

Original Research Article

A study to assess the knowledge regarding life style modification of liver cirrhosis among the people in rural area of Udaipur

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ABSTRACT

Background: This study aimed to assess knowledge about lifestyle modifications for cirrhosis of the liver among the rural population in Udaipur. Cirrhosis is a progressive liver disease requiring timely lifestyle changes for effective management and prevention. Limited awareness and prevalent misconceptions can delay early intervention and affect self-care. The study sought to identify knowledge gaps to inform targeted health education efforts.

Methods: A quantitative, descriptive cross-sectional study was conducted in selected rural areas of Udaipur, including Bedla, with 100 participants aged 18 and above selected through convenience sampling. Individuals with other liver diseases or cognitive impairments were excluded. Data were collected via structured interviews and questionnaires and analyzed using SPSS with descriptive statistics and Chi-square tests. Ethical approval was obtained from Tirupati College of Nursing, Pacific Medical University.

Results: Participants were predominantly aged 18–25 years (28%), with more males (66%) than females (34%). Most had low education levels 26% had no formal education. A large proportion (80%) lacked awareness about cirrhosis, primary information sources included family (48%) and mass media (24%). Knowledge assessment revealed 55% had inadequate knowledge, 39% moderate and only 6% adequate. Significant associations were found between knowledge and age, gender, education, occupation, marital status, family type, awareness and source of information ($p < 0.05$), while income showed no significant association.

Conclusions: There is a clear need for targeted, community-based health education to improve knowledge and promote preventive self-care practices regarding cirrhosis in rural populations.

Keywords: Assess, Knowledge, Life style modification, Liver cirrhosis, Rural area

INTRODUCTION

Liver cirrhosis is a progressive and irreversible fibrotic scarring of the liver, leading to impaired detoxification, metabolic dysfunction and life-threatening complications such as portal hypertension, variceal bleeding and hepatic encephalopathy.¹

Globally, it accounts for over 1.32 million annual deaths, with etiologies including chronic alcohol consumption (40–90% of cases), nonalcoholic fatty liver disease (NAFLD) and viral hepatitis B/C infections. Lifestyle

factors play a pivotal role in both disease progression and management. For instance, malnutrition a common complication in 65–90% of cirrhosis patients accelerate muscle wasting and hepatic decompensation, while sustained alcohol abstinence and sodium-restricted diets (< 2 g/day) can reduce ascites and improve survival rates.² Similarly, obesity and sedentary habits exacerbate NAFLD progression, whereas moderate physical activity enhances insulin sensitivity and reduces hepatic fat accumulation.³

Lifestyle modifications are cornerstone interventions for cirrhosis management. Dietary adjustments, such as

prioritizing plant-based proteins, complex carbohydrates and micronutrient-rich foods, help counteract nutrient deficiencies and prevent hepatic encephalopathy triggered by excessive animal protein intake.⁴ Concurrently, avoiding hepatotoxic agents like alcohol, nonsteroidal anti-inflammatory drugs (NSAIDs) and aflatoxin-contaminated foods is critical to slowing fibrosis.⁵ Despite these evidence-based recommendations, adherence remains suboptimal, particularly in resource-limited settings.⁶

A 2022 Indian study revealed that only 28% of cirrhosis patients followed prescribed dietary guidelines, with rural populations demonstrating significantly lower compliance (14%) compared to urban groups (37%). This disparity is often attributed to limited awareness, cultural dietary practices and inadequate access to specialized care.⁷

Rural communities, such as those in Udaipur, face compounded challenges due to socioeconomic and educational barriers.⁸ A 2020 cross-sectional survey in Rajasthan found that 63% of rural residents could not name a single cirrhosis complication and 82% were unaware of lifestyle modifications to mitigate disease progression.⁹ Low health literacy, coupled with myths such as “herbal remedies cure cirrhosis” or “occasional alcohol consumption is harmless,” further widens this knowledge gap.¹⁰

These factors contribute to delayed diagnoses, higher hospitalization rates and increased mortality evidenced by a 2.3-fold greater risk of decompensation in rural cirrhosis patients compared to urban counterparts.¹¹ However, targeted educational interventions have shown promise, a 2021 community-based program in Maharashtra improved lifestyle adherence by 44% through culturally tailored nutrition workshops and peer counseling.¹²

This study aims to assess the current knowledge of lifestyle modifications for liver cirrhosis among Udaipur’s rural population, identifying actionable gaps to inform scalable public health strategies. By addressing these deficits, the findings could empower communities to adopt preventive practices, reduce avoidable complications and alleviate the economic burden of cirrhosis in low-resource settings.

Aim of study

The present study aims to assess the knowledge regarding life style modification of liver cirrhosis among the people in rural area of Udaipur.

Objectives

To determine the baseline knowledge level regarding cirrhosis of the liver and its associated lifestyle modifications among the rural population in Udaipur. To evaluates the socio-demographic factors influencing

knowledge levels about cirrhosis of the liver and lifestyle modifications among the rural population in Udaipur.

METHODS

Study design and study settings

This study adopted a quantitative, descriptive cross-sectional design to assess the knowledge regarding lifestyle modifications for cirrhosis of the liver among the rural population of Udaipur district. The study was conducted in selected rural areas of Udaipur, including Bedla, to ensure a broad representation of the target population. This approach provided a snapshot of participants’ knowledge levels and enabled the identification of socio-demographic factors influencing awareness.

Study population and sampling procedure

The study focused on individuals residing in rural areas of Udaipur district. A non-probability convenience sampling technique was used for participant selection. The total sample size was 100 individuals. Formal permissions were obtained from local authorities before data collection.

Inclusion criteria

Individuals residing in selected rural areas of Udaipur (including Bedla). Individuals aged 18 years and above willing to participate. Individuals who provided informed consent to take part in the study.

Exclusion criteria

Individuals with a diagnosed liver disease other than cirrhosis. Individuals who were unable to respond due to cognitive impairment or serious illness. Individuals who did not provide consent to participate.

Sample size

The study included a sample of 100 participants, determined based on feasibility and previous research assessing public knowledge regarding liver diseases and lifestyle modifications.

Data collection

Ethical clearance was obtained from Tirupati College of Nursing, Pacific Medical University, Udaipur, before initiating data collection. Formal permissions were secured from local governing bodies in the selected rural areas.

Before data collection, participants were provided with a detailed explanation of the study's objectives and assured of confidentiality. Informed consent was obtained from all participants.

The data collection period spanned from July to December 2024. Structured face-to-face interviews and self-administered questionnaires were used to collect data. The questionnaire covered. Demographic details (age in years, gender, education level, occupation, marital status, monthly family income, type of family, awareness about cirrhosis of liver and source of information). Knowledge about cirrhosis of the liver (causes, symptoms, complications, Awareness of lifestyle modifications-dietary habits, alcohol avoidance, exercise, medical adherence).

Each data collection session lasted 30 to 45 minutes, ensuring comprehensive responses while respecting participants' time.

Data analysis

The collected data were analyzed using descriptive and inferential statistics with the help of SPSS software. Descriptive statistics, including frequency, percentage, mean and standard deviation, were used to summarize the demographic characteristics of participants and their knowledge levels regarding lifestyle modifications for cirrhosis of the liver.

To examine the relationship between knowledge levels and socio-demographic factors, inferential statistics, specifically the Chi-square test, were applied. This analytical approach helped in identifying significant associations between demographic variables and participants' awareness of cirrhosis and its preventive measures.

Ethical considerations

The study was ethically approved by Tirupati College of Nursing, Pacific Medical University, Udaipur. Participants were informed about the study's purpose, voluntary participation and confidentiality. Informed consent was obtained before data collection. Participants had the right to withdraw at any time without consequences. This study adhered to ethical standards, ensuring transparency, confidentiality and respect for participant autonomy throughout the research process.

RESULTS

Findings related to frequency and percentage distribution of participants according to socio-demographic variables.

The frequency and percentage distribution of socio-demographic variables among the study participants (N=100). The majority of participants belonged to the age group of 18–25 years, 28 (28%), followed by 51 years and above, 23 (23%). Males 66 (66%) were more than females 34 (34%). Regarding education, 26 (26%) had no formal education, while only 15 (15%) had completed graduation or higher.

Most participants were government employees, 31 (31%), while 25 (25%) were either self-employed or unemployed. A significant proportion were married, 33 (33%), followed by single, 28 (28%) and divorced, 27 (27%). Family income varied, with the majority earning ₹30,001 or more per month, 40 (40%), while 18 (18%) earned ₹10,000 or less. Most participants belonged to joint families, 48 (48%). Notably, 80 (80%) of the respondents were unaware of cirrhosis of the liver and among those aware, the majority received information from family members, 48 (48%), followed by mass media, 24 (24%) (Table 1).

Findings related to distribution of knowledge level regarding life style modification of liver cirrhosis.

The distribution of participants according to their level of knowledge regarding lifestyle modifications for cirrhosis of the liver (N=100). The majority of participants 55 (55%) had inadequate knowledge (score: 0-15), indicating a lack of awareness about necessary lifestyle changes for managing cirrhosis.

A significant portion 39 (39%) had moderate knowledge (score: 16-23), suggesting some awareness but still requiring further education. Only 6 (6%) of the participants had adequate knowledge (score: 24-30), demonstrating a good understanding of lifestyle modifications for cirrhosis management. These findings highlight the need for targeted health education programs to improve knowledge levels among the rural population (Table 2).

Findings related to association between levels of knowledge among rural population regarding life style modification of liver cirrhosis with their selected socio-demographic variables.

The findings regarding the association between participants' knowledge levels and selected socio-demographic variables using the Chi-square test (N=100). Age showed a significant association ($\chi^2=21.864$, $p<0.05$), with the highest proportion of adequate knowledge observed in the 43-50 age group.

Gender was also significantly associated ($\chi^2=37.46$, $p<0.05$), as males had higher knowledge levels compared to females. Education level showed a strong association ($\chi^2=34.72$, $p<0.05$), with graduates demonstrating better knowledge than those with no formal education.

Occupational status was significantly related ($\chi^2=32.495$, $p<0.05$), as government employees had higher knowledge levels than unemployed individuals. Marital status was also a significant factor ($\chi^2=24.146$, $p<0.05$), with divorced individuals showing relatively better awareness.

Monthly family income did not show a significant association ($p>0.05$), indicating that financial status may not strongly impact knowledge levels. The type of family

was significantly associated ($\chi^2=18.15$, $p<0.05$), with nuclear families having a higher proportion of adequate knowledge.

Awareness about cirrhosis showed a significant association ($\chi^2=11$, $p<0.05$), highlighting the importance of prior exposure to information. Lastly, the source of knowledge significantly influenced awareness

($\chi^2=21.498$, $p<0.05$), with family being the most common source, followed by mass media and healthcare professionals. These findings suggest that targeted health education strategies can improve knowledge regarding lifestyle modifications for cirrhosis of the liver (Table 3).

Table 1: Frequency and percentage distribution of participants as socio-demographic variables (n=100).

Demographic variable		Frequency (N)	(%)
Age (in years)	18-25	28	28.00
	26-33	21	21.00
	34-42	15	15.00
	43-50	13	13.00
	51 years & above	23	23.00
Gender	Male	66	66.00
	Female	34	34.00
Education level	No education	26	26.00
	Primary education	26	26.00
	Secondary education	18	18.00
	Higher secondary education	15	15.00
	Graduation & above	15	15.00
Occupation	Govt. employee	31	31.00
	Private employee	19	19.00
	Self employed	25	25.00
	Unemployed	25	25.00
Marital Status	Single	28	28.00
	Married	33	33.00
	Widow	12	12.00
	Divorced	27	27.00
Monthly family income	≤10000/-	18	18.00
	10001-20000/-	25	25.00
	20001-30000/-	17	17.00
	≥30001/-	40	40.00
Type of family	Nuclear family	33	33.00
	Joint family	48	48.00
	Extended family	19	19.00
Awareness about cirrhosis of liver	Yes	20	20.00
	No	80	80.00
Source of information	Mass media	24	24.00
	Family	48	48.00
	Health professional	18	18.00
	Others	10	10.00

Table 2: Frequency and percentage distribution of participants as level of knowledge regarding life style modification of liver cirrhosis (n=100).

Level of Knowledge	Scores	Frequency (N)	(%)
Inadequate	0-15	55	55.00
Moderate	16-23	39	39.00
Adequate	24-30	06	6.00
Total		100	100

Table 3: Association between levels of knowledge among rural population regarding life style modification of liver cirrhosis with their selected socio-demographic variables (n=100).

Demographic variables	Knowledge Level			Total	df	χ^2	P value (0.05 level)
	Inadequate	Moderate	Adequate				
Age (in years)							
18-25	22	4	2	28	8	21.864*	15.507
26-33	13	7	1	21			
34-42	8	6	1	15			
43-50	6	5	2	13			
51 years and above	6	17	0	23			
Total	55	39	6	100			
Gender							
Male	22	39	5	66	2	37.46*	5.991
Female	33	0	1	34			
Total	55	39	6	100			
Educational level							
No education	12	14	0	26	8	34.72*	15.507
Primary education	16	10	0	26			
Secondary education	15	0	3	18			
Higher secondary education	11	3	1	15			
Graduation and above	1	12	2	15			
Total	55	39	6	100			
Occupational status							
Govt. employee	13	15	3	31	6	32.495*	12.592
Private employee	16	0	3	19			
Self employed	19	6	0	25			
Unemployed	7	18	0	25			
Total	55	39	6	100			
Marital status							
Single	22	6	0	28	6	24.146*	12.592
Married	14	18	1	33			
Widow	10	2	0	12			
Divorced	9	13	5	27			
Total	55	39	6	100			
Monthly family income							
≤10000/-	9	8	1	18	6	8.137 ^{NS}	12.592
10001-20000/-	10	14	1	25			
20001-30000/-	8	7	2	17			
≥30001/-	28	10	2	40			
Total	55	39	6	100			
Type of family							
Nuclear family	6	22	5	33	4	18.15*	9.488
Joint family	32	16	0	48			
Extended family	17	1	1	19			
Total	55	39	6	100			
Awareness about cirrhosis of liver							
Yes	13	3	4	20	2	11*	5.991
No	42	36	2	80			
Total	55	39	6	100			
Source of knowledge							
Mass media	19	5	0	24	6	21.498*	12.592
Family	17	28	3	48			
Health professional	14	3	1	18			
Others	5	3	2	10			
Total	55	39	6	100			

*Significant, NS-Non-significant.

DISCUSSION

The study aimed to assess knowledge regarding lifestyle modifications for cirrhosis of the liver among the rural population in Udaipur. A quantitative, descriptive cross-sectional design was used, covering selected rural areas, including Bedla. A total of 100 participants were selected using a non-probability convenience sampling technique. Inclusion criteria included individuals aged 18 and above who provided consent, while those with other liver diseases or cognitive impairments were excluded.

Data were collected through structured face-to-face interviews and self-administered questionnaires, covering demographic details and knowledge about cirrhosis. SPSS software was used for data analysis, with descriptive statistics summarizing findings and the Chi-square test identifying associations. Ethical clearance was obtained from Tirupati College of Nursing, Pacific Medical University, Udaipur and formal permissions were secured before data collection. Participants were informed about the study's purpose, confidentiality and voluntary participation. The study adhered to ethical standards, ensuring transparency, confidentiality and respect for participant autonomy throughout the research process.

The study findings revealed that the majority of participants (28%) were aged 18–25 years ($n=28$), followed by 51 years and above (23%, $n=23$). Males (66%, $n=66$) outnumbered females (34%, $n=34$). Regarding education, 26% ($n=26$) had no formal education, while only 15% ($n=15$) were graduates or above. Most participants (80%, $n=80$) lacked awareness of cirrhosis of the liver, with family members (48%, $n=48$) and mass media (24%, $n=24$) being the primary sources of information. The assessment of knowledge levels showed that 55% ($n=55$) had inadequate knowledge (score: 0–15), 39% ($n=39$) had moderate knowledge (score: 16–23) and only 6% ($n=6$) had adequate knowledge (score: 24–30).

Chi-square analysis demonstrated significant associations between knowledge levels and age ($\chi^2=21.864$, $p<0.05$), with the 43–50 years age group showing the highest proportion of adequate knowledge. Gender ($\chi^2=37.46$, $p<0.05$) was significantly related, with males exhibiting higher knowledge than females. Education ($\chi^2=34.72$, $p<0.05$) showed that graduates had better awareness compared to those with no formal education. Occupational status ($\chi^2=32.495$, $p<0.05$) indicated that government employees had higher knowledge levels than unemployed individuals.

Marital status ($\chi^2=24.146$, $p<0.05$) was also a significant factor, with divorced individuals having relatively better awareness. Type of family ($\chi^2=18.15$, $p<0.05$) was significantly associated, with nuclear family members having better knowledge. Awareness about cirrhosis ($\chi^2=11$, $p<0.05$) and source of information ($\chi^2=21.498$, $p<0.05$) also significantly influenced knowledge levels.

However, monthly family income was not significantly associated ($p>0.05$).

CONCLUSION

The study concluded that knowledge regarding lifestyle modifications for cirrhosis of the liver among the rural population in Udaipur is significantly lacking, with over half of the participants demonstrating inadequate awareness. Key demographic factors such as age, gender, education level, occupation, marital status, type of family, prior awareness and source of information were significantly associated with knowledge levels. However, monthly family income showed no significant impact. These findings highlight the urgent need for targeted health education programs, especially focusing on less educated, unemployed and female populations. Community-based interventions, mass media awareness campaigns and integration of liver health education into primary healthcare services can play a crucial role in enhancing knowledge, promoting early intervention and improving self-care practices in rural communities.

Recommendations

Based on the study findings, it is recommended that community-based health education programs be developed to enhance awareness regarding lifestyle modifications for cirrhosis prevention and management. Integrating liver health education into primary healthcare services can help ensure that rural populations receive essential knowledge during routine medical visits.

Additionally, utilizing mass media and social platforms, such as television, radio and digital networks, can significantly expand outreach, especially to individuals with limited healthcare access. Special attention should be given to high-risk groups, including individuals with lower education levels, females and unemployed individuals, who demonstrated lower knowledge levels in the study. Since family members were identified as a major source of information, involving them in awareness initiatives can further enhance the effectiveness of educational programs. Conducting workplace-based awareness sessions, particularly for government employees and self-employed individuals, can also contribute to improved knowledge and preventive practices.

Collaboration with local healthcare providers is essential to train healthcare workers in rural areas to deliver structured educational sessions. Moreover, developing cost-effective educational materials, such as pamphlets, booklets and posters in regional languages, can facilitate better understanding within rural communities.

Introducing liver health awareness in schools and colleges can help instill knowledge from an early age and promote preventive behaviors. Lastly, further research should focus on evaluating the long-term impact of health

education programs on lifestyle modifications to ensure sustained improvements in knowledge and health outcomes among rural populations.

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