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Assessment of Knowledge, Attitude and Practices Towards Disease Management in NAFLD (Non-Alcoholic Fatty Liver Disease) Patients of a Tertiary Care Centre - A Cross Sectional Study

Amandeep Kaur[1], Nitin Garg[2], Jasmine Kaur[3]

[1]RD, Chief Dietitian, Sri Guru Ram Das Medical College and Hospital, Amritsar, Punjab, India
Corresponding Author Email: nizzeramandeep[at]gmail.com

[2]Professor and Dean, Department of Life Sciences, HRIT University, Ghaziabad, Uttar Pradesh, India

[3]MD Medicine, Associate Prof, Dept of Medicine, Sri Guru Ram Das Medical College and Hospital, Amritsar, Punjab, India

Abstract: ***Aim: To assess knowledge, attitude and practice of NAFLD (KAP survey) patients towards management of disease. Methods: This cross sectional was conducted to assess the knowledge, attitude and practices of NAFLD (non alcoholic fatty liver disease) patients towards disease management. For this a total of 226 patients were selected who were more than 18 years old both male and females from outpatient department in Sri Guru Ram Das Hospital, Amritsar from a period of August 2025 to March 2026. A descriptive self structured close ended 32 item questionnaire was prepared to collect data and analysed further using SPSS 27 latest version. Results: Out of 226 patients, 126 were female and 100 were male who were diagnosed with NAFLD and they showed poor knowledge with a mean score of 0.134 adequate attitude with mean score of 0.173 and poor practice with a mean score of 0.286. Correlation was statistically significant between knowledge and practice(p<0.001). Conclusion: Lack of poor knowledge of diet, physical activity and medications were the main reason of negative attitude and poor healthcare practices.***

Keywords: Non alcoholic fatty liver disease, KAP survey, OPD patients, questionnaire, interview

1. Introduction

Non- alcoholic fatty liver disease (NAFLD; also known as metabolic associated fatty liver disease [MAFLD]) is a condition estimated to affect approximately one-fourth of the global population, representing a significant public health burden. This nomenclature shift reflects a redefinition emphasizing metabolic dysfunction as a key diagnostic criterion, moving away from exclusionary terms such as nonalcoholic (Eslam M et al 2019). Globally, pooled prevalence rates for NAFLD are reported as 38.8%. Within China, a systematic review and meta-analysis estimated the prevalence of NAFLD to be 29.81% (27.78–31.93%), with projections suggesting that approximately 314.58 million individuals will be diagnosed with NAFLD by 2030 (Chan K et al 2022). This growing burden is alarming, particularly as NAFLD progression can result in severe complications such as cirrhosis, hepatocellular carcinoma, and cardiovascular diseases carcinoma if the disease is not effectively managed (Javed N et al 2019). Self-management plays a crucial role in NAFLD treatment as evidence suggests that adherence to lifestyle modifications, including dietary adjustments and regular physical activity, can significantly delay disease progression and improve clinical outcomes (Le M et al 2022). Interventions targeting self management behaviors are therefore essential to mitigating the long-term complications of NAFLD in targeted population (Estes C et al 2018). Due to a significant burden of disease in country , it is of great importance that the patients should have firm knowledge of the screening, management and prevention of CLD either to curb it at the initial stages or to halt its progress to DCLD which is possible only by having complete knowledge on the various factors that cause chronic hepatic injury specially those which are reversible like alcohol overuse, drugs, hyperlipidemia (Sharma B et al 2023).

Recognizing signs and symptoms of NAFLD at both its initial and later stages, screening and diagnostic techniques is an essential part of its effective management (Li J et al 2019). The aim of this study was to assess the general knowledge, attitude and practices of patients including health caregivers, spouse and children towards MAFLD patients as many studies previously done on general population showed a dire need for public education. Caregivers also play a pivotal role in the management of MAFLD, ensuring patients adhere to treatment regimens and maintain quality of life. However, many caregivers face challenges due to inadequate knowledge, negative attitudes, and improper practices, which can adversely affect patient outcomes. Addressing these gaps is essential to support patients in delivering effective care. This study aims to assess the knowledge, attitude, and practices or KAP score in a hospital setting and ultimately improving patient outcomes and reducing the burden on healthcare systems.

2. Methods

The development of the questionnaire was informed by a thorough review of relevant literature and established guidelines, including the Guidelines for the prevention and treatment of metabolic dysfunction associated (non-alcoholic) fatty liver disease (Version 2024) and the AASLD Practice Guidance on the Clinical Assessment and

Management of Non- Alcoholic Fatty Liver Disease. The cross- sectional descriptive questionnaire- based study was conducted on a specific set of population. Approval was obtained from Ethical committee of the department of Sri Guru Ram Das University of Health Sciences under letter no. **SGRD/IEC/2025/458.** For this purpose total 226 patients were selected randomly and an informed consent was taken from the patients visiting medicine and gastroenterology department in OPD and IPD setups both. More than 18 years of age patients were selected who have diagnosed with Compensated liver cirrhosis diagnosed based on Ultrasound abdomen or CT abdomen. Data was collected by using a structured and close ended 32 item questionnaire. Data on patient's age, gender, area of residence, income source, education, food choices and 24 hours diet recall of one day was collected. Total 10 questions were mentioned in knowledge section. Four options were given and one score was decided for every right answer and zero score for wrong answer. A score of 7 or more than 7 was considered as adequate knowledge of disease while less than 7 was considered poor. In attitude section, again 10 questions were included and every question was assigned 1 score for positive attitude and 0 score for negative attitude. Within a range of 0-10, a score of 7 was set as an overall positive attitude and less than 7 was as poor attitude towards disease. Total practice score was 12 and in good category practice was given to the score more than 9 while less than9 was poor practice towards disease management.

0.5=fair correlations, 0.5-0.75 = good correlations and more than 0.75=excellent correlations. Among knowledge sections questions were included about onset of disease, transmission, symptoms and preventive diet measures etc. Attitudes related questions were about patient's attitude towards treatment, cost of the diagnose, vaccinations, physicians follow-ups etc. The practice section consisted of questions related to daily routine about eating, working, job hours. Performance at work. Correlations between our study variables were interpreted as 0-0.25=weak correlation, 0.25- and exercise schedule. The questionnaire was in the English language and patient's responses were filled up by data collecting team. Each questions were verbally elaborated and explained in the local language to the respondents at the time of interview.

3. Results

This study showed us out of 226 participants 126 (56%) were female and 100 (44%) were male who are between age group of 18-75yrs old and the overall mean age for groups was 47.82 years and it showed poor knowledge and adequate attitude and also poor practices. Correlation coefficient was weak between knowledge and attitude, quite fair corelation within knowledge and practice and again weak correlation was seen between attitude and practice. (Table 6)

As in Table 1, a total 226 participants attended this questionnaire interview which had 74(33%) were from 18-37yrs, 74(33%) were falling under 38-57years and 76(34%) were of 58-77 years of age. Out of this 100 were male while 126 were female patients who gave consent for participating in the study. Around 131(58%) were belonged to rural areas and 95(42%) were residing in urban areas. On interviewing we found 33% unemployed, 21% had govt sector jobs, 20% had private jobs and 58% were self employed.

Table 1: Demographic distribution of the study participants (n= 226)

Mean age (years)	47.82 ±11.26
	N (%) n=226
18-37	74(33)
38-57	74(33)
58-77	76(34)
Gender	
Male	100(44)
Female	126(56)
Occupation	
Unemployed	74(33)
Govt servant	47(21)
Private job	45(20)
Self employed	58(26)
Locality	
Rural	131(58)
Urban	94(42)

This study was conducted to assess the knowledge of the patients about their disease and health conditions. When the patients were asked regardless of the fact that they had actually been going through the condition. Low mean knowledge score showed there is lack of knowledge, aetiology, symptoms, prevention and management of the disease condition. (Table 2)

Table 2: Patient's knowledge towards NAFLD (n=226)

NAFLD Knowledge items	Right responses N (%)	Wrong responses N (%)	Do not know N (%)
Overweight and diabetes affects which organs?	140(62.6)	83(37.2)	2(1.3)
Which points are to be kept in mind for disease management?	101(45.3)	27(12.3)	99(44.8)
Have you ever heard about fatty liver?	194(86.5)	15(7.5)	11(5.8)
What are the risk factors for Cirrhosis of liver?	61(27.3)	99(44.8)	65(29.1)
How does fatty liver disease occur and progress?	13(6.8)	81(36.4)	128(57.9)
What are the symptoms of fatty liver disease?	178(79.2)	24(11.1)	18(8.8)
How is fatty liver disease diagnosed?	49(22.3)	149(66.7)	24(11.9)
Why is treatment necessary for fatty liver?	151(67.70	22(10.3)	74(33.7)
How can fatty liver be treated?	47(21.4)	72(32.6)	99(44.4)

Table 3 indicated a positive attitude towards management of the NAFLD, this was may be due to positive perception of the patients for the recommendations of the practitioners. Lot of participants admitted cost of diagnosis and treatment did not affect their social life and other aspects of life and that's why standard medical treatment was being followed by more than half of our participants.

Table 3: Patient's Attitude towards NAFLD, n=226

Attitude Items	N (%)
Are you happy with your current treatment regimen?	
Yes	152(67.1)
No	74(32.7)
What dietary restrictions do you keep in mind while eating?	
Avoid sweets	75(33.1)
Avoid sweet fruits	26(12.5)
Avoid fatty and oily foods	43(19)
Avoid extra salt	82(36.4)
Do you miss taking your medicines?	
Yes	61(26.9)
No	165(73)
How often do you visit the physician?	
Once in 3 months	76(34.1)
Once in 6 months	24(11.3)
Once in a year	38(17.8)
Never	88(38.5)
How often do you get your FBS checked?	
Weekly	54(24.1)
Fortnightly	70(31)
Once a month	94(42.3)
Once in a 2 months	9(4.3)
How often do you get your LFT's checked?	
Once in 3 months	27(12.9)
Once in 6 months	51(23.3)
Once in a year	70(31.1)
Once in 2 years	76(34.3)
How often do you get your blood pressure and weight checked?	
Weekly	126(56.6)
Once a month	72(32.2)
Once in 2 months	20(9.0)
Never	4(2.1)
How often do you get lipid profile checked?	
Once in 6 months	149(66.1)
Once in a year	51(23.3)
Once in 2 years	20(9)
Never	2(1.1)
How often do you miss your work due to physical condition?	
Weekly	22(13.3)
Once a month	196(87.2)
How often does health affect your efficiency at work?	
Sometimes	54(24.4)
Never	171(76.4)
How often do you find your health limiting your social life?	
Sometimes	47(21.2)
Rarely	74(33.2)
Never	103(46.3)

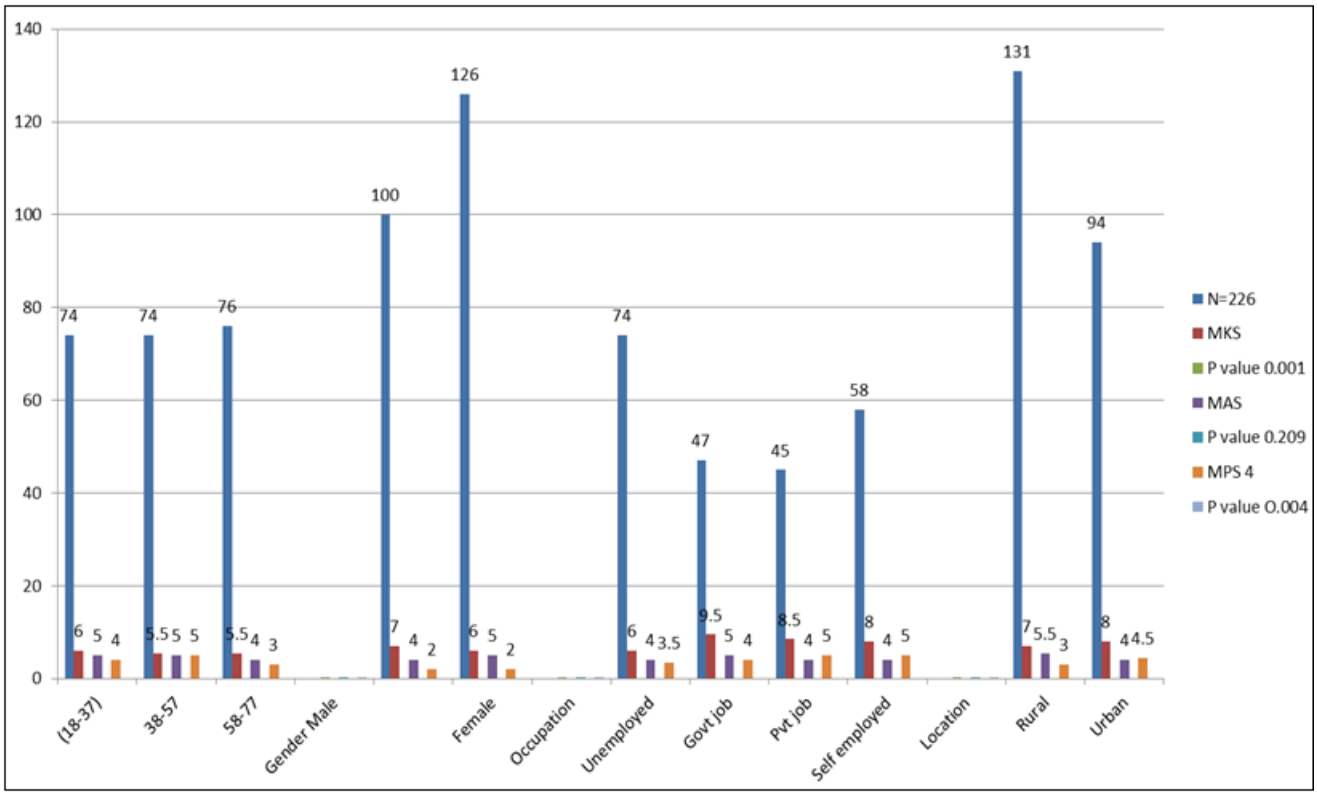
Table 4 presents patient's practices towards disease management. Our study also showed good practices among patients daily routine where they comply to the guidelines given either by health practitioner or dietitian or physiotherapists. After discussing the whole findings of the study there is a need to establish the fact that patient's demographic characterstics had an impact on their KAP score towards the disease. Education also plays an important role where awareness comes from. Age was not an independent factor among practices towards the treatment.

Table 4: Patient's Practices towards NAFLD (n= 226(%)

PRACTICE ITEMS	YES	NO
How often you avoid traveling or social life due to health condition?	27(12.2)	198(88.9)
How often has your health condition limited vigorous activities?	33(15.5)	189(84.3)
Are you satisfied with your current treatment plan?	205(91.1)	18(8.08)
Does your budget affect cost of your medications sometimes?	144(64.3)	81(36.0)
Do you follow adequate diet and exercise regimen as recommended?	167(74.4)	58(26.5)
Do you have family support for management of lifestyle and health?	185(82.6)	40(18.1)
Do you limit your expenditure on other aspects of life due to health condition?	178(79.9)	47(21.7)
Do you encourage yourself mentally to compete with life situations?	205(91.9)	18(8.08)
Do you feel restrictions in choosing your diet?	178(79.9)	49(22.2)
Do you order foods from outside or hide facts which are not permitted?	72(32.2)	156(68.8)
Do you feel less choices in food selection due to NAFLD?	92(41.1)	133(59.9)
Do you exercise daily for weight management as per recommendations?	194(86.7)	31(14.4)

Table 5: Demographic distribution of mean knowledge score (MKS) , mean attitude (MAS) and mean practice score (MPS)

Description	N=226	MKS	P value	MAS	P value	MPS	P value
Age (yrs)							
(18-37)	74	6.00	0.001	5.00	0.209	4.00	0.004
38-57	74	5.50		5.00		5.00	
58-77	76	5.50		4.00		3.00	
Gender							
Male	100	7.00	0.004	4.00	0.003	2.00	0.001
Female	126	6.00		5.00		2.00	
Occupation							
Unemployed	74	6.00	0.001	4.00	0.006	3.50	0.001
Govt job	47	9.50		5.00		4.00	
Pvt job	45	8.50		4.00		5.00	
Self employed	58	8.00		4.00		5.00	
Location							
Rural	131	7.00	0.001	5.50	0.006	3.00	0.001
Urban	94	8.00		4.00		4.50	



4. Discussion

This study focused on assessment of knowledge, attitude and practice among NAFLD diagnosed patients and (KAP survey) was done with the help of questionnaire in 226 subjects. The study found 126 female and 100 males who have been asked about their knowledge of NAFLD and diagnose and treatment, it was analysed that they had poor knowledge score with mean score of 6.42±1.32 while when they had been assessed for their attitude towards disease management they showed an adequate attitude with mean score of 4.45±1.12 and regarding practices more than half of the patients had fair practices with mean score of 7.32±2.21. our study was inline with another study findings which reported low level of knowledge of even well educated patients regarding disease transmission and management.

Our results are also consistent with another study conducted in Quetta, Pakistan with similar aims, which also reported that more than 70% patients had a poor range of knowledge of their disease.

Attitude of the patients was positive towards management as many other studies showed negative attitude, perhaps the main reason for their positive attitude was regular follow ups with concerned practitioners and low cost of treatment rather than self- medication and less regular follow ups.

Our study also showed good practices among patients daily routine where they comply to the guidelines given either by health practitioner or dietitian or physiotherapists. After discussing the whole findings of the study there is a need to establish the fact that patient's demographic characterstics had an impact on their KAP score towards the disease. Education also plays an important role where awareness comes from. Age was not an independent factor among practices towards the treatment.

These factors showed that there is positive impact on the attitude and practices if proper education is being provided to the patients. Linear positive correlation among knowledge, attitude and practice showed that these variables had a direct impact on one another. The finding is line with another study that showed better knowledge about the disease definitely had a positive impact on patient's attitude and beliefs towards their disease, which ultimately led to good practices regarding prevention strategies. The current study was conducted at a tertiary care centre in which most of the visiting patients had poor socioeconomic status as well as poor educational level. As such, the study may not entirely represent the whole population. Also, the study was conducted at a single centre, and, as such, the results may not be generalised.

A total of 226 patients, 126 were female and 100 were male who were diagnosed with NAFLD and they showed poor knowledge with a mean score of 0.134 adequate attitude with mean score of 0.173 and poor practice with a mean score of 0.286. Correlation was statistically significant between knowledge and practice($p<0.001$). (Table 6).

Table 6: Correlation coefficient between various variables of KAP survey

Variables	Correlation coefficient	P value
Knowledge-Attitude	0.134	<0.004
Knowledge-Practice	0.286	<0.001
Attitude-Practice	0.173	<0.001

5. Conclusions

However, positive linear correlation between knowledge, attitude and practice highlighted that improved knowledge can lead to better attitude towards the disease and ultimately better practices for treatment and management.

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Author Contributions:
Amandeep Kaur: Conceptuliazation, data collection, writing- original draft.
Nitin Garg: Data analysis and supervision.
Jasmine Kaur: Review and editing.

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Patient Consent Form

Participant Statement:

I certify that I have read, or had read to me, and that I understand the description of the study entitled "**Assessment of knowledge, attitude and practices towards disease management among NAFLD (Non alcoholic fatty liver disease) patients in a tertiary care centre- A cross sectional study".** By signing this form I am attesting that I have read and understood the information above and I give my consent to participate in this research study. I understand that I may quit the study at any time. I have had a chance to ask questions about the study. I understand that I may ask further questions at any time.

Participant name and signature: ----------

Date: ---------- **Code:** ----------

Ethical Approval Letter

SRI GURU RAM DAS INSTITUTE OF MEDICAL SCIENCES & RESEARCH
ਸ੍ਰੀ ਗੁਰੂ ਰਾਮਦਾਸ ਇੰਸਟੀਚਿਊਟ ਆਫ਼ ਮੈਡੀਕਲ ਸਾਇੰਸਜ਼ ਐਂਡ ਰੀਸਰਚ

Ref. No: SGRD/IEC/2025-458 Date : 25-8-2025

To

Ms. Amandeep Kaur
Student of Ph.D (Food & Nutrition),
Sri Guru Ram Das University of Health Sciences,
Sri Amritsar.

Sub: - Application for Ethical Clearance.

It is to Inform you that the ethical committee has scrutinized your plan **"Efficacy of diet Counselling and Patient Education on Nutritional Status of Liver Cirrhosis Patients at Tertiary Care Centre Amritsar."** The research is hereby approved by the Institutional ethics committee.

Dr. Anupama Mahajan
(Convener)

Dr. Manjit Singh Uppal
(Chairman)