (66%)
Jaundice	31 (62%)
Fatigue	22 (44%)
Vomiting	9 (18%)
Encephalopathy	9 (18%)
GI bleed	7 (14%)
Oliguria	3 (6%)
Fever	2 (4%)

Pallor was the most frequent clinical sign (98%), followed by Icterus (84%) and edema (78%). Spider nevi were observed in 62% of patients (Table 3).

Table 3: Clinical Examination Findings in Patients with Chronic Liver Disease

Clinical Sign	Frequency (%)
Pallor	49 (98%)
Icterus	42 (84%)
Edema	39 (78%)
Spider nevi	31 (62%)
Asterixis	9 (18%)
Gynaecomastia	6 (12%)
Ecchymosis/Purpura	5 (10%)

Splenomegaly was the most common abdominal finding (98%), followed by abdominal distension (76%) and free fluid suggestive of ascites (74%). Hepatomegaly was present in 66% of patients (Table 4).

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Table 4: Abdominal Examination Findings in Chronic Liver Disease

Finding	Frequency (%)
Splenomegaly	49 (98%)
Abdominal distension	38 (76%)
Free fluid (ascites)	37 (74%)
Hepatomegaly	33 (66%)
Dilated abdominal veins	27 (54%)

A previous history of jaundice (80%) and chronic liver disease (78%) was common among study participants. Alcohol consumption was reported by 64% of patients, highlighting its major contribution to disease burden (Table 5).

Table 5: Relevant Past History among Patients with Chronic Liver Disease

Past History	Frequency (%)
Previous jaundice	40 (80%)
Liver disease	39 (78%)
Alcohol consumption	32 (64%)
Decompensation episodes	18 (36%)
Blood transfusion	7 (14%)
Encephalopathy	4 (8%)
GI bleed	3 (6%)
Drug intake	1 (2%)

DISCUSSION

The current study demonstrated a marked male predominance with a mean age of approximately 49 years. Similar demographic patterns have been reported by Swaroop *et al.* [8], Sharma *et al.* [9] and Kumar *et al.* [10], who observed that CLD predominantly affects middle-aged males due to higher exposure to alcohol and viral hepatitis risk factors.

Alcohol-related liver disease emerged as the most common etiology, followed by hepatitis B virus and hepatitis C virus infections in the present study. These findings are consistent with reports from several Indian studies showing alcohol as the leading cause of cirrhosis and CLD in many regions of India. Shalimar *et al.* [11], reported alcohol-related liver disease in 52–65% of cirrhotic patients, while Asrani *et al.* [12], also identified alcohol as the predominant etiological factor in hospitalized CLD patients. The substantial contribution of viral hepatitis observed in the present study further highlights the ongoing burden of HBV and HCV infections despite improvements in vaccination and antiviral therapy.

We have observed that the ascites was the most common presenting symptom, followed by pedal edema and jaundice, indicating that most patients presented in a decompensated stage of liver disease. Similar observations have been reported by Bhattacharyya *et al.* [13], where ascites and jaundice were the predominant manifestations among cirrhotic patients. The high frequency of encephalopathy and gastrointestinal bleeding further reflects advanced portal hypertension and hepatic dysfunction at presentation.

On clinical examination, pallor, icterus, edema, and spider nevi were frequently observed. Splenomegaly was the most common abdominal finding, followed by ascites and hepatomegaly. These findings are in agreement with the studies of Kaplan *et al.* [14] and Sarin SK *et al.* [15], who reported Splenomegaly and ascites as common markers of portal hypertension in patients with advanced CLD.

A notable proportion of patients reported previous jaundice, chronic liver disease, and alcohol consumption, suggesting delayed presentation and recurrent disease progression. The findings emphasize the need for early screening of high-risk populations, effective alcohol-control strategies, and strengthened viral hepatitis prevention programs to reduce the burden of chronic liver disease and its complications.

Overall, the study highlights alcohol-related liver disease as the predominant cause of CLD in this region and demonstrates that a majority of patients present with features of decompensated cirrhosis, underscoring the importance of early diagnosis and timely intervention.

CONCLUSIONS

Chronic liver disease in the present study predominantly affected middle-aged males, with alcohol-related liver disease being the leading etiology, followed by hepatitis B and hepatitis C infections. Most patients presented with manifestations of advanced liver disease, particularly ascites, pedal edema, jaundice, and Splenomegaly. These findings indicate a substantial burden of preventable liver disease and emphasize the need for early detection, alcohol-use reduction

programs, viral hepatitis control measures, and timely referral to specialized care. Strengthening preventive and screening strategies may help reduce disease progression, complications, and mortality associated with chronic liver disease.

CONTRIBUTION OF AUTHORS

Research concept- Rajesh Kumar, Netaji Shivaji Garad
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Article editing- Rajesh Kumar, Navil Kumar Sharma, Netaji Shivaji Garad
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