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SOCIO-DEMOGRAPHIC, CLINICAL, AND LIFESTYLE RISK FACTORS OF HEPATIC CIRRHOSIS

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Abstract

This study conducted at a tertiary care hospital aimed to explore the socio-demographic factors, clinical symptoms, and risk factors associated with liver cirrhosis among 59 patients. The results highlighted that older age (51.69% above 61 years) and male gender (70.34%) were the most prominent risk factors, aligning with global trends, particularly in patients with NAFLD and NASH. Additionally, lower education levels were common in the affected population, indicating a need for educational interventions to reduce liver disease risk. The study identified alcoholism as the primary risk factor, with 15.7 times higher odds (OR = 15.700, p = 2.54e-09) of developing cirrhosis. Smoking also contributed to the risk (OR = 4.38, p = 0.001), although multivariate analysis showed no significant association. Other factors like infections, fast food consumption, and comorbidities showed weaker associations, while alcoholism remained a key risk factor in the multivariate analysis (OR = 20.7, p < 0.001). Hepatotoxic medications (OR = 2.170, p = 0.109) and obesity (34% of patients had BMI ≥ 30) were additional risk factors. The study emphasizes the need for early detection and risk-adapted treatments such as alcohol cessation, weight reduction, and dietary modifications to manage cirrhosis. Public health strategies should focus on reducing alcohol consumption and promoting healthier lifestyles. The study also suggests further research on genetic risk factors like PNPLA3 polymorphisms to better understand individual susceptibility to alcohol-induced liver damage. However, the study's hospital-based setting limits its generalizability, particularly for patients in earlier stages of cirrhosis.

INTRODUCTION

Prevalence of Cirrhosis of the Liver from autopsy studies ranges from 4.5% to 9.5% of the general population, and its rates have been steadily increasing over the years.1 Cirrhosis is ranked as the 11th most important cause of death worldwide and among the 20 leading causes of disability-adjusted life years (1.6%) and years of life lost (2.1%) globally. It is estimated that approximately 2 billion people are alcoholics worldwide, with 75 million at risk for alcohol-related liver disease. However, its prevalence is likely underestimated, as nearly a third of the affected individuals remain asymptomatic.2 In Asia, 60% of liver cirrhosis cases are attributed to alcohol and viral hepatitis.3 Asia also has the highest per capita alcohol consumption in India, at over 8 litres per person per year, which exceeds the national average of 5.7 litres per person per year, and liver disease-related mortality continues to rise in the state.4 Previous literature highlights a variety of risk factors for cirrhosis in different regions.5-7 For

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example, among viral infections, hepatitis B virus (HBV) and hepatitis C virus (HCV) are major global contributors to liver cirrhosis. In Himachal Pradesh, alcohol (62.9%) and hepatitis B (10.1%) are the primary risk factors, while in high-risk areas of China and Africa, chronic HBV infection is predominant. In developed countries, chronic HCV infection is a significant risk factor.8 Meanwhile, in the Cirrhotic State of Peshawar in Pakistan, hepatitis C, specifically through exposure to contaminated syringes, blades, or blood transfusions, is a leading cause of liver cirrhosis.9-10 Cirrhosis is more prevalent in overweight individuals and smokers. Additionally, it can result from various exogenous, toxic, infectious, autoimmune, vascular processes, or inborn metabolic errors.11 Individuals with multiple risk factors such as hepatitis, obesity, or alcoholism, as well as those who smoke, have high serum total bilirubin (T Bil) and AST/ALT ratios, a family history of hepatitis B, Non-Alcoholic Fatty Liver Disease (NAFLD) linked to Non-Alcoholic Steatohepatitis (NASH), metabolic factors, genetic polymorphisms, male gender, and older age, are at an accelerated risk for cirrhosis.12-14 Given the variability in the etiologies of liver cirrhosis across different regions, this study aims to analyze the impact of key factors such as alcoholism, smoking, Body Mass Index (BMI), comorbidities, viral infections, genetics, and hepatotoxic medications on the incidence of cirrhosis in a Asia-based setting. The high mortality and morbidity rates associated with liver cirrhosis globally emphasize the need to improve public awareness about its causes, clinical features, prognosis, and treatment options. A lack of awareness about the risk factors and prevention strategies has been identified as the greatest contributor to the rise in liver cirrhosis cases.15 This study provides health professionals with evidence to promote health awareness regarding liver cirrhosis and its risk factors. Future qualitative and quantitative studies, including interventions, are essential to improve the lives of those suffering from liver cirrhosis.15

Materials and Methods

Cross-sectiona land observational research conducted at a tertiary care hospital in Dir Lower, aiming to identify the risk factors, clinical symptoms, and socio-demographic characteristics of patients diagnosed with cirrhosis of the liver. The study included 59 patients, selected based on specific inclusion and exclusion criteria. Inclusion criteria required patients aged 18 years or older, diagnosed with cirrhosis through clinical signs, symptoms, and imaging/biopsy confirmation. Exclusion criteria eliminated those with acute liver failure, other significant liver diseases, or cognitive impairments that prevented informed consent Data were collected through a structured questionnaire and review of patient medical records. The questionnaire gathered socio-demographic details (age, gender, marital status, family pattern, education, etc.), clinical symptoms of cirrhosis (such as fatigue, jaundice, and ascites), and potential risk factors (alcohol consumption, smoking, infections, comorbidities, and medication use). Clinical data like liver function tests and ultrasound reports were used for diagnostic confirmation. Ethical approval was granted by the institutional review board, and participants provided informed consent. Data were analyzed using SPSS version 25, employing descriptive statistics (frequencies and percentages) for socio-demographic and clinical symptom distributions. Univariate logistic regression assessed individual risk factors, while multivariate logistic regression evaluated the combined effect of significant variables. A p-value of < 0.05 was considered statistically significant, with results displayed in tables and figures to illustrate findings clearly

Results

The study focused on the socio-demographic and clinical factors related to cirrhosis of the liver among 59 patients. The age distribution revealed that the majority of patients were above 61 years (52.54%), followed by the 41-60 years age group (33.90%) and the 20-40 years group (13.56%) (Table 1). The gender distribution showed a clear dominance of males, who comprised 69.49% of the sample, while females accounted for 30.51%. Regarding religious affiliation, 45.76% of patients were Christian, and 42.37% were Hindu, with Muslims making up the remaining 11.86%. Marital status indicated that most patients were married (93.22%), and the family pattern showed a predominant nuclear family structure (94.92%). The educational level was

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predominantly at the primary or high school level, with no patients holding postgraduate qualifications (Table 1).Clinical symptoms of cirrhosis were analyzed in detail (Table 2). Fatigue emerged as the most prevalent symptom, affecting 78.81% of the participants. Other common symptoms included insomnia (61.02%), anorexia (60.17%), and nausea or vomiting (42.37%). Despite the high frequency of fatigue, more severe complications such as pedal edema (38.98%), bleeding problems (31.36%), and ascites (25.42%) were also observed. Interestingly, typical cirrhosis symptoms like spider angioma (3.39%) and palmar erythema (0.85%) were rarely reported among the patients. The risk factors for cirrhosis were explored using both univariate and multivariate logistic regression (Table 3). Univariate analysis revealed that alcoholism (OR = 15.700, $p < 0.001$) and smoking (OR = 4.38, $p = 0.001$) were significant risk factors for cirrhosis. However, in the multivariate analysis, alcoholism remained highly significant (OR = 20.7, $p < 0.001$), while smoking showed no significant association (OR = 0.61, $p = 0.43$). Additionally, medications were found to have a potential link (OR = 2.07, $p = 0.23$), although not statistically significant at the 0.05 level.The study also analyzed the drinking history of the participants. Among the 35 alcoholic participants, a significant portion had been drinking for more than 20 years (29.66%) (Table 4). A substantial proportion of alcoholics started drinking before 20 years of age (26.27%), with only 1.69% starting after 40 years (Table 5). In terms of alcohol consumption frequency, daily drinkers made up 44.07% of the group, with 31.36% of patients consuming more than 500 ml of alcohol daily. The most preferred alcoholic beverage among the participants was brandy (43.22%).Regarding viral infections, 30 participants had a history of jaundice, and 18 reported having hepatitis, including HBV (16 cases), HAV (1 case), and HCV (1 case). Comorbidities like diabetes, hypertension, and hyperlipidemia were common, and a notable percentage of patients (56.78%) were on long-term hepatotoxic medications, such as oral hypoglycemics, analgesics, and antihypertensives (Table 6). Overall, the study demonstrates that alcohol consumption, particularly chronic drinking over several years, is a major risk factor for liver cirrhosis. The findings suggest that lifestyle factors such as smoking and the use of hepatotoxic medications also contribute to the development of the disease, with specific symptoms like fatigue, insomnia, and anorexia being common in affected patients.

Table 1: Frequency and Percentage Distribution of Subjects Based on Socio-Demographic Variables

Variables	Frequency (F)	Percentage (%)
Age in Years		
20-40 years	8	13.56
41-60 years	20	33.90
Above 61 years	31	52.54
Gender		
Male	41	69.49
Female	18	30.51
Religion		
Christian	27	45.76
Hindu	25	42.37
Muslim	7	11.86
Others	0	0
Marital Status		
Single	3	5.08
Married	55	93.22
Divorced	1	1.69

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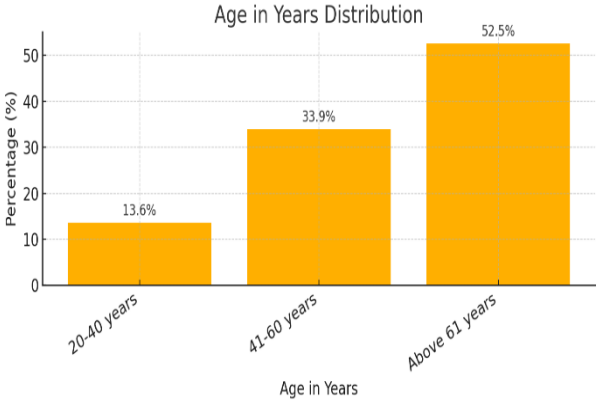
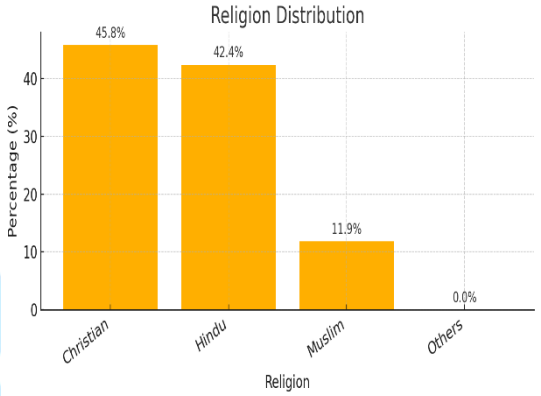
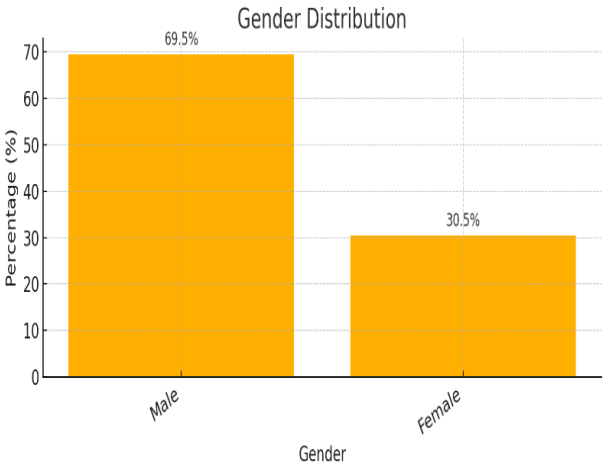
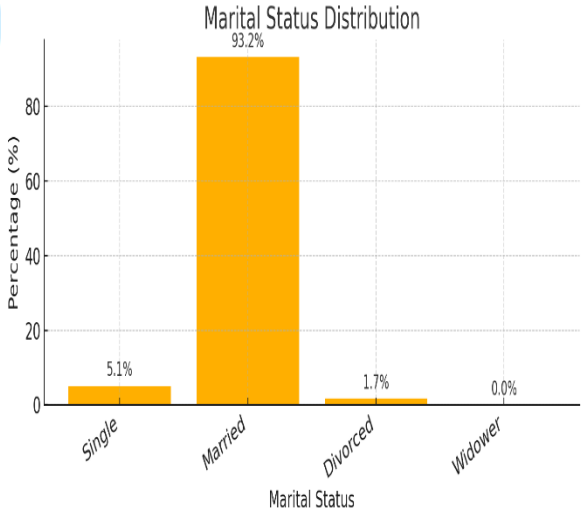
Widower	0	0
Family Pattern		
Nuclear Family	56	94.92
Joint Family	3	5.08
Education		
Primary School	26	44.07
High School- 12th	26	44.07
College Graduate	5	8.47
Professional	2	3.39
PG & Above	0	0









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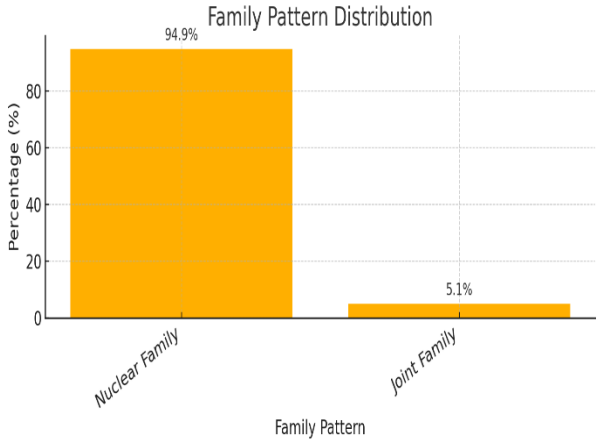

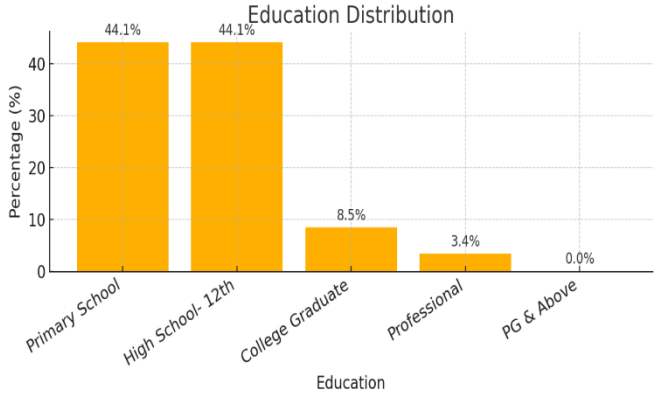

Table 2: Frequency and Percentage Distribution of Subjects Based on Clinical Symptoms of Cirrhosis of Liver

Variables	Frequency (f)	Percentage (%)
Fatigue	46	78.81
Jaundice	15	25.42
Bleeding Problems	18	31.36
Nausea or Vomiting	25	42.37
Anorexia	35	60.17
Insomnia	36	61.02
Confusion/Altered Sensorium	20	33.90
Spider Angioma	2	3.39
Palmar Erythema	1	1.69
Ascites	15	25.42
Pedal Edema	23	38.98
Itching of Skin	17	27.97
Weight Loss	17	27.97
Stomachache	13	22.03

Table 3: Univariate Logistic Regression and Multivariate Logistic Regression on Risk Factors of Cirrhosis of Liver

Variable	Cirrhosis of Liver	Univariate OR	Univariate P Value	Multivariate OR	Multivariate P Value
Alcoholism	No (10), Yes (49)	15.700	2.54e-09 *	20.7	<0.001 *
Smoking	No (26), Yes (33)	4.38	0.001 *	0.61	0.43
Infections	No (43), Yes (16)	0.726	0.425	-	-
Fastfood	No (39), Yes (20)	1.380	0.425	-	-
Comorbidities	No (11), Yes (48)	1.520	0.349	-	-
Liver Disease	No (0), Yes (59)	1.16e+09	0.99	-	-
Medications	No (8), Yes (51)	2.170	0.109 *	2.07	0.23

Table 4: Frequency and Percentage Distribution of Years of Drinking (n=35 Alcoholics)

Variables (Drinking Years)	Frequency (F)	Percentage (%)
Non-Alcoholic	16	45.71
Alcoholic since 5-10 Years	2	5.71
10-20 Years	7	20.00

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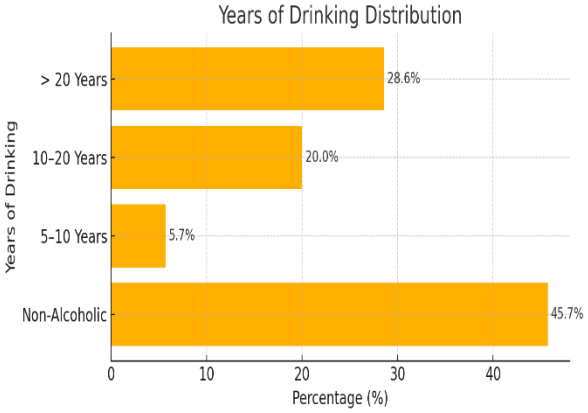
More than 20 Years	10	28.57

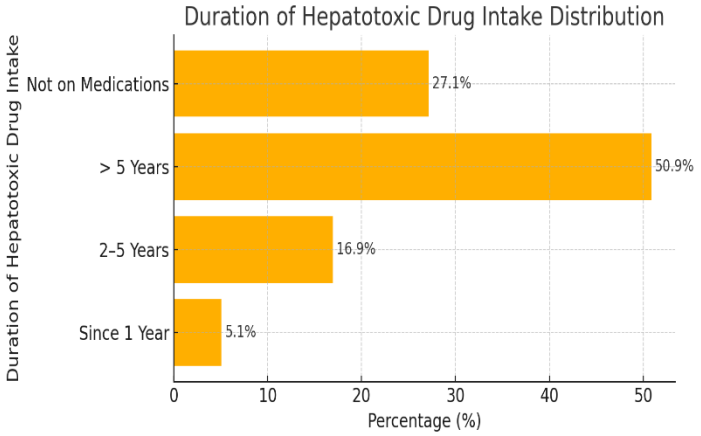
Table 5: Frequency and Percentage Distribution of Starting Age of Drinking

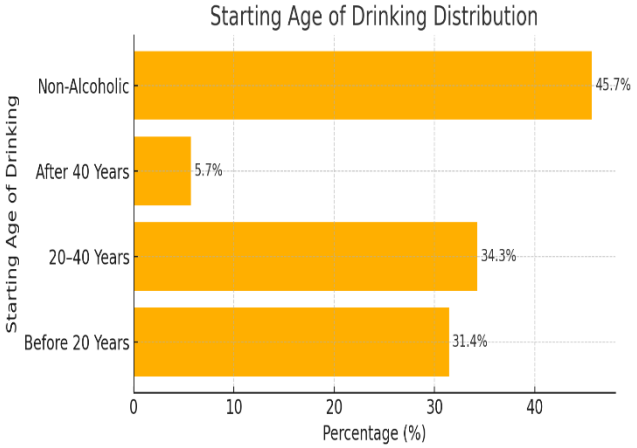
Variables (Starting Age)	Frequency (F)	Percentage (%)
Before 20 Years	11	31.43
20-40 Years	12	34.29
After 40 Years	2	5.71
Non-Alcoholic	16	45.71

Table 6: Frequency and Percentage Distribution of Duration of Intake of Hepatotoxic Medications

Variables (Duration of Drug Intake)	Frequency (F)	Percentage (%)
Since 1 year	3	5.08
2-5 Years	10	16.95
More than 5 Years	30	50.85
Not on Medications	16	27.12







Discussion

The findings of this study highlight the significant impact of socio-demographic factors, clinical manifestations, and specific risk factors on the progression of cirrhosis of the liver, with a focus on alcohol consumption as a key determinant. The results suggest that male gender and older age are prominent risk factors for cirrhosis, aligning with previous research that emphasizes the importance of age in the progression to liver disease, especially in patients with Non-Alcoholic Fatty Liver Disease (NAFLD) and Non-Alcoholic Steatohepatitis

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(NASH). The association between older age and cirrhosis is well-documented, with metabolic factors and genetic polymorphisms playing crucial roles in the disease's progression (15).Lack of higher education among the study participants further supports the idea that educational interventions may play a critical role in reducing the risks associated with liver cirrhosis. Higher education often correlates with better awareness and understanding of liver diseases, potentially leading to early diagnosis and preventive measures (16). The clinical manifestations of cirrhosis observed in this study, including fatigue, insomnia, anorexia, and ascites, are consistent with global findings that document a broad spectrum of symptoms in cirrhosis patients, such as jaundice (90.5%), anorexia, weight loss (100%), ascites (97.3%), and peripheral edema (73%) (17). Moreover, complications like variceal bleeding, hepatic encephalopathy, and renal dysfunction are more prevalent in cirrhotic patients, highlighting the severity and complexity of managing liver cirrhosis (18, 19, 20, 21, 22). The significant association between cirrhotic cardiomyopathy and cirrhosis further emphasizes the multi-organ impact of the disease (23, 24). One of the most striking findings of this study is the identification of alcoholism as a major risk factor for cirrhosis of the liver. The evidence supports the well-established notion that chronic alcohol consumption, even at moderate levels, contributes significantly to the development of cirrhosis (25). This finding is consistent with studies from the UK, Himachal Pradesh, and the United States, where chronic alcohol use has been identified as one of the primary causes of liver cirrhosis (26). Additionally, the pattern of alcohol consumption in this study showed that daily drinkers and those consuming alcohol in large quantities were at a significantly higher risk for cirrhosis, which is consistent with research indicating a dose-dependent relationship between alcohol consumption and liver disease (27). Further, the preference for brandy, along with rum and beer, among alcohol consumers in the study population reflects typical drinking habits in the region. Studies have shown that the amount and duration of alcohol consumption are directly correlated with the risk of cirrhosis (28, 29). Research from the UK and Himachal Pradesh also supports the higher risk of cirrhosis associated with daily drinking, with recent alcohol consumption being more relevant to liver disease development than previous drinking patterns (30).The study acknowledges a weak correlation between the amount of alcohol consumed and the severity of liver disease in some individuals, with some developing severe liver injury despite moderate alcohol intake, while others with heavy drinking may experience mild liver damage (31). Genetic factors, such as PNPLA3 polymorphisms, have been identified as potential contributors to the variability in individual responses to alcohol-induced liver damage (31). The study also highlighted a significant association between smoking and liver diseases like primary biliary cirrhosis, further complicating the pathogenesis of cirrhosis (32). Other comorbidities such as obesity, insulin resistance, hypertension, and hyperlipidemia, alongside hepatitis B/C infections, were identified as significant risk factors for cirrhosis. These findings suggest that individuals with these underlying conditions, especially those over 50 years of age, need to be aware of their heightened risk for liver cirrhosis and take preventive measures (33, 34, 35.

Conclusion

This study underscores the pivotal role of socio-demographic factors, clinical manifestations, and specific risk factors, particularly alcohol consumption, in the progression of cirrhosis of the liver. Male gender, older age, lack of higher education, and the presence of comorbidities like obesity, insulin resistance, and hypertension were identified as key determinants. Alcohol consumption, especially at high levels and on a daily basis, remains a significant risk factor for cirrhosis, further supported by global research linking chronic alcohol use to liver disease. The study also highlights the multifaceted nature of cirrhosis, with complications affecting multiple organs, and the importance of early diagnosis and preventive strategies. Given the complex interplay of genetic, metabolic, and lifestyle factors, educational interventions, awareness campaigns, and lifestyle modifications are critical in mitigating the risks associated with liver cirrhosis.

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References

1. Garudal, N., Leth, P., Marbjerg, L., and Galloe, A. M. "Characteristics of Cirrhosis Undiagnosed During Life: A Comparative Analysis of 73 Undiagnosed Cases and 149 Diagnosed Cases of Cirrhosis, Detected in 4929 Consecutive Autopsies." *J Intern Med* 230, no. 2 (1991): 165-171. https://doi.org/10.1111/j.1365-2796.1991.tb00425.x.
2. Asrani, S. K., Devarbhavi, H., Eaton, J., and Kamath, P. S. "Burden of Liver Diseases in the World." *J Hepatol* 70, no. 1 (2019): 151-171. https://doi.org/10.1016/j.jhep.2018.09.014.
3. Maya, C. "Early Diagnosis Key to Managing Liver Diseases." *The Hindu*, 2017. https://www.thehindu.com/news/national/Asia/early-diagnosis-key-to-managing-liver-disease/article19571971.ece.
4. Poonam, B. "What You Need to Know About Asia's Love Affair With Alcohol." *The Culture Trip*, 2017. https://www.theculturetrip.com/asia/india/articles/what-you-need-to-know-about-Asias-love-affair-with-alcohol.
5. Tapper, E. B., and Parikh, N. D. "Mortality Due to Cirrhosis and Liver Cancer in the United States, 1996-2016: Observational Study." *BMJ* 362 (2018): k2817. https://doi.org/10.1136/bmj.k2817.
6. Johannes, W., and Thomas, B. "The Etiology, Diagnosis and Prevention of Liver Cirrhosis: Part 1 of a Series on Liver Cirrhosis." *Dtsch Arztebl Int* 110, no. 6 (2013): 85-91. https://doi.org/10.3238/arztebl.2013.0085.
7. "Cirrhosis in Over 16s: Assessment and Management." NICE Guideline, No. 50. National Guideline Centre (UK), London: National Institute for Health and Care Excellence (UK), 2016. https://www.nice.org.uk.
8. Cai, G., Chen, Y., Li, L., Zhoul, B., Hu, C., Yu, Y., et al. "Meta-Analysis of Risk Factors for Development of Liver Cirrhosis in Chronic Hepatitis B Patients." *Glob J Infect Dis Clin Res* 4, no. 1 (2018): 004-009. https://doi.org/10.17352/2455-5363.000018.
9. Sharma, B., Marwah, R., Raina, S., Sharma, N., Kaushik, M., and Kaushal, S. S. "A Study on the Etiology of Cirrhosis of Liver in Adults Living in the Hills of Himachal Pradesh." *Trop Gastroenterol* 37, no. 1 (2016): 37-41. https://doi.org/10.7869/tg.317.
10. Garcia-Compean, D., Jaquez-Quintana, J. O., Gonzalez-Gonzalez, J. A., and Maldonado-Garza, H. "Liver Cirrhosis and Diabetes: Risk Factors, Pathophysiology, Clinical Implications and Management." *World J Gastroenterol* 15, no. 3 (2009): 280-288. https://doi.org/10.3748/wjg.15.280.
11. Johannes, W., and Thomas, B. "The Etiology, Diagnosis and Prevention of Liver Cirrhosis: Part 2 of a Series on Liver Cirrhosis." *Dtsch Arztebl Int* 110, no. 6 (2013): 85-91. https://doi.org/10.3238/arztebl.2013.0085.
12. Trichopoulos, D., MacMahon, B., Sparros, L., and Merikas, G. "Smoking and Hepatitis B-Negative Primary Hepatocellular Carcinoma." *J Natl Cancer Inst* 65, no. 1 (1980): 111-114.
13. Chang, C. Y., and Tuyama, A. C. "Non-Alcoholic Fatty Liver Disease." *J Diabetes* 4, no. 3 (2012): 266-280. https://doi.org/10.1111/j.1753-0407.2012.00204.x.
14. Li, B., Zhang, C., and Zhan, Y. T. "Nonalcoholic Fatty Liver Disease Cirrhosis: A Review of Its Epidemiology, Risk Factors, Clinical Presentation, Diagnosis, Management, and Prognosis." *Can J Gastroenterol Hepatol* (2018): Article ID 2784537. https://doi.org/10.1155/2018/2784537.
15. Burnham, B., Willington, S., Jilson, I. A., Shetty, K., and Loffredo, C. A. "Knowledge, Attitudes and Beliefs of Patients with Chronic Liver Disease." *Am J Health Behav* 38, no. 5 (2014): 737-744. https://doi.org/10.5993/AJHB.38.5.11.
16. Al Johani, J. J., Aljehani, S. M., and Alzahrani, G. S. "Assessment of Knowledge about Liver Cirrhosis among Saudi Population." *Egypt J Hosp Med* 71, no. 2 (2018): 2443-2446. https://doi.org/10.12816/0045639.

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

17. Schuppan, D., and Afdhal, N. H. "Liver Cirrhosis." *Lancet* 371, no. 9615 (2008): 838-851. https://doi.org/10.1016/S0140-6736(08)60383-9.
18. Hung, T. H., et al. "Association Between Complicated Liver Cirrhosis and the Risk of Hepatocellular Carcinoma in Taiwan." *PLOS ONE* 12, no. 7 (2017): e0181858. https://doi.org/10.1371/journal0181858.
19. Yi-Ting, L., Ping-Hsun, W., Chun-Yu, L., Ming-Yen, L., Hung-Yi, C., Jee-Fu, H., et al. "Cirrhosis as a Risk Factor for Tuberculosis Infection - A Nationwide Longitudinal Study in Taiwan." *Am J Epidemiol* 180, no. 1 (2014): 103–110. https://doi.org/10.1093/aje/kwu095.
20. Lai, C. H., Cheng, P. Y., and Chen, Y. Y. "Liver Cirrhosis and Risk of Intracerebral Hemorrhage: A 9-Year Follow-Up Study." *Stroke AHA* 42, no. 9 (2011): 2615-2617. https://doi.org/10.1161/STROKEAHA.111.617076.
21. Deutsch, M., Manolakopoulos, S., Andreadis, I., Giannaris, M., Kontos, G., Kranidioti, H., et al. "Bacterial Infections in Patients with Liver Cirrhosis: Clinical Characteristics and the Role of C-Reactive Protein." *Ann Gastroenterol* 31, no. 1 (2018): 77–83. https://doi.org/10.20524/aog.2017.0207.
22. Amitrano, L., Guardascione, M. A., Brancaccio, V., Margaglione, M., Manguso, F., Iannaccone, L., et al. "Risk Factors and Clinical Presentations of Portal Vein Thrombosis in Patients with Liver Cirrhosis." *J Hepatol* 40, no. 5 (2004): 736-741. https://doi.org/10.1016/j.jhep.2004.01.001.
23. Arya, S., Kumar, P., Tiwari, B., Belwal, S., Saxena, S., and Abbas, H. "What Every Intensivist Should Know About Impairment of Cardiac Function and Arrhythmias in Liver Disease Patients: A Review." *Indian J Crit Care Med* 24, no. 12 (2020): 1251–1255.
24. Rajakumar, A., Appuswamy, E., Kaliamoorthy, I., and Rela, M. "Renal Dysfunction in Cirrhosis: Critical Care Management." *Indian J Crit Care Med* 25, no. 2 (2021): 207-214.
25. Serfaty, L., et al. "Risk Factors for Cirrhosis in Patients with Chronic Hepatitis C Virus Infection: Results of a Case-Control Study." *Hepatology* 26, no. 3 (1997): 776-779. https://doi.org/10.1002/hep.510260334.
26. Singal, A. K., Bataller, R., Ahn, J., Kamath, P. S., Shah, V. H. "ACG Clinical Guideline: Alcoholic Liver Disease." *Am J Gastroenterol* 113, no. 2 (2018): 175-194. https://doi.org/10.1038/ajg.2017.469.
27. Sheron, N., and Williams, R. "Alcohol Drinking Patterns & Risk of Liver Diseases in Women." *Lancet Public Health* 4, no. 1 (2019): PE6-E7. https://doi.org/10.1016/S2468-2667(18)30241-x.
28. Majethia, N. K., Patil, M. V., and Kalgulkar, A. D. "A Histopathological Study of Liver in 118 Cases of Cirrhosis." *J Liver* 5 (2016): 193. https://doi.org/10.4172/2167-0889.1000193.
29. Corrao, G., Aricò, S., Lepore, R., Valenti, M., Torchio, P., Galatola, G., Tabone, M., et al. "Amount and Duration of Alcohol Intake as Risk Factors of Symptomatic Liver Cirrhosis: A Case-Control Study." *J Clin Epidemiol* 46, no. 7 (1993): 601-607. https://doi.org/10.1016/0895-4356(93)90032-V.
30. Rehm, J., and Roercke, M. "Patterns of Drinking and Liver Cirrhosis - What Do We Know and Where Do We Go?" *J Hepatol* 62, no. 5 (2015): 1000-1001. https://doi.org/10.1016/j.jhep.2015.01.027.
31. Haber, C. P., Liangpunsakul, S. P., Morgan, S., Mueller, T. R., Nalpas, S., Seth, B., et al. "Genetic Risk Factors for Alcoholic Cirrhosis - Genome-Wide Case-Control Study." NIH.
32. Prince, M. I., Ducker, S. J., and James, O. F. "Case-Control Studies of Risk Factors for Primary Biliary Cirrhosis in Two United Kingdom Populations." *Gut* 59, no. 4 (2010): 508-512. https://doi.org/10.1136/gut.2009.184218.
33. Stroffolini, T., et al. "Interaction of Alcohol Intake and Cofactors on the Risk of Cirrhosis." *Liver Int* 30, no. 6 (2010): 867-870. https://doi.org/10.1111/j.1478-3231.2010.02261.x.

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34. Riley, T. R., and Smith, J. P. "Preventive Care in Chronic Liver Disease." *J Gen Intern Med* 14, no. 11 (1999): 699-704. https://doi.org/10.1046/j.1525-1497.1999.11188.x.

35. Da Silva, A. S., Dos Santos, L. L., Costa Passos, A. D., Sankarankutty, A. K., Candolo Martinelli, A. L., and Silva, O. C. "Chronic Liver Disease Prevention Strategies and Liver Transplantation." *Acta Cir Bras* 21, no. 1 (2006): 79-84. https://doi.org/10.1590/s0102-86502006000700018.