

## Dietary Habits of Patients with Liver Cirrhosis in Kashmir Valley

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### Abstract

**Objective:** To determine life style and dietary habits of liver cirrhotic patients.

**Study Design:** Prospective cross-sectional observational study.

**Methodology:** This study was carried out on the outpatients and hospitalized patients in Gastroenterology Department of SKIMS Soura and SMHS hospital Srinagar. This study was approved by the Departmental Research Committee of Institute of Home Science University of Kashmir Srinagar. Consecutive patients with compensated cirrhosis were enrolled between the study periods of 2014-2015. Demographic data, level of education, smoking and dietary habits related information was collected from the selected respondents.

**Results:** Out of the 500 cirrhotic patients, 60% were from rural area and 40% were from urban area, 73.8% were males and 26.2% were females. Smoking habit was prevalent in 45.8% rural and 33.4% urban studied respondents. Alcohol consumption was present in 14.2% respondents. Non-alcoholic fatty liver was predominating cause of liver disease in Kashmir valley. It was observed that majority of the respondents i.e., (69.33% rural and 72% urban) males and (25% rural and 26.5% urban) females were using spicy foods. Majority i.e., 93.32% (70.66% males and 22.66% females) of rural respondents consumed smoked meat and fish.

**Conclusion:** Both rural and urban respondents have improper knowledge and perception of diet in cirrhosis. Patients with cirrhosis have sedentary life style and faulty dietary practices which affects in the management of the disease.

**Keywords:** Cirrhosis; Faulty habits; Dietary perception

### Introduction

The liver is one of the vital organs of our body; its weight is about 1.44-1.66 kg in an adult, which is essential for one's health and wellbeing of an individual. One cannot survive in life without the liver as it performs everyday physiological functions in human life. So it is the job of an individual in maintaining his or her own health and wellbeing by protecting and nurturing the liver. The word "Cirrhosis" derives from the Greek word Kirros which means yellowish orange colour of diseased liver of patient. Liver cirrhosis is the final stage of liver disease which leads to obstruction and liver failure. In other sense, the active liver tissue is replaced by inactive tissue incapable of normal functioning. Such cells get filled with fibrous tissue and fat [1]. The cirrhosis is caused by various factors across the world like: Hepatitis B virus, hepatitis C virus, alcoholic liver disease, fatty liver, jaundice, non-alcoholic steatohepatitis, haemo-chromatosis, autoimmune hepatitis, primary biliary cirrhosis and primary sclerosing cholangitis [2]. Liver cirrhosis is characterized by poor life expectancy and is a leading cause of mortality and morbidity. Cirrhosis is the 3<sup>rd</sup> most common cause of death in people aged between 45-65 years behind heart disease and cancer. Non-alcoholic fatty liver disease

is a serious liver disease and cause serious and dangerous health problem in Kashmir valley. It is reported that, to stop liver disease caused by non-alcoholic fatty liver disease, we need to be on roads and in gyms rather than sedentary life style and driving luxurious cars [3]. Moreover, according to studies alcoholism in the western countries and HBV infection in India are the most common causes of cirrhosis [4-6]. HBV infection is one of the major causes of liver cirrhosis and affects an estimated 400 million people worldwide. It has been estimated that one million people die annually from HBV-related liver diseases [7,8]. Recently, Tahira et al. reported that adolescents in Pulwama district of Kashmir valley follow unhealthy eating habits thus increase the risk factors for chronic non communicable diseases in a later age such as coronary heart disease, diabetes, hypertension, obesity and cancer. In view of the literature discussed above, we choose this study with the aim to determine the patient's life style and dietary habits of liver cirrhotic patients.

### Materials and Methods

It was a prospective cross sectional study conducted among 500 liver cirrhotic patients who visited or were admitted in Gastroenterology Department of SKIMS Soura and SMHS hospital Srinagar during the periods of 2014-2015. The tool used in the present study was

essentially a questionnaire. This was pre-tested on 10 liver cirrhotic respondents in order to ensure the validity and feasibility of questionnaire before administering it on the entire sample. The patients were explained about the purpose of the study, and on obtaining their consent; data were collected from the participating patients. All data were statistically analysed through statistical package for social science (SPSS) software version 20.00 and Microsoft excel. Metric data was described as mean ± SD. Non parametric data was expressed and described as percentages. The intergroup comparison for such data was done by Chi-square analysis, Mean, SD, odds ratio were used. Significance was evaluated as follows:

- P-value: >0.05 (Non-significant)
- P-value: <0.05 (Significant)
- P-value: <0.01 (Highly significant)

## Results and Discussion

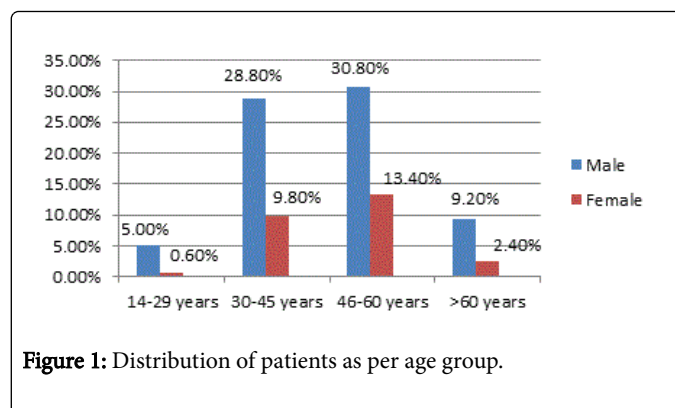
The total respondents were 500 out of which 300 were from rural area and 200 were from urban area. It was observed that out of 300 rural respondents 222 (44.4%) were males and 78 (15.6%) were females as shown in Table 1. Statistically distribution of male and female respondents is not uniform ( $P < 0.01$ ). Further, it was observed that out of 200 urban respondents 147 (29.4%) were males and 53 (10.6%) were females ( $p < 0.01$ ). The results of our study are in agreement with the studies conducted by Singh et al., Teiusanu et al., Ullah, Chalasani, Arguedas and Nevens. Thus, it is concluded that males were more affected than females' patients with this disease [9-14].

Gender	Rural (n=300)		Urban (n=200)		Total (n=500)	
	N	%	N	%	N	%
Male	222	44.4	147	29.4	369	73.8
Female	78	15.6	53	10.6	131	26.2
Total	300	60	200	40	500	100

**Table 1:** Distribution of studied respondents.

Figure 1 shows that the disease is more prevalent in the age group of 46-60 years (30.8% were males and 13.4% were females) followed by the age group of 30-45 years (28.8% were males and 9.8% were females). In a study conducted by Ullah [11] on 95 cirrhotic patients at Peshawar revealed that the disease was more common in the age group of 40-60 years. Other studies conducted by Teiusanu, Heron, Najman, Leyland, Lewis revealed that the disease is more occurring in the age group of 46-60 years of age [10,11,15-18]. Thus our results are in agreement with these studies.

Socioeconomic status of the liver cirrhotic patients is presented in Table 2. It was observed that 96.93% (71.6% males and 25.33% females) rural patients were married and in urban area 98.5% (73% males and 25.5% females) studied respondents were married. Most of the patients investigated were illiterate 62.66% rural and 58% urban respondents. Regarding occupation of the studied respondents, in rural area majority of the male patients were labourers (66.33%), 4.33% males were employed, 3.33% males were unemployed and 24.66% females were housewives.



**Figure 1:** Distribution of patients as per age group.

Further, it was observed that in urban area 63.5% male patients were labourers, 7.5% males were employed, 2.5% males were unemployed and 26% females were housewives. 91.33% rural and 95.5% urban had nuclear type family and only 8.66% rural respondents and 34.5% urban patients had joint type family system. Further, it was observed that majority 95.33% of rural studied respondents (73% males and 22.33% females) and 94.5% urban studied respondents (72% males and 22.5% females) belonged to lower socioeconomic class whose monthly income is <5000 INR. It was observed that majority (65%) of rural male respondent sand 11.33% female respondents were smokers. Further, it was observed that majority of urban males (69.5%) and females (14%) were smokers and remaining 4% males and 12.5% females were non-smokers. Statistically, it was observed that there is a no-significant difference between socio demographic characteristics of studied liver cirrhotic respondents ( $P > 0.05$ ). Idris and Ali [19] in their study on 28 liver cirrhotic patients observed that out of 28 study respondents 54% were married ones. So our result competes with this observation. Ahsan [20] in their study on lifestyle, nutritional status and seroclinical profile of liver cirrhotic patients in Bangabandhu observed that the liver cirrhosis is more prevalent in low income family groups. A study conducted by Debakey et al. [21] on liver cirrhosis mortality in USA revealed that cirrhosis is more prevalent in individuals belonging to low economic group [22].

Characteristics	Residence	Gender		X <sup>2</sup>	P-value
		M (%)	F (%)		
Marital Status					
Married	Rural	215 (71.60)	76 (25.33)	0.03	>0.05
	Urban	146 (73.00)	51 (25.50)		
Unmarried	Rural	6 (2.00)	1 (0.33)	0.163	>0.05
	Urban	1 (0.50)	0		
Widow	Rural	1 (0.33)	1 (0.33)	1.33	>0.05
	Urban	0	2 (3.77)		
Educational Status					
Illiterate	Rural	132 (44.00)	56 (18.66)	0.169	>0.05
	Urban	84 (42.00)	32 (16.00)		
Primary	Rural	81 (27.00)	20 (6.66)	0.54	>0.05
	Urban	49 (24.50)	16 (8.00)		

Secondary	Rural	9 (3.00)	2 (0.66)	0.258	>0.05
	Urban	14 (7.00)	5 (2.50)		
Occupation					
Employed	Rural	13 (4.33)	0	0.842	>0.05
	Urban	15 (7.50)	1 (0.50)		
Unemployed	Rural	10 (3.33)	0	NA*	NA*
	Urban	5 (2.50)	0		
Laborer	Rural	199 (66.33)	4 (1.33)	2.533	>0.05
	Urban	127 (63.50)	-		
House wife	Rural	-	74 (24.66)	-	-
	Urban	-	52 (26.00)	-	-
Type of Family					
Nuclear	Rural	202 (67.33)	72 (24.00)	-	-
	Urban	140 (70.00)	51 (25.50)	0.01	>0.05
Joint	Rural	20 (6.66)	6 (2.00)	-	-
	Urban	7 (3.50)	2 (1.00)	0.003	>0.05
Economic Status					
<5000 (lower class)	Rural	219 (73.00)	67 (22.33)	-	-
	Urban	144 (72.00)	45 (22.50)	0.009	>0.05
5000-10000 (Middle class)	Rural	2 (0.66)	11 (3.66)	-	-
	Urban	3 (1.50)	8 (4.00)	0.511	>0.05
>10000 (Upper class)	Rural	1 (0.33)	-	-	-
	Urban	-	-	-	-
Smoking Habits					
Yes	Rural	195 (65.00)	34 (11.33)	0.269	>0.05
	Urban	139 (69.50)	28 (14.00)		
No	Rural	27 (9.00)	44 (14.66)	1.918	>0.05
	Urban	8 (4.00)	25 (12.50)		

**Table 2:** Socioeconomic status of respondents (n=500).

The data presented in Table 3 reveals that non-alcoholic fatty liver was the predominant underlying cause of respondents and was seen in 66.32% rural (48.66% males and 17.66% females) and 67% urban (48% males and 19% females) respondents. Statistically, it was observed that there is a highly significant difference between male and female respondents in chronic alcoholism as a causative agent from both areas ( $P < 0.01$ ). Further, it was observed that in rural respondent so their infection was present in 19.99% (14.33% males and 5.66% females), alcohol in 15.32% (14.66% males and 0.66% females) and hepatitis B in 17.99% (14.33% males and 3.66% females). But in case of urban respondents infection was present in 22% (18.5% males and 3.5% females), hepatitis in 15.56% (11.56% males and 4% females), and alcohol in 12.5% (12% males and 0.5% females) as a causative agent.

Statistically highly significant difference between male and female respondents was seen in urban respondents with non-alcoholic fatty liver and infection ( $P < 0.01$ ).

Aetiology	Residence	Yes		No		Chi square	P-value
		M (%)	F (%)	M (%)	F (%)		
Chronic Alcohol	Rural	44 (14.66)	2 (0.66)	178 (59.33)	76 (25.33)	13.239	<0.01
	Urban	24 (12.00)	1 (0.50)	123 (61.50)	52 (26.00)	7.426	<0.01
NAFL	Rural	146 (48.66)	53 (17.66)	76 (25.33)	25 (8.33)	0.123	>0.05
	Urban	96 (48.00)	38 (19.00)	51 (25.50)	15 (7.50)	25.1	<0.01
Hepatitis B virus	Rural	43 (14.33)	11 (3.66)	179 (59.66)	67 (22.33)	1.085	>0.05
	Urban	17 (11.56)	8 (4.00)	130 (65.00)	45 (22.50)	3.24	>0.05
Other infection	Rural	43 (14.33)	17 (5.66)	179 (59.66)	61 (20.33)	0.212	>0.05
	Urban	37 (18.50)	7 (3.50)	110 (55.00)	46 (23.00)	20.45	<0.01

**Table 3:** Repartition of respondents as per aetiology.

The data presented in Table 4 shows that the majority of the male respondents 58.33% rural and 59.5% urban and in case of female respondents 20% rural and 22% urban take salt tea in comparison to consumption pattern of sweet tea which is much low in both genders. Further, it was observed that in case of type of tea there is a non-significant difference between rural and urban consumers ( $P > 0.05$ ). It was also observed that majority of respondents 93.33% (69% males and 24.33% females) rural and 90.5% urban respondents (67% males and 23.5% females) consume fried foods or street foods. Our results are in partial agreement with the study of Idris and Ali [19] who found that all of the studied respondents were dependent on junk foods in the form of street fatty foods. They showed lack of interest in nutrition.

Variables	Residence	Gender	Yes (%)	No (%)	Chi square	P-value	Odds Ratio
Salt Tea	Rural	Male	175 (58.33)	47 (15.66)	0.124	>0.05	1.117
		Female	60 (20.00)	18 (6.00)			
	Urban	Male	119 (59.50)	28 (14.00)	0.11	>0.05	0.869
		Female	44 (22.00)	9 (4.50)			
Sweet Tea	Rural	Male	31 (10.33)	191 (63.66)	1.874	>0.05	0.629
		Female	16 (5.33)	62 (20.66)			

	Urban	Male	34 (17.00)	113 (56.50)	0.126	>0.05	1.149
		Female	11 (5.50)	42 (21.00)			
Fried Foods	Rural	Male	207 (69.00)	15 (5.00)	0.011	>0.05	0.945
		Female	73 (24.33)	5 (1.66)			
	Urban	Male	134 (67.00)	13 (6.50)	0.28	>0.05	1.316
		Female	47 (23.50)	6 (3.00)			

**Table 4:** Pattern of tea and fried foods consumption in respondents.

The data presented in the Table 5 reveals that majority 50.66% (36% males and 14.66% females) of rural and 46.5% (39.5% males and 7% females) urban respondents use Kashmiri masala tikki (*wur*) in some foods followed by 32.33% (25.33% males and 7% females) rural and 37.5% (23% males and 14.55 females) urban respondents using kashmiri masala tikki (*wur*) weekly. Further, it was observed that only 15.66% (11.66% males and 4% females) rural and 18% (11% males and 7% females) urban respondents use Kashmiri masala tikki (*wur*) daily in their food preparation. Statistically, there is a significant difference between rural and urban consumers of kashmiri masala tikki (*wur*) weekly in their food items ( $P < 0.05$ ). It was also observed that majority of the respondents i.e., (69.33% rural and 72% urban) males and (25% rural and 26.5% urban) females were using spicy foods. Further, it was observed that only 4% rural respondents and 1% urban respondents use moderate spices in their diet. Statistically it was observed that there is non-significant difference between male and female consumption of spicy foods ( $P > 0.05$ ). further, it was observed that in case of smoked meat and fish consumers there was no significant difference between rural and urban respondents ( $P > 0.05$ ). It was found that majority 93.32% (70.66% males and 22.66% females) of rural respondents consumed smoked meat and fish. While as 54% of urban males and 19.5% females didn't consume smoked meat and fish. Only 26.5% (19.5% males and 7% females) urban respondents consumed smoked meat and fish. Further, it was observed that 48.99% (36.33% males and 12.66% females) rural and 8% urban respondents consume smoked meat and fish monthly. 32% rural respondents (25% males and 7% females) and 3.5% urban respondents (1.5% males and 2% females) consumed smoked meat and fish daily and 12.33% rural respondents (9.33% males and 3% females) and 15% urban respondents (10% males and 55 females) consumed smoked meat and fish weekly.

### Conclusion

Our research indicated that liver cirrhosis in Kashmir valley is more seen in males from rural areas having nuclear type of family system and belonged to low socioeconomic group. The main etiology of this disease in Kashmir valley is fatty liver and hepatitis B. Smoking habit was also seen in both male and female respondents in terms of cigarette, hookah, naas, bidi also alcohol consumption was observed. The respondents showed poor eating habits, faulty dietary habits, lack of interest in the nutritional side and dependence on junk foods, spicy foods, and dried vegetables which significantly influence the level of treatment on the nutritional side. Malnutrition is common in end stage liver disease and adversely affects prognosis.

Variables	Residence	Gender		Chi square	P-value
		M (%)	F (%)		
Consumption of Kashmiri Masala Tikki ( <i>WUR</i> )					
Daily	Rural	35 (11.66)	12 (4.00)	1.691	>0.05
	Urban	22 (11.00)	14 (7.00)		
Weekly	Rural	76 (25.33)	21 (7.00)	5.94	<0.05
	Urban	46 (23.00)	29 (14.50)		
Some foods	Rural	108 (36.00)	44 (14.66)	6.164	>0.05
	Urban	79 (39.50)	14 (7.00)		
Never used	Rural	3 (1.50)	1 (0.50)	-	-
	Urban	0	0		
Spices in Food					
Less	Rural	5 (1.66)	0	NA*	NA*
	Urban	1 (0.50)	0		
Moderate	Rural	9 (3.00)	3 (1.00)	0.036	>0.05
	Urban	2 (1.00)	0		
Very much	Rural	208 (69.33)	75 (25.00)	0.01	>0.05
	Urban	144 (72.00)	53 (26.50)		
Smoked Meat and Fish					
Consumed	Rural	212 (70.66)	68 (22.66)	0.109	>0.05
	Urban	39 (19.50)	14 (7.00)		
Not Consumed	Rural	10 (3.33)	10 (3.33)	4.677	>0.01
	Urban	108 (54.00)	39 (19.50)		
Daily	Rural	75 (25.00)	21 (7.00)	4.415	>0.01
	Urban	3 (1.50)	4 (2.00)		
Weekly	Rural	28 (9.33)	9 (3.00)	0.622	>0.05
	Urban	20 (10.00)	10 (5.00)		
Monthly	Rural	109 (36.33)	38 (12.66)	5.393	>0.01
	Urban	16 (8.00)	0		
Never used	Rural	10 (3.33)	10 (3.33)	NA*	NA*
	Urban	0	0		

**Table 5:** Dietary habits of respondents.

The most common and difficult to handle myth about liver disease is that there should be almost complete restriction of dietary fat and protein intake in diet, which is in contrast to the actual scientific dietary advices for such patients. Hence it is recommended that we should regularly and persistently convince the patient and relatives to give high protein and fat diet with less of salt, as decided upon degree of decompensation.

## References

1. Clinical Therapeutic Nutrition, School of Continuing Education, Indira Gandhi National Open University.
2. Guha NI, Iredale JP (2007) Clinical and diagnostic aspects of cirrhosis. In: Rode's J, Benhamou JP, Blei A, Reichen J, Rizzetto M (eds.) *Textbook of hepatology from basic science to clinical practice* (3<sup>rd</sup> edn.) Oxford, Blackwell Publishing.
3. Khuroo MS (2012) Liver disease in Kashmir: despair and hope.
4. Hasse JM, Matarese LE (2008) Medical nutrition therapy for liver, biliary system, and exocrine pancreas disorders. In: Mahan LK, Escott-Stump S (12<sup>th</sup> edn.), *Krause's Food and Nutrition Therapy*, Elsevier, Philadelphia pp: 739-740.
5. Kim WR, Brown RS, Terrault NA, El-Serag H (2002) Burden of liver disease in the United States: Summary of a workshop. *Mayo Clinic, Rochester, MN*.
6. Roguin A (2006) Rene Theophile Hyacinthe Laennec the Man behind the Stethoscope. *Clin Med Res* 4: 230-235.
7. Arey LB, Burrows W, Greenhill JP, Hewitt RM (1962) *Dorland's illustrated medical dictionary* (23<sup>rd</sup> edn.) Saunders Company, Press of WB, Philadelphia pp: 1962: 286.
8. Duffin JM (1987) Why does cirrhosis belong to Laennec? *CMAJ* 137: 393-396.
9. Singh N, Choudhary JK, Srivastava M, Tripathi MK, Rungta S, et al. (2013) Nutritional And Clinical Profile of Patients in Different Stages of Alcoholic and Virus Related Liver Disease: An Indian Perspective Web med Central plus. *Gastroent* 4: 12.
10. Teiusanu A, Ionescu M, Gologan S, Stoicescu A, Andrei M, et al. (2012) Dietary therapy impact for cirrhotic patients with hepatic encephalopathy. *Jurnalul de Chirurgie (Iasi)* 8: 373-378.
11. Ullah F, Khan S, Afridi AK, Rahman S (2012) Frequency of different causes of cirrhosis liver in local population of Pakistan. *Gomal J Med Sci* 10: 178-181.
12. Chalasani N, Kahi C, Francois F, Pinto A, Marathe A, et al. (2003) Improved patient survival after acute variceal bleeding: a multicenter, cohort study. *Am J Gastroent* 98: 653-659.
13. Arguedas MR, McGuire BM, Fallon MB, Abrams GA (2001) The use of screening and preventive therapies for gastro-esophageal varices in patients referred for evaluation of orthotopic liver transplantation. *Am J Gastroenterol* 96: 833-837.
14. Nevens F, Broeckart L, Rutgeerts P, Van Steenburgen W, Fevery J (1995) The long term morbidity and mortality rate in a cohort of patients with liver cirrhosis and oesophageal varices. *Hepatogastroenterol* 42: 979-984.
15. Heron M (2004) Deaths: Leading causes for Liver cirrhosis. *Natl Vital Stat Rep* 56: 1-95.
16. Najman JM, Williams GM, Room R (2007) Increasing socioeconomic inequalities in male cirrhosis of the liver mortality: Australia 1981-2002. *Drug Alcohol Rev* 26: 273-278.
17. Leyland AH, Dundas R, McLoone P, Boddy FA (2007) Cause-specific inequalities in mortality in Scotland: Two decades of change-A population-based study. *BMC Public Health* 7: 172.
18. Lewis CE, Smith E, Kercher C, Spitznagel E (1995) Predictors of mortality in alcoholic men: A 20-year follow-up study. *Alcohol ClinExp Res* 19: 984-991.
19. Idris SM, Ali EAL (2013) Assessment of Dietary Management of Patients with Cirrhosis. *IJSR* 2: 47-53.
20. Ahsan T, Ahsan M, Kamal M, Hossain KJ, Haque ME, et al. (2007) Lifestyle, nutritional status and seroclinical profile of liver cirrhotic patients. *BJMS* 36: 44-47.
21. Debakey SF, Stinson FS, Grant BF (1995) *Liver Cirrhosis Mortality in the United States 1970-92. Surveillance Report #37*. Bethesda, MD: National Institute on Alcohol Abuse and Alcoholism.
22. Sidiq E, Bhat BA, Khan N, Ganai AM (2016) Activity Behaviour and eating habits among adolescents of District Pulwama Kashmir. *Int J Food Sci Nutr* 1: 27-31.