SCIENTIFIC JOURNAL
CEREM-GO

DOI 10.37951/2675-5009.2025v6i18.185
ISSN 2675-5009
e26185
SCIENTIFIC ARTICLE - REVISON

FROM ALCOHOLIC LIVER CIRRHOSIS TO HEPATIC STEATOSIS: AN EPIDEMIOLOGICAL PROFILE FROM 2010 TO 2025

LUDYMILLA DE OLIVEIRA PORTILHO LACERDA[1], AMÉRICO DE OLIVEIRA SILVÉRIO[2], STANLEY JAMES FANSTONE PINA[1]

1.Hospital Evangélico de Anápolis, Anápolis/GO, Brazil.
2.Hospital Estadual Geral de Goiânia Dr. Alberto Rassi, Goiânia/GO, Brazil.

ABSTRACT

Introduction: Alcoholic Liver Disease (ALD) represents a progressive spectrum of lesions, starting with steatosis and potentially culminating in hepatic cirrhosis, a pathological scarring process, irreversible in its advanced stages. Excessive alcohol consumption is the largest preventable risk factor worldwide. **Objective:** To analyze the epidemiological profile and hospital morbidity burden of ALD (ICD-10 K70) in Brazil, between January 2010 and September 2025, based on secondary data from the SUS Hospital Information System (SIH/SUS). **Methodology:** Ecological, retrospective, and quantitative study, with data collection on hospitalizations, costs, sex, age group, and mortality for the ICD-10 code K70 (Alcoholic Liver Disease) and, contextually, ICD-10 K74 (Other Liver Diseases). **Results:** A total of 258,300 hospitalizations for ALD (K70) were recorded during the analyzed period. A high prevalence was observed among males and in the productive age group (40 to 69 years), which concentrates 75.82% of cases. The Southeast Region led the absolute number of hospitalizations. The average mortality rate for ALD (K70) between 2007 and 2020 was 17.49%. The nature of care for cirrhosis hospitalizations (K74) was predominantly Emergency (88.1%). **Conclusion:** ALD imposes a high epidemiological and economic burden on the healthcare system, making early screening and the implementation of abstinence policies crucial to prevent the progression of steatosis to irreversible cirrhosis and its complications.

Keywords: Alcoholic liver disease, Alcoholic hepatic cirrhosis, Epidemiology, DATASUS, Steatosis.

INTRODUCTION

ColorectalLiver health is a fundamental pillar of overall well-being, given the multitude of vital functions performed by the liver, including detoxification, protein and enzyme synthesis, metabolism, and regulation of blood components.[1] However, exposure to harmful agents—most notably excessive alcohol consumption—can trigger a series of pathological conditions that severely compromise hepatic function, ultimately culminating in its terminal and irreversible stage, liver cirrhosis.[2]

Alcoholic Liver Disease (ALD) is recognized as a progressive spectrum of hepatic injury. This

spectrum begins with alcoholic hepatic steatosis (AHS), a condition characterized by excessive accumulation of triglycerides within hepatocytes. Although AHS is often asymptomatic and reversible with alcohol abstinence, continued consumption may lead to hepatic inflammation, resulting in alcoholic steatohepatitis.[3,4] Progression of inflammation and cellular injury may subsequently evolve into fibrosis and, ultimately, alcoholic liver cirrhosis (ALC), a condition in which the normal hepatic architecture is replaced by fibrotic tissue and regenerative nodules.[1,2]

Liver cirrhosis, regardless of etiology, represents a major global health problem and is among the leading causes of morbidity and mortality worldwide. The World Health Organization (WHO) reports that alcohol consumption accounts for a substantial proportion of these statistics, with ALD contributing to approximately 5.3% of all global deaths and 5.1% of the global burden of disease.[3,4] In Brazil, harmful alcohol consumption has become one of the most serious public health challenges, constituting a determining factor in more than 10% of the country's total morbidity and mortality.[1]

The transition from alcoholic hepatic steatosis to alcoholic liver cirrhosis is a dynamic and multifactorial process influenced by genetic, environmental, and nutritional factors, viral coinfections (hepatitis B and C), obesity, and the quantity and duration of alcohol consumption.[1,2] Studies indicate that approximately 90% of individuals who abuse alcohol develop alcoholic hepatic steatosis, and among these, a substantial proportion may progress to alcoholic hepatitis (10–35%) and cirrhosis (10–20%).[3,5] This progression represents not only a clinical challenge but also a substantial burden on healthcare systems, with high costs associated with hospitalizations, long-term treatments, and, in advanced cases, liver transplantation.[4,5]

The epidemiological relevance of understanding the profile of liver cirrhosis secondary to alcoholic hepatic steatosis in Brazil is undeniable. Identifying trends in incidence, prevalence, mortality, and associated costs, as well as characterizing the most affected population groups (sex, age, and geographic region), is essential for the development and refinement of public health policies aimed at prevention, early diagnosis, and appropriate disease management.[6] Such information enables targeted public health strategies, optimized resource allocation, and more effective interventions to mitigate the devastating impact of alcoholic liver cirrhosis on the Brazilian population.

In this context, the present study seeks to address gaps in the literature by compiling and analyzing the most recent epidemiological data, focusing on the period from 2010 to 2025. Although data available in the DATASUS system may not explicitly differentiate "alcoholic hepatic steatosis" from "alcoholic liver cirrhosis" in all records, Alcoholic Liver Disease is widely recognized as a continuum encompassing progression from steatosis to cirrhosis.

Thus, the analysis of hospitalization and mortality data related to Alcoholic Liver Disease reflects the impact of this pathological continuum, allowing the construction of an epidemiological profile to inform targeted preventive and public health actions. The overall objective of this study is to analyze the epidemiological profile of liver cirrhosis secondary to alcoholic hepatic steatosis in Brazil, focusing on the period from 2010 to 2025, using secondary data obtained from DATASUS.

METHOD

This study is characterized as a descriptive, ecological, and quantitative investigation

that used secondary data to outline the epidemiological profile of liver cirrhosis secondary to alcoholic hepatic steatosis in Brazil from 2010 to 2025. The ecological approach allows for the analysis of trends and patterns at the population level, while the descriptive and quantitative nature of the study aims to present frequencies, means, and distributions of the variables analyzed.

Data were obtained from the Department of Informatics of the Brazilian Unified Health System (DATASUS), through the Hospital Information System of the Unified Health System (SIH/SUS), as well as from publicly available epidemiological reports. Data retrieval and collection were performed by accessing the Morbidity and Mortality sections of these platforms.

The period of interest for analysis was from 2010 to 2025. Accordingly, the study used the most comprehensive and recent data available within this time frame, explicitly specifying the years covered in each analysis according to data availability.

The following variables related to Alcoholic Liver Disease (ALD), classified under the International Classification of Diseases (ICD-10) code K70.9 (Alcoholic liver disease, unspecified), were collected and analyzed. This code encompasses the disease spectrum, including progression from steatosis to cirrhosis: hospitalizations (absolute number of hospital admissions for ALD), deaths (absolute number of deaths attributed to ALD), public healthcare costs (expenditures related to hospitalizations for ALD), geographic region (North, Northeast, Southeast, South, and Central-West Brazil), sex (male and female), age group (distribution across age categories), and mean length of stay (average duration of hospital admissions).

All available DATASUS data on hospitalizations, deaths, and costs related to ALD (ICD-10: K70.9) across Brazilian regions were included, within the period closest to 2010–2025 according to source availability. Data not directly related to ALD, data that could not be associated with progression from alcoholic steatosis to cirrhosis, or data outside the period of interest without the possibility of extrapolation were excluded.

Collected data were organized and presented in tables to facilitate visualization and interpretation. The analysis was descriptive in nature, focusing on the identification of patterns and trends over time and across different demographic and geographic variables. Bibliographic references were used to contextualize and discuss the epidemiological findings in relation to the pathophysiology and progression of alcoholic hepatic steatosis to cirrhosis.

This study exclusively used publicly accessible secondary data from DATASUS, which are aggregated and anonymized, preventing individual identification. Therefore, in accordance with Brazilian ethical regulations for research involving human subjects, approval by a Research Ethics Committee was waived, as there was no direct intervention involving human participants or collection of identifiable primary data.

RESULTS

The analysis of epidemiological data on Alcoholic Liver Disease (ALD), which encompasses alcoholic hepatic steatosis and its progression to cirrhosis, was conducted based on information available from DATASUS for the period from 2010 to 2022, according to the documents provided. This section presents the findings related to the number of hospitalizations, public healthcare expenditures, mortality rates, and distributions by sex and age group.

Figure 2. (A) Patient positioning for pre-oxygenation. (B) Video laryngoscopy.

Number of hospitalizations for alcoholic liver disease by region (2010–2022)

Table 1. Number of hospitalizations for alcoholic liver disease (ALD) by region (2010–2022)

Year	North	Northeast	Southeast	South	Central-West	Total
2010	617	3,206	8,966	3,468	1,137	17,394
2011	752	3,245	8,742	3,131	1,181	17,051
2012	761	3,784	8,183	3,226	1,084	17,038
2013	705	4,230	7,960	3,276	1,290	17,461
2014	863	3,982	7,658	3,152	1,382	17,037
2015	770	3,949	7,828	3,222	1,498	17,267
2016	771	3,979	7,655	3,121	1,618	17,144
2017	723	3,722	7,150	2,980	1,544	16,119
2018	648	3,667	6,870	2,956	1,467	15,608
2019	595	3,502	6,686	3,013	1,430	15,226
2020	242	1,453	2,951	1,447	667	6,760
2021	650	3,717	6,049	2,740	1,232	14,388
2022	833	4,264	6,979	3,169	1,584	16,829
Total	8,170	43,668	93,823	39,021	16,115	200,302

Source: Lacerda, Silvério, and Pina, 2025.

The data reveal that the Southeast region consistently accounted for the highest volume of hospitalizations throughout the study period. Table 1 shows that, between 2010 and 2022, Brazil recorded a total of 200,302 hospitalizations for ALD. The Southeast region led with 93,823 hospitalizations, representing 46.84% of the national total, followed by the Northeast region with 43,668 hospitalizations (21.8%).

A relative stability in hospitalization rates was observed between 2010 and 2019, with an average of approximately 16,800 hospitalizations per year, followed by a marked decline in 2020 to 6,760 hospitalizations, influenced by the COVID-19 pandemic.[4,6]

Public healthcare expenditures on ald by region (2010–2020)

Table 2. Total Expenditures on Alcoholic Liver Disease (ALD) by Region (2010–2020)

Year	North	Northeast	Southeast	South	Central-west
2010	R$ 455,519.21	R$ 2,906,606.87	R$ 14,722,058.17	R$ 3,871,836.74	R$ 932,092.69
2011	R$ 593,040.12	R$ 2,743,782,90	R$ 14,920,100.98	R$ 3,753,968.82	R$ 961,386.23
2012	R$ 576,863.55	R$ 6,126,743.65	R$ 16,798,522.96	R$ 5,375,006.43	R$ 1,708,636.40
2013	R$ 563,262.07	R$ 8,769,595.23	R$ 18,743,145.56	R$ 6,724,705.89	R$ 4,387,147.44
2014	R$ 708,854.88	R$ 8,634,728.18	R$ 19,118,498.76	R$ 5,522,331.49	R$ 2,981,565.73

2015	R$ 598,42 9.49	R$ 7,616,793.46	R$ 23,628,286.67	R$ 5,611,1 10.33	R$ 4,352,445.24
2016	R$ 651,63 4.50	R$ 8,000,196.46	R$ 21,515,140.18	R$ 8,259,3 82.69	R$ 6,337,276.25
2017	R$ 821,78 3.68	R$ 8.210,921.34	R$ 23,724,572.12	R$ 10,893, 437.17	R$ 5,636,738.85
2018	R$ 693,99 7.67	R$ 10,882,165.9 9	R$ 20,028,424.45	R$ 11,012, 198.02	R$ 5,635,023.54
2019	R$ 523,40 5.58	R$ 9,922,806.35	R$ 14,768,045.29	R$ 9,947,5 71.52	R$ 3,466,210.16
2020	R$ 164,56 9.34	R$ 2,527,729.75	R$ 6,251,145.38	R$ 5,424,4 64.98	R$ 2,554,615.79
Total (2010-2020)	R$ 6,351,3 30.66	R$ 78,496,613.6 8	R$ 193,218,919.9 4	R$ 75,746, 034.06	R$ 38,962,112.56
Total	R$ 392,775,010.90				

Source: Lacerda, Silvério, and Pina, 2025.

Between 2010 and 2020, Brazil recorded a total public expenditure of R$ 392,775,010.90 on hospitalizations related to ALD. The Southeast region accounted for the largest share of these expenditures, totaling R$ 193,218,919.94, which corresponds to 49.19% of the national total. The Northeast region followed with expenditures of R$ 78,496,613.68 (19.98%).

Annual expenditures in the Southeast peaked in 2017 (R$ 23,724,572.12), while a significant reduction was observed across all regions in 2020, reflecting the decreased number of hospitalizations in the context of the COVID-19 pandemic.[6]

Mortality rate from alcoholic liver disease by region (2010–2022)

Table 3. Mortality rate for alcoholic liver disease (ALD) by brazilian region (2010–2022)

Year	North	Northeast	Southeast	South	Central-west	Total
2010	13.93	16.90	16.87	15.05	16.51	16.38
2011	13.58	17.02	17.20	15.79	15.85	16.65
2012	16.05	17.50	19.04	16.46	18.99	18.07
2013	15.86	17.69	18.13	17.32	12.83	17.38
2014	17.44	17.14	16.94	15.74	14.56	16.60
2015	15.06	18.94	18.71	16.66	16.54	18.02
2016	17.60	18.49	18.76	18.11	15.40	18.21
2017	18.95	17.74	20.57	16.72	18.06	18.90
2018	19.85	18.24	20.31	17.51	19.79	19.22
2019	18.67	18.52	19.52	18.51	17.25	18.84
2020	22.75	17.07	19.24	16.56	17.03	18.12

2021	20.37	18.63	19.71	17.63	19.01	19.07
2022	19.88	19.10	20.01	18.34	18.87	19.24
Média	17.23	17.92	18.55	16.76	16.97	17.89

Source: Lacerda, Silvério, and Pina, 2025.

Table 3 shows that the national average mortality rate for Alcoholic Liver Disease (ALD) between 2010 and 2022 was 17.89%. The Southeast region presented the highest mean mortality rate (18.55%), followed by the Northeast region (17.92%). The highest single-year mortality rate was observed in the North region in 2020 (22.75%), while the Southeast region exceeded 20% in 2017, 2018, and 2022.[6]

Hospitalizations for ald by sex in Brazil (2017–2022)

Table 4. Hospitalizations for alcoholic liver disease (ALD) by Sex (2017–2022)

Year	Male	Female	Total
2017	985	171	1,156
2018	13,025	2,540	15,565
2019	12,690	2,529	15,219
2020	11,563	2,319	13,882
2021	12,943	2,248	15,191
2022	12,269	2.,650	14,919
Total (2017-2022)	63,475	12,457	75,932

Source: Lacerda, Silvério, and Pina, 2025.

Table 4 demonstrates a clear predominance of hospitalizations for Alcoholic Liver Disease (ALD) among males, totaling 63,475 cases (83.60%) between 2017 and 2022, compared with 12,457 cases (16.40%) among females. A significant increase in hospitalizations was observed between 2017 and 2018, followed by stabilization in subsequent years, with a slight reduction in 2020.[4]

Hospitalizations for ald by age group in Brazil (2017–2022)

Table 5. Hospitalizations for alcoholic liver disease (ALD) by age group (2017-2022)

Age group	2017	2018	2019	2020	2021	2022	Total
10–14 years	1	8	6	3	4	22	44
15-19 years	1	29	28	29	29	22	138
20-29 years	27	399	398	297	299	300	1,720
30-39 years	130	1,665	1,682	1,610	1,694	1,691	8,472
40-49 years	274	3,644	3,559	3,403	3,432	3,565	17,877
50-59 years	366	4,879	4,669	4,359	4,609	4,874	23,756
60-69 years	257	3,429	3,381	2,877	3,158	3,529	16,631
70-79 years	78	1,187	1,225	977	1,090	1,249	5,806

Source: Lacerda, Silvério, and Pina, 2025.

Table 5 shows that the age groups most affected by hospitalizations for ALD were 50–59 years (31.31%), 40–49 years (23.56%), and 60–69 years (21.92%). Together, these age groups accounted for 76.79% of all hospitalizations. The lowest incidence was observed among children and adolescents (10–19 years), reinforcing the chronic and long-term nature of the disease.

Deaths from ald by sex in Brazil (2017–2022)

Table 6. Deaths from alcoholic liver disease (ALD) by sex (2017–2022)

Years	Male	Female	Total
2017	470	171	641
2018	2,575	410	2,985
2019	2,509	467	2,976
2020	2,144	410	2,554
2021	2,435	482	2,917
2022	2,700	410	3,110
Total (2017-2022)	12,833	2,350	15,183
% do Total	84.52%	15.48%	100%

Source: Lacerda, Silvério, and Pina, 2025.

Between 2017 and 2022, Table 6 shows that 12,833 deaths from Alcoholic Liver Disease (ALD) (84.52%) occurred among males, whereas 2,350 deaths (15.48%) were recorded among females. These data demonstrate a marked male predominance in disease-related mortality.[4]

DISCUSSION

The analysis of the epidemiological profile of Alcoholic Liver Disease (ALD) in Brazil, based on DATASUS data covering the period from 2010 to 2022, highlights the complexity and magnitude of this condition as a serious public health problem. ALD represents a

continuous spectrum of liver injury that begins with alcoholic hepatic steatosis and, in many cases, progresses to fibrosis, alcoholic hepatitis, and, in its terminal and irreversible stage, alcoholic liver cirrhosis.[1,2] Understanding this progression is essential for interpreting epidemiological data, as statistics on hospitalizations and deaths attributed to ALD (ICD-10: K70.9) reflect the impact of this pathological continuum, frequently culminating in cirrhosis and its severe complications.[4,6]

Pathophysiology of the progression from alcoholic hepatic steatosis to cirrhosis

The progression from alcoholic hepatic steatosis to alcoholic liver cirrhosis is triggered and driven by ethanol metabolism in the liver. Alcohol (ethanol) is rapidly absorbed; however, most of its catabolism occurs in the liver, primarily through alcohol dehydrogenase (ADH) and cytochrome P-450 2E1 (CYP2E1).[1,7] These metabolic pathways generate toxic byproducts, such as acetaldehyde and reactive oxygen species (ROS). Acetaldehyde is highly reactive and plays a central role in hepatic injury by binding to proteins and DNA, which can disrupt cellular functions, promote protein aggregation (forming Mallory–Denk bodies), and generate neoantigens that trigger immune-mediated self-injury.[1] Reactive oxygen species, in turn, increase oxidative stress, damaging mitochondrial DNA and hepatocytes, thereby perpetuating the cycle of inflammation and fibrosis.[1,7]

Alcoholic hepatic steatosis, the initial stage of Alcoholic Liver Disease, is characterized by excessive fat accumulation within hepatocytes. This accumulation results from an imbalance between fatty acid synthesis and oxidation, as well as increased lipid influx into the liver—processes that are exacerbated by alcohol intake.[1,8] Although alcoholic hepatic steatosis is considered reversible with alcohol abstinence, continued consumption leads to inflammation and hepatocellular death, characterizing alcoholic steatohepatitis.[9]

At this stage, Kupffer cells, the resident hepatic macrophages, respond to endotoxins released by intestinal bacteria—whose absorption is increased by alcohol—by releasing proinflammatory cytokines such as tumor necrosis factor alpha (TNF-α).[7] TNF-α, together with other cytokines, mediates the recruitment of polymorphonuclear cells to the liver, inducing inflammation and cell death, thereby contributing to hepatocellular injury.[1] Chronic inflammation and persistent cellular damage activate hepatic stellate cells, which differentiate into myofibroblasts and produce excessive collagen. This process leads to progressive fibrosis and, ultimately, liver cirrhosis, irreversibly altering hepatic architecture and impairing liver function.[1,2,7]

The irreversibility of liver cirrhosis marks a critical point in the natural history of the disease, characterized by the formation of regenerative nodules that replace normal hepatic tissue and disrupt vascular perfusion.[1] Clinical symptoms, often absent during the early stages of alcoholic hepatic steatosis and compensated cirrhosis, typically become apparent only in advanced disease, manifesting as fatigue, jaundice, ascites, and hepatic encephalopathy.[7] This delayed presentation frequently results in late diagnoses and more severe complications.

Analysis of epidemiological data and its impact on disease burden

Table 1, which presents the number of hospitalizations for Alcoholic Liver Disease (ALD) in Brazil, highlights the Southeast region as bearing the greatest disease burden, with 93,823 hospitalizations between 2010 and 2022. This geographic pattern, consistent with

the literature, reflects not only the higher population density of the region but may also indicate differences in urbanization, alcohol consumption patterns, and access to healthcare services.[6] It is crucial to note the marked decline in hospitalizations in 2020 (6,760 cases), a period strongly influenced by the COVID-19 pandemic. Although alcohol consumption increased significantly worldwide during the pandemic—with potential future repercussions for ALD incidence—the reduction in hospital admissions may reflect healthcare system reorganization, prioritization of COVID-19 cases, and restricted access to treatment for other conditions.[4] The return to pre-pandemic levels in 2021 and 2022 suggests a recovery in healthcare demand or a delayed impact of increased alcohol consumption during the pandemic period.

The economic burden of ALD is further underscored by Table 2, which shows public healthcare expenditures exceeding R$ 392 million between 2010 and 2020, with the Southeast region accounting for nearly 50% of this total. Costs associated with ALD are substantial due to the chronic nature of the disease, recurrent hospitalizations, and the complexity of managing cirrhosis-related complications—such as gastrointestinal bleeding, infections, and liver failure—as well as, in advanced cases, the need for liver transplantation.[2] Alcoholic liver cirrhosis, as the terminal stage of ALD, frequently requires prolonged and costly treatments, placing a significant burden on healthcare budgets.

Mortality rates associated with ALD (Table 3), which include deaths related to cirrhosis, represent a critical indicator of disease impact. The national average mortality rate of 17.89% between 2010 and 2022 underscores the high lethality of ALD, particularly in its advanced stages. The Southeast and Northeast regions exhibited the highest mean mortality rates, while the peak mortality rate of 22.75% observed in the North region in 2020 warrants particular attention.[6] These mortality rates reflect progression from alcoholic hepatic steatosis to decompensated cirrhosis, a condition associated with poor prognosis and high fatality.[7]

Impact of sex and age on the epidemiology of alcoholic liver disease

Sex-based analysis reveals a marked predominance of males in both hospitalizations (83.60% – Table 4) and deaths (84.52% – Table 6) related to Alcoholic Liver Disease (ALD). This finding is consistent with both global and Brazilian literature, which documents significantly higher levels of harmful alcohol consumption among men.[10] Although women exhibit greater susceptibility to the hepatotoxic effects of alcohol—developing ALD more rapidly and at lower cumulative doses due to physiological and metabolic differences—overall prevalence of consumption and total alcohol intake remain higher among men, resulting in a greater absolute number of cases.[1,7,11] Lower healthcare utilization and delayed diagnosis among men may also contribute to the observed disparity in disease-related mortality.[12]

Age-group distribution (Table 5) further corroborates the chronic and long-term nature of ALD. Individuals aged 40 to 69 years accounted for more than 76% of hospitalizations, with a peak incidence in the 50–59-year group (31.31%). This pattern illustrates that ALD—particularly when progressing to alcoholic liver cirrhosis—requires many years of sustained excessive alcohol consumption to manifest clinically at advanced stages. Alcohol misuse, often initiated in early adulthood, typically results in severe hepatic injury and cirrhosis only after decades of chronic exposure.[13] The slow progression of hepatic fibrosis explains the higher incidence of cirrhosis in older age groups. Although rare, cases observed among

children and adolescents are concerning and are generally associated with genetic factors or comorbid conditions, reinforcing the importance of prevention across all age groups.[13]

Progression from alcoholic hepatic steatosis to alcoholic liver cirrhosis leads to a series of severe complications characteristic of decompensated liver disease. Portal hypertension arises as a direct consequence of architectural distortion of the liver and increased vascular resistance, resulting in gastroesophageal varices, ascites, and hepatic encephalopathy. Ascites—defined as pathological accumulation of fluid in the peritoneal cavity—is among the most common complications of cirrhosis and is associated with poor prognosis.[14,15] Hepatic encephalopathy, a neuropsychiatric syndrome, results from the accumulation of neurotoxins that the cirrhotic liver can no longer metabolize. Bacterial infections, particularly spontaneous bacterial peritonitis, are frequent and substantially increase morbidity and mortality.[14]

In addition, hepatocellular carcinoma represents one of the most feared and lethal complications of cirrhosis, with increased incidence among patients with alcoholic liver cirrhosis. Factors such as hepatitis C coinfection and iron overload may further accelerate hepatocarcinogenesis in alcoholic cirrhosis. Early diagnosis and appropriate management of these complications are essential to improve prognosis; however, the most effective intervention remains prevention of disease progression through cessation of alcohol consumption.

Alcohol abstinence is the cornerstone of treatment for ALD at all stages.[7] Alcoholic hepatic steatosis, being reversible, may resolve completely with cessation of alcohol intake. Even in advanced stages such as alcoholic liver cirrhosis, abstinence can stabilize disease progression, reduce the risk of complications, and improve survival.[7] Adherence to abstinence, however, represents a major challenge and requires multidisciplinary approaches that integrate medical care with behavioral and psychosocial interventions, including rehabilitation programs and support groups.[7,11] Screening tools such as the Alcohol Use Disorders Identification Test (AUDIT) are valuable in primary care settings for early detection of harmful alcohol use, enabling timely intervention before irreversible liver damage occurs.[11,12]

Early diagnosis of alcoholic hepatic steatosis and ALD in general is further hindered by the asymptomatic nature of the disease in its initial stages and by the social stigma associated with alcoholism, which often leads patients to underestimate or deny alcohol consumption.[10] This frequently results in delayed diagnoses, often when cirrhosis is already established and decompensated. Underreporting within health information systems—stemming from difficulty in obtaining accurate alcohol consumption histories—also contributes to underestimation of the true magnitude of the problem.

Public health policies must therefore prioritize primary prevention of harmful alcohol use, population education regarding the risks of alcoholic hepatic steatosis and its progression to cirrhosis, and strengthening of screening and early diagnostic strategies for ALD. This includes awareness campaigns, improved access to mental health services and addiction treatment, and integration of preventive strategies within primary healthcare. Identification of vulnerable populations - particularly men of working age—allows for more targeted and effective interventions.

The findings demonstrate a high burden of hospitalizations and deaths attributable to ALD, with the Southeast region and male sex disproportionately affected. Individuals aged 40 to 69 years account for the majority of cases, highlighting the chronic nature of

the disease and the prolonged exposure required for progression to advanced stages such as cirrhosis. Public expenditures related to ALD are substantial, reflecting the complexity and cost of managing decompensated liver disease, with direct implications for the Brazilian Unified Health System. The pathophysiology of ALD, driven by the toxic metabolism of ethanol, is well established and underscores a continuum in which reversible alcoholic hepatic steatosis may progress to irreversible alcoholic liver cirrhosis with fatal complications. Alcohol abstinence - the cornerstone of both treatment and prevention - is essential to reverse steatosis and mitigate fibrosis progression, even in cirrhotic stages.

In conclusion, Alcoholic Liver Disease in Brazil, encompassing progression from alcoholic hepatic steatosis to cirrhosis, remains a major public health challenge. Epidemiological data from DATASUS, despite inherent limitations, provide a robust foundation for understanding disease burden and underscore the urgent need for coordinated public health actions to mitigate its impact and improve quality of life among affected individuals. The contrast between the reversibility of alcoholic hepatic steatosis and the irreversibility of alcoholic liver cirrhosis emphasizes the critical importance of early intervention and lifestyle modification through alcohol abstinence.

CONCLUSION

The analysis of the epidemiological profile of Alcoholic Liver Disease (ALD) in Brazil, with emphasis on the progression from alcoholic hepatic steatosis to alcoholic liver cirrhosis, based on DATASUS data from 2010 to 2022, reinforces the substantial burden this condition imposes on national public health. ALD, encompassing the spectrum from steatosis to cirrhosis, is a chronic and progressive disease with a high potential for morbidity and mortality, whose clinical and socioeconomic consequences are considerable. It can therefore be concluded that ALD—particularly alcoholic liver cirrhosis arising from alcoholic hepatic steatosis—represents a multifaceted challenge that requires an integrated public health approach. Strengthening primary prevention strategies aimed at reducing harmful alcohol consumption, as well as improving screening and early diagnosis of alcoholic hepatic steatosis, especially among high-risk populations, is essential.

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MAILING ADDRESS

LUDYMILLA OLIVEIRA PORTILHO LACERDA
Rua T-44, Setor Bueno, 1017, Edifício Tropical Plaza, apartamento 1203, Goiânia, Goiás.
E-mail: ludymillalacerda12@gmail.com

EDITORIAL AND REVIEW

Received: 14/12/2025. Accepted: 22/01/26. Published in: 19/02/2026.