A STUDY ON SYMPTOMS AND NUTRITIONAL KNOWLEDGE AMONG PATIENTS WITH LIVER CIRRHOSIS IN SHILLONG, MEGHALAYA

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ABSTRACT: Liver cirrhosis is the end effect of several mechanisms of liver inflammation caused by chronic liver disease, genetic disease, or autoimmune inflammation. The main objective of the study was to firstly find out the signs and symptoms prevailing in patients with liver cirrhosis, secondly to assess the nutritional knowledge, and lastly to gain information on the dietary patterns. The study was undertaken on patients with cirrhosis in four distinct hospitals of shillong i.e. civil hospital, woodland hospital, nazareth hospital and bethany hospital. The data were collected randomly and purposively with the help of a pre-tested questionnaire covering the demographic profile, health related questions, nutritional status and the food frequency questions. All the data collected via different parameters were statistically analyzed and results obtained were tabulated. Mean and percentage were calculated by using Microsoft Office Excel 2010. From the study it was found that about 40% of the patients were underweight and about 82% experiences loss of appetite, 40% first diagnosed liver disease one month before. From the data presented in the current study it was found that most of the patients had an average level of knowledge, poor health conditions and underweight due low levels of lean body mass. Hence management of cirrhosis at an early stage is important by incorporating a balance diet, physical activity, and proper medications.

Key words: Cirrhosis, dietary patterns, inflammation, symptoms, nutritional knowledge.

INTRODUCTION

Liver cirrhosis is that the end effect of several mechanisms of liver inflammation caused by chronic disease, hereditary disease, or autoimmune inflammation (Prunty J.J and Prunty L.M, 2014). Cirrhosis occurs because of the necrosis of liver cells followed by fibrosis and nodule formation. Deterioration in liver function and structure results in diminish liver blood flow and performance. Cirrhosis represents the recurrent pathway for chronic liver diseases. The term cirrhosis was introduced by Laennec in 1826. It was derived from the Greek term scirrhus which refers to the orange or flaxen surface of the liver. Cirrhosis is defined as a diffuse hepatic process characterized by fibrosis and therefore the transformation of normal liver into structurally abnormal nodules. the method of liver injury to cirrhosis may occur over weeks to years (Suva M, 2014). The first known description of the condition is by Hippocrates within the 5th century BCE (Steven T, 2012). The term cirrhosis was invented in 1819, from a Greek word for the yellowish colour of a diseased liver (Roguin A, 2006).

Liver cirrhosis is a public health problem (Rowe I.A, 2017). It is usually associated with transmissible infectious diseases such as viral hepatitis, consumption of alcohol, metabolic syndrome, autoimmune processes, storage diseases, toxic substances and medications (Poordad F.F, 2015). It is said that up to 40% of patients remain asymptomatic for long periods; however, once the complications develop, a progressive damage occurs whose outcome is death if the patient undergoes a definitive treatment that is the liver transplant (Pimpin L, 2018). Many patients die of the disease in their fifth or sixth decade of life (Poordad F.F, 2015). Symptoms and signs of liver disease may or may not appear in people who has cirrhosis. Most common symptoms and signs of cirrhosis include jaundice due to accumulation of bilirubin in the blood, fatigue, weakness, loss of appetite, itching and easy bruising from decreased production of blood clotting factors by the diseased liver (John P, 2019).The main causes of cirrhosis in the most developed countries are infection with the hepatitis C virus, alcohol abuse, and nonalcoholic steatohepatitis. Other etiologies include autoimmune hepatitis, Hepatitis B, primary sclerosing cholangitis, primary biliary cirrhosis, medications. (Schuppan 2008, Sivanathan et.al, 2014).
The main complications include gastrointestinal variceal hemorrhage, ascites, spontaneous bacterial peritonitis infection, hepatorenal syndrome, hepatic encephalopathy, and hepatocellular carcinoma (Poordad F.F, 2015, Nusrat S et.al, 2014). Ascites is one of the most common complications of cirrhosis and is associated with a rate of mortality per year of 20% (Rahimi, R.S, 2012). The word "Alcoholic" is only about a hundred years old (Steiner, 1974). Alcohol has a detrimental effect on the liver. It occurs after years of excessive alcohol intake in individual whose diets are less than optimal in a number of nutrients. It is estimated that daily 60g alcohol for men and 20g for women taken over prolonged period of time increases the risk of cirrhosis. Persistent intake of alcohol often leads
to deficient in proteins, carbohydrates and vitamins. These make the liver highly vulnerable to any infection or toxin. (Veer, 2007).

MATERIALS AND METHOD

The chapter deals with materials and method used for conducting the research study "A Study on Symptoms and Nutritional Knowledge among patients with Liver Cirrhosis in Shillong, Region" the procedure adopted to conduct the study has been described under the following headings.

3.1 Selection of study area

3.2 Selection of samples

3.3 Collection of demographic profile of the patients

3.4 Assessing of nutritional status

3.5 Assessing of symptoms, nutritional knowledge and dietary patterns

3.6 Statistical analysis

3.1 SELECTION OF STUDY AREA

The study was undertaken on patients with liver cirrhosis under private and government sector residing in Shillong, Meghalaya. The study was confined within the town area of Shillong which was further divided into four areas that's Civil Hospital, Nazareth Hospital, Bethany Hospital and Woodland Hospital. The study was selected on the premises of the following factor.

- Accessibility to the study area.
- Time constraint on the part of the researcher.

3.2 SELECTION OF SAMPLES

A group of 50 (n=50) male cirrhotic patients residing in Shillong, Meghalaya were randomly and purposively selected from 4 hospitals to obtain information about their signs and symptoms, nutritional knowledge and dietary patterns. The sample was selected considering the following factor:

- Willingness to participate
- Informed consents
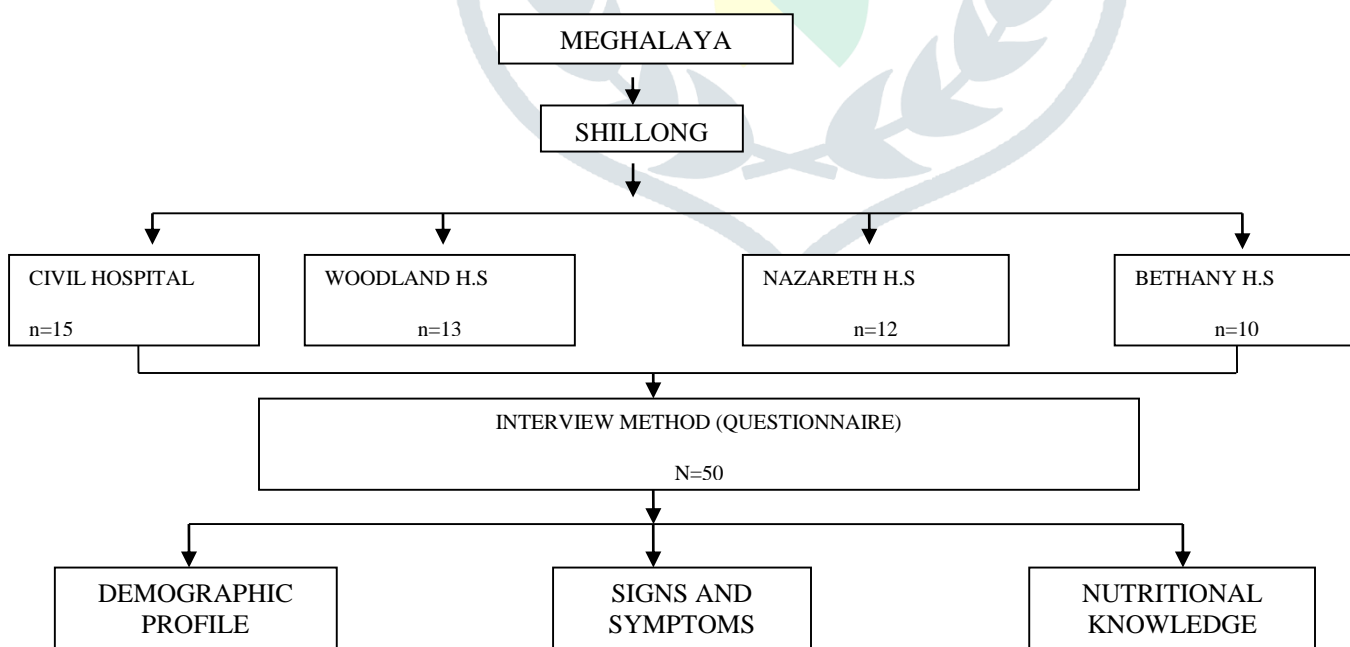
3.3 COLLECTION OF DEMOGRAPHIC PROFILE OF THE PATIENTS

Demographic profile of the selected respondent were obtained by using a standardized pretested questionnaire consisting of relevant questions and an observational study under the following heading including age, gender, educational qualification etc.

The information acquired was coded, tabulated and components have been subjected to statistical analysis for description of the symptoms, nutritional knowledge and dietary patterns of cirrhotic patients.

3.4 ASSESSING OF NUTRITIONAL STATUS

Nutritional anthropometry is the evaluation of human body at various ages and levels of nutritional status. Anthropometric measurement include height, weight, skin-fold thickness and circumferences etc., groups, including new born, children under age of five and adults (shrivastava et.al, 2016).

a) Height

According to Khrishna K, height is defined as the measurement of an individual from head to foot, taking into consideration. It influence by both genetic and environmental factor.Height are taken without shoes, the person were positioned with feet together and flat on the base plate with their head and back straight against the wall. The measurement were then taken once the correct position was achieved.

b) Weight

Body weight is the most widely used and the simplest reproducible anthropometric measurements for the evaluation of nutritional status of both men and women. Weight measurement are taken without shoes, minimal clothing, without holding any support etc.

c) Body mass index (BMI)

Body mass index (BMI) is a mathematical calculation that estimates a person's health status based on his height and weight (Khanna *et.al*, 2019). It is measurement of body fat based on height and weight that is applied to both adult men and women. BMI can be used to screen for weight categories that may lead to health problem of an individual but it is not diagnostic of the body fatness or health of an individual. BMI is presented as a person's weight in kilograms divided by the square of height in meters.

Table: 3.4 According to WHO Classification they are sub divided into the following groups.

WHO Classification	WHO cut off
Underweight	<18.5
Normal	18.5-24.9
Overweight	>25
Pre obese	25-29.9
Obese class I	30-34.9
Obese class II	35-39.9
Obese III	>40

3.5 ASSESSING OF SIGNS AND SYMPTOMS, NUTRITIONAL KNOWLEDGE AND DIETARY PATTERN

Signs and symptoms, nutritional knowledge and dietary patterns were measured by using symptoms, knowledge and dietary score. This first section was designed to evaluate signs and symptoms of the patients, the second section i.e. nutritional knowledge was designed to determine the understanding towards nutrition and the last section was designed to gain information about the dietary patterns followed by the patients. Each section contained 21,5 and 16 sets of statements with three possible answer i.e. "yes", "no", and "don't know". For evaluation, a score between 0-21 was used with which a correct answer is considered as one point while an incorrect answer or "don't know" is regarded as zero. A score of the individual which is less than 5 correct answer were considered as poor nutritional status, 5-10 was considered as median (average food safety knowledge and attitude) and 15 was considered as having a good level of food safety knowledge. The data were collected before and after providing nutritional education and symptoms, knowledge and dietary patterns were calculated and documented.

3.6 STATISTICAL ANALYSIS

All the data collected via different parameters were statistically analyzed and results obtained were tabulated. Mean and percentage were calculated by using Microsoft Office Excel 2010.

a) Mean

It is denoted by X and is the sum of all observation (Xi) divided by the total number of observation (n).

a) Mean score

$$\overline{x} = \frac{\sum Fx}{n}$$

$\overline{x}$= Mean score

∑Fx= Total score

n= Total number of sample

b) Percentage

$$\text{Percentage} = \frac{Number\ of\ response\ obtained}{Total\ number\ of\ respondents} \times 100$$

RESULT AND DISCUSSION

The purpose of the study entitled "A Study on Symptoms and Nutritional knowledge among patients with Liver Cirrhosis in Shillong, Region" is to assess the symptoms, nutritional knowledge and dietary patterns of cirrhotic patients among different hospitals was randomly and purposively selected in Shillong, Meghalaya. Three point of knowledge scale was developed and pre-tested to evaluate the symptoms, nutritional knowledge and dietary pattern of patients. The data was collected on coding sheets and statistically analyzed, the result obtained are presented and discussed under the following heading:
4.1 Demographic profile
4.2 Nutritional status
4.3 Symptoms, nutritional knowledge and dietary pattern score of the patients.

4.1 DEMOGRAPHIC PROFILE
Demographic profile outlines the complex profile or framework of the selected patients in Shillong. A total of 50 patients were surveyed from different location in Shillong that is Civil hospital, Nazareth hospital, Bethany hospital and Woodland hospital and various information were collected on different parameters including age, sex, education etc. Age and gender are an attribute status which frequently results in social differentiation which is evident in almost every human society.

Table 4.1 Percentage distribution of the respondent (patients) according to age, sex, education qualification, marital status and economic status.

PARAMETERS	NUMBER	PERCENTAGE
Age 20-30 31-40 41-50 51-60	15 18 15 2	30 36 30 4
Gender Male	50	
Educational qualification	No.	%
Illiterate Literate Up to SSLC/HSSLC Graduate Undergraduate	6 11 12 14 7	12 22 24 28 14
Economic status	No.	%
Lower <5000 Middle 5000-10000 High >10000	18 26 6	36 52 12
Marital status	No.	%

Married	22	44
Unmarried	24	48
Widowed	4	8

From the table 4.1 it shows that 36% of the male respondent belongs to the age group of 31-40 years, 30% belongs to the age group of 20-30 and 41-50 years while the rest 4% belongs to the age group of 51-60 years.

From the table above it reveals that 28% respondents were graduated, 24% were up to SSLC/HSSLC, 22% were literate, and 14% were literate and the rest 12% illiterate.

The table above depicts that 52% belongs to middle income group, 36% belongs to lower income group and 12% belongs to high income group.

From the table above it was evident that 48% were unmarried, while 44% were married and 8% were widowed.

4.2 NUTRITIONAL STATUS

Nutritional status is the physical state of an individual, which sequel from the correlation between nutrient demand and from the ability to assimilate, absorb and utilise these nutrients. The utilization of adequate amount of food both in terms of quantity and quality which is the key determinant, which has remarkable impact on the nutritional status. Nutritional status is measured for individuals as well as for population. For adults, general adequacy is assessed by measuring weight and height, the result is commonly expressed as the body mass index, the ratio of weight(kg) to height(cm) importance in regards to normal nutrition screening allow the detection of individual at risk of malnutrition. Malnutrition is caused by imbalanced food intake and faulty utilization of nutrients.

The role of diet is important at the onset of many disease for assessing the nutritional status of every individual, family and community for public health.

Assessing of nutritional status involves two methods i.e. direct (deals with individuals measurements depending on the objective criteria) and indirect (use community health guide which reflects nutritional influences). These methods include anthropometric measurements, biochemical, clinical and dietary assessment.

Anthropometric measurements are standardized measurements of the size, shape and composition of the human body.

Table 4.2 Percentage distribution of the respondents (patients) according to their height, weight and BMI.

PARAMETERS	NUMBER	PERCENTAGE
Height		
140-150	23	46
151-160	21	42
161-170	5	10
171-180	1	2
Weight	No.	%
30-40	5	10
41-50	17	34
51-60	13	26
61-70	11	22
71-80	3	6
81-90	1	2
BMI	No.	%
Severely underweight	4	8
Underweight	20	40
Normal	12	24
Overweight	9	18
Obese	5	10

Table/figure 4.2 shows that 46% of the male respondent's height range from 140-150cm, 42% ranged from 151-160cm, 10% ranged from 161-170cm, and the rest 2% ranged from 171-180cm.

From the table above it can seen that 34% of the male respondents weighs 41-50kg, 26%

Weighs 51-60kg, 22% weighs 61-70kg, 10% weighs 30-40kg, 6% weighs 71-80kg, while the rest 2% weighs 81-90kg.

It is evident from the table/figure 4.2 that 40% were underweight, 24% had a normal BMI, 18% were overweight, and 10% were obese while the rest 8% were severely underweight which was calculated according to their BMI.

4.3 SYMPTOMS, NUTRITIONAL KNOWLEDGE AND DIETARY PATTERN SCORE OF THE PATIENTS.
4.3.1 Knowledge based questions
a) Have you ever heard about cirrhosis

PARAMETERS	NUMBER	PERCENTAGE
Yes	35	70
No	15	30

From the table 4.3 it can be seen that 70% had the knowledge about cirrhosis whereas 30% didn't knew about this complication
b) Which of the following can lead to cirrhosis

PARAMETERS	NUMBER	PERCENTAGE
Alcoholic consumption	34	68
Fatty liver	9	18
Hepatitis B/hepatitis C	2	4
Others	5	10

From the table above it is evident that 68% of the respondents think that alcoholic consumption can lead to cirrhosis, 18% thinks that it may be due to fatty liver, 10% thinks that it might be due to other causes while the other 4% thinks that it may be due to hepatitis B/ hepatitis C.

c) Which of these conditions can cause fatty liver

PARAMETERS	NUMBER	PERCENTAGE
Obesity	5	10
Diabetes	1	2
High cholesterol	6	12
Excess alcohol intake	30	60
Lack of exercise	3	6
Others	5	10

From the table above it can be observed that 60% of the respondents thinks that excess alcohol intake can cause fatty liver, 12% thinks that it can be due to high cholesterol intake, 10% of the respondents thinks that it may be due to obesity, while the other 10% thinks that it might be due to other causes, 6% thinks that it can be due lack of exercise and the other 2% thinks that it may be due diabetes.
d) Is there any treatment for fatty liver

PARAMETERS	NUMBER	PERCENTAGE
Yes	29	58
No	1	2
Don't know	20	40

From the table above it can be seen that 58% of the respondents said that fatty liver can be treated, 40% didn't knew, while the rest 2% said that cannot be treated.
e) Do you think fatty liver can occur in non-alcoholic

PARAMETERS	NUMBER	PERCENTAGE
Yes	25	50
No	4	8
Don't know	21	42

It is evident from the table above that 50% of the respondents thinks that fatty liver can occur in non-alcoholics too, 42% didn't have the knowledge about it, and 8% thinks that it can't occur in non-alcoholics.

f) Do you think fatty liver can be cured in early stage

PARAMETERS	NUMBER	PERCENTAGE
Yes	26	52
No	2	4
Don't know	22	44

From the table above it shows that 52% of the respondents thinks that fatty liver can be cured in its early stage, 44% didn't knew about it, 4% thinks that fatty cannot be cured.
4.3.2 Health related problems (Signs and Symptoms)
Table 4.3.2(a) Do you have a family history of liver disease

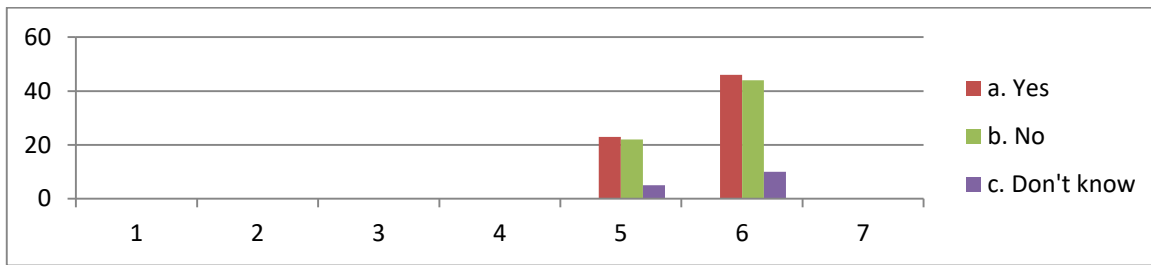| PARAMETERS	NUMBER	PERCENTAGE
Yes	23	46
No	22	44
Don't know	5	10

Figure 4.3.2(b) Family history of Liver disease
It is evident from the table above that 46% of the respondents had a family history of liver disease, 44% didn't have any history liver disease, and the rest 10% had no idea.

Table 4.3.2(b) Do you experience loss of appetite
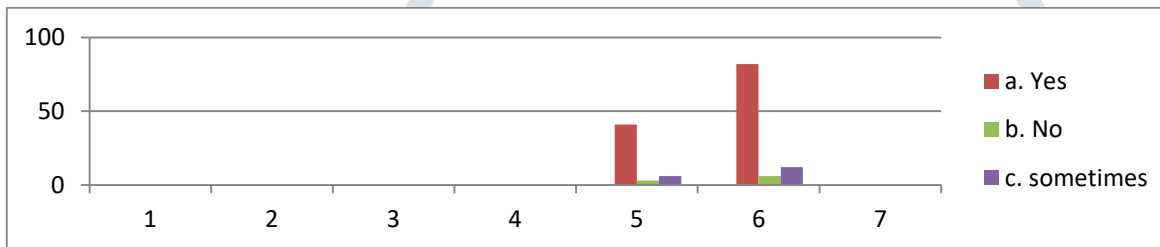
PARAMETERS	NUMBER	PERCENTAGE
Yes	41	82
No	3	6
Sometimes	6	12

Figure 4.3.2(c) Parameters of experiencing loss of appetite
From the table above it is evident that 82% of the respondents experiences loss of appetite, 12% experience sometimes, and 6% never face such kinds of experiences.

Table 4.3.2(c) when did you first diagnose liver disease

PARAMETERS	NUMBER	PERCENTAGE
One week before	14	28
One month before	20	40
After a year	16	32
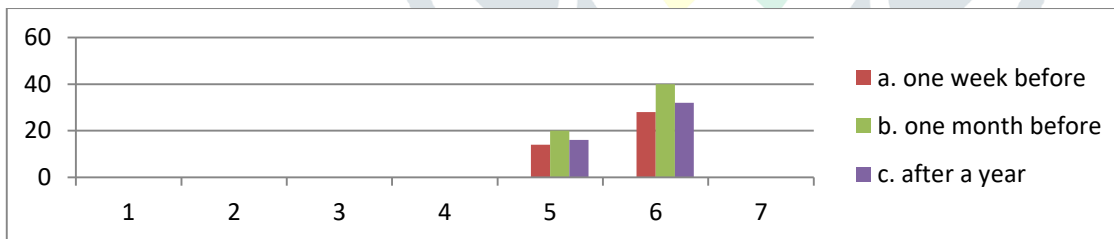
Figure 4.3.2(d) Diagnosis of liver disease
From the table above it can be observed that 40% diagnosed liver disease one month before, 32 % developed liver disease after a year and 28% developed it one week before.

Table 4.3.2(d) did you notice any body changes/signs or symptoms

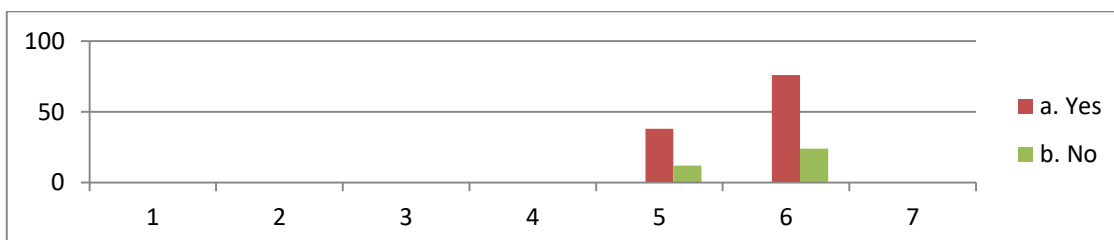| PARAMETERS	NUMBER	PERCENTAGE
Yes	38	76
No	12	24

Figure 4.3.2(e) Physical changes throughout the disease process

From the table above it shows that 76% observed some body changes, while the other 24% didn't.

Table 4.3.2(e) what were those signs

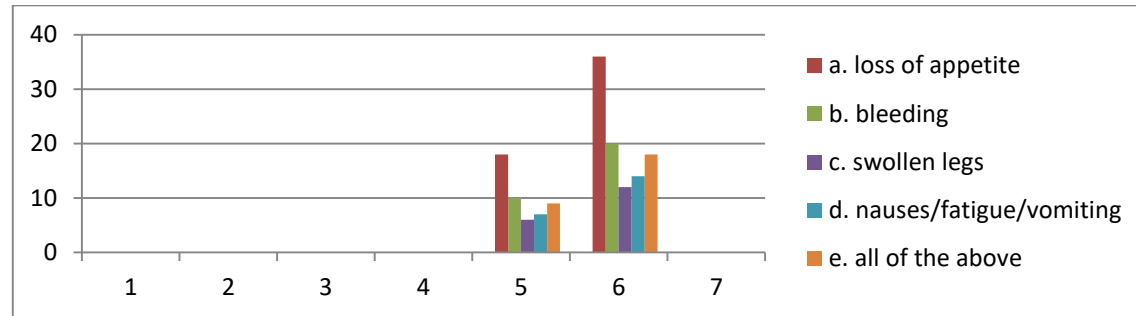| PARAMETERS	NUMBER	PERCENTAGE
Loss of appetite	18	36
Bleeding	10	20
Swollen legs	6	12
Nausea/fatigue/vomiting	7	14
All of the above	9	18

Figure 4.3.2 (f) Levels of clinical presentation

It is evident from the table above that 36% experiences loss of appetite, 20% experiences bleeding, 18% experience almost every signs, 14% experiences nausea and fatigue, and 12% experiences swollen legs.

4.3.2(f) Have you even been on any medication

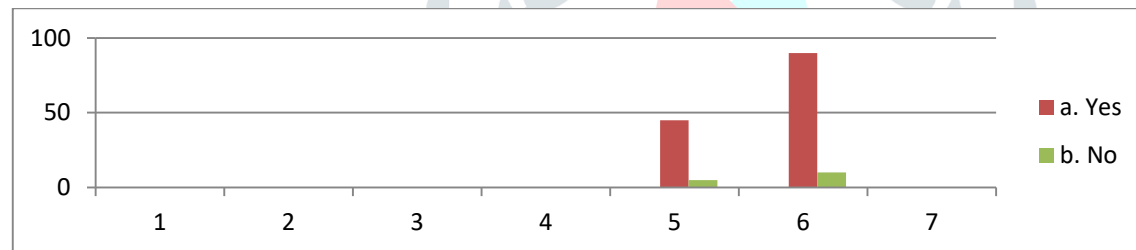| PARAMETERS	NUMBERS	PERCENTAGE
Yes	45	90
No	5	10

Figure 4.3.2(g) Number of patients who have been on medication

From the table above it shows that 90% of the respondents have been on medications, whereas 10% haven't been in any kinds of medications.

Table 4.3.3(g) what kind of medications

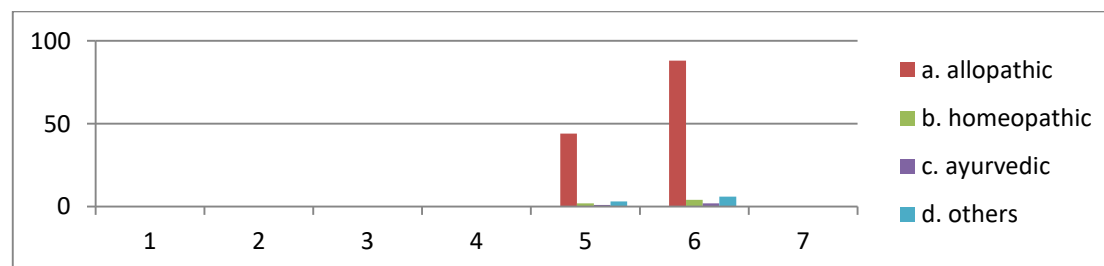| PARAMETERS	NUMBER	PERCENTAGE
Allopathic	44	88
Homeopathic	2	4
Ayurvedic	1	2
Others	3	6

Figure 4.3.2(h) List of different kinds of medications

From the above table it can be observed that 88% were on allopathic medications, 6% were on different kind of medications, whereas 4% were on homeopathic medications, and the rest 2% were on ayurvedic medications.

Table 4.3.2(h) do you consume alcohol
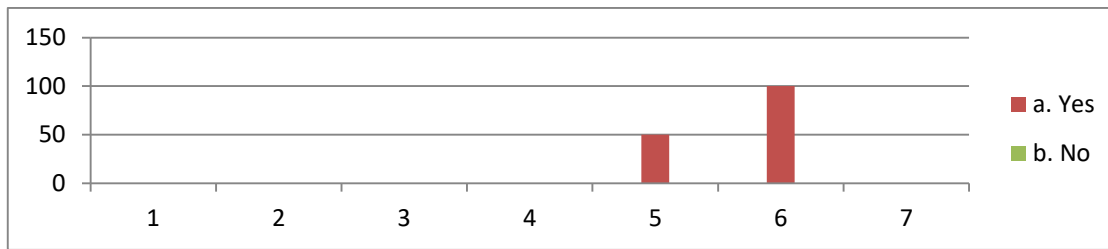
PARAMETERS	NUMBER	PERCENTAGE
Yes	50	100
No	0	0

Figure 4.3.2(i) Levels of alcohol consumption

From the table above it shows that 100% of the respondents consume alcohol.

Table 4.3.2(i) How many pegs do you consume

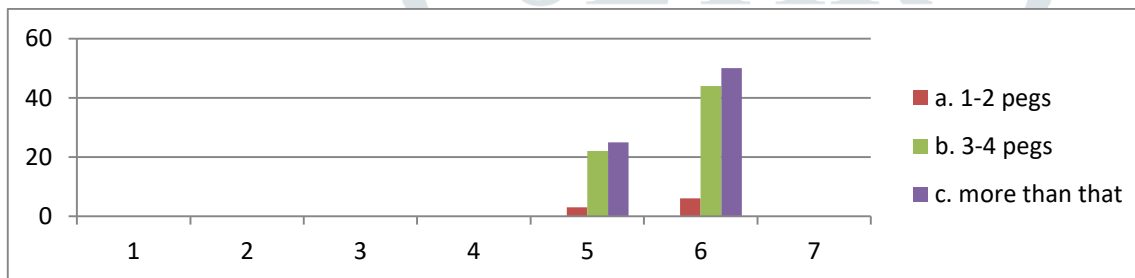| PARAMETERS	NUMBER	PERCENTAGE
1-2 pegs	3	6
3-4 pegs	22	44
More than that	25	50

Figure 4.3.2(j) Degree of alcohol consumption

It can be observed from the table that 50% consume excess alcohol, 44% consume 3-4 pegs a day, while the rest 6% consume only 1-2 pegs per day.

Table 4.3.2(j) Do you experience abdominal pain

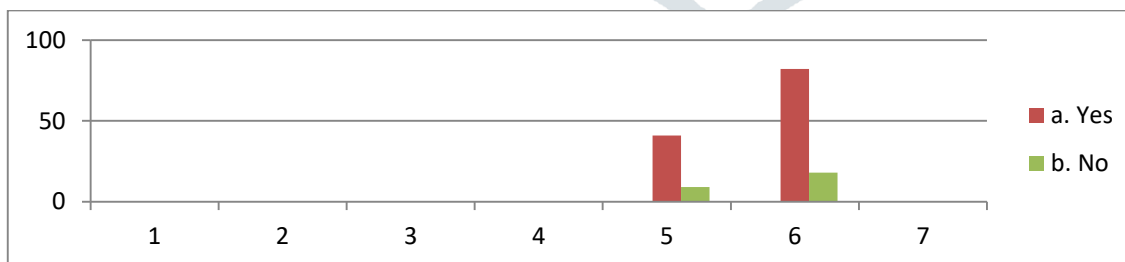| PARAMETERS	NUMBER	PERCENTAGE
Yes	41	82
No	9	18

Figure 4.3.2 (k) Levels of experiencing abdominal pain

From the above table it can be seen that 82% of the respondents experiences abdominal pain whereas 18% don't have such kinds of complains.

Table 4.3.2(k) Do you smoke everyday

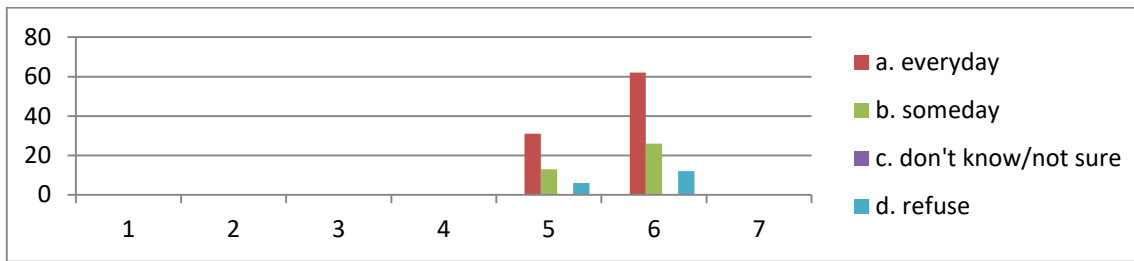| PARAMETERS	NUMBER	PERCENTAGE
Everyday	31	61
Someday	13	26
Don't know/not sure	0	0
Refuse	6	12

Figure 4.3.2(l) Smoking habit

It is evident from the table above that 61% of the respondent's smokes cigarette every day, 26% smokes someday, whereas 12% refuse to smoke.

Table 4.3.2(l) Have you ever had jaundice

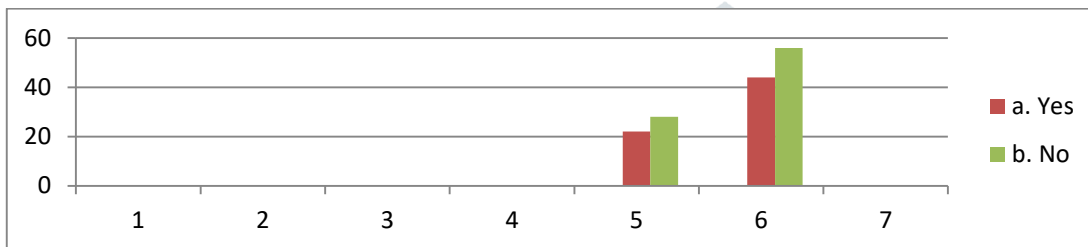| PARAMETERS	NUMBER	PERCENTAGE
Yes	22	44
No	28	56

Figure 4.3.2(m) Patients history who had jaundice

From the table above it can be said that 56% of the respondents never had jaundice, whereas 44% had jaundice.

.**Table 4.3.2(m)** Do you have fever at times

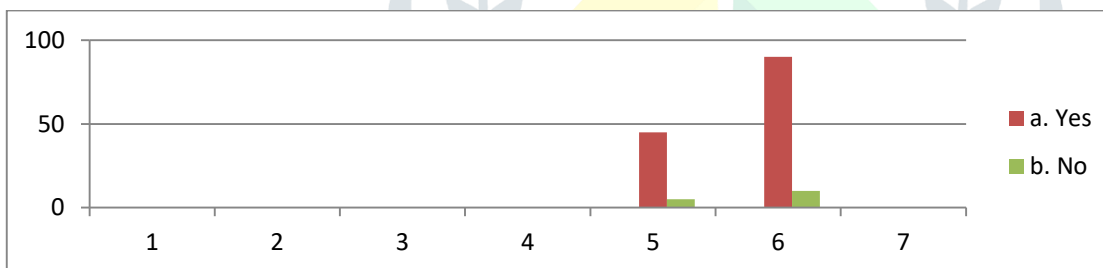| PARAMETERS	NUMBER	PERCENTAGE
Yes	45	90
No	5	10

Figure 4.3.2(n) Percentage of patients having fever

From the table above it can be seen that 90% of the respondents experiences fever, while 10% don't face such kind of experiences.

Table 4.3.2(n) what is the colour of your urine

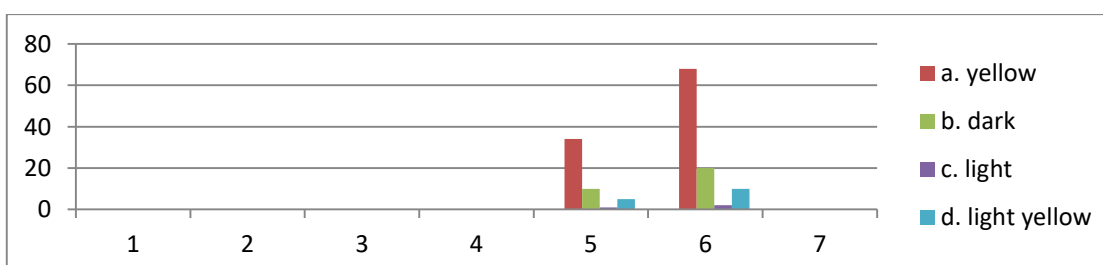| PARAMETERS	NUMBER	PERCENTAGE
Yellow	34	68
Dark	10	20
Light	1	2
Light yellow	5	10

Figure 4.3.2(o) Variations of urine colour

It is evident from the table above that 68% of the respondents urine output was yellow in colour, 20% had darker urine colour, 10% had light yellow urine output and 2% had lighter urine output.

4.3.3 Nutrition related questions

Table 4.3.3(a) Do you have your breakfast everyday

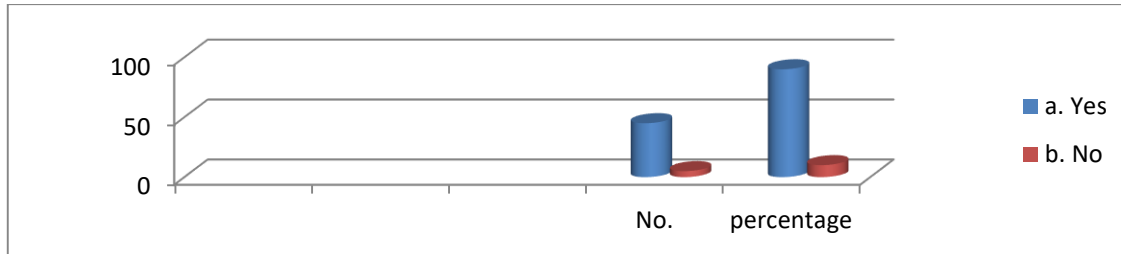| VARIABLES	NUMBER	PERCENTAGE
Yes	45	90
No	5	10

Figure 4.3.3(b) Percentage of patients who consume breakfast everyday

From the table above it can be observed that 90% of the respondents have their breakfast every day, while 10% refuse having their breakfast.

Table 4.3.3(b) Do you consume diary product

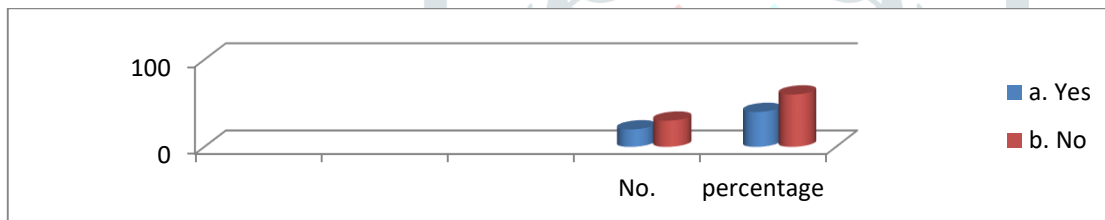| VARIABLE	NUMBER	PERCENTAGE
Yes	20	40
No	30	60

Figure 4.3.3(c) Percentage of patients who consume dairy products

From the table above it can be seen that 60% of the respondents do not consume dairy products, whereas 40% consume dairy products.

Table 4.3.3(c) Do you eat fresh fish at least 1-2 times per week

VARIABLES	NUMBER	PERCENTAGE
Yes	31	62
No	19	38

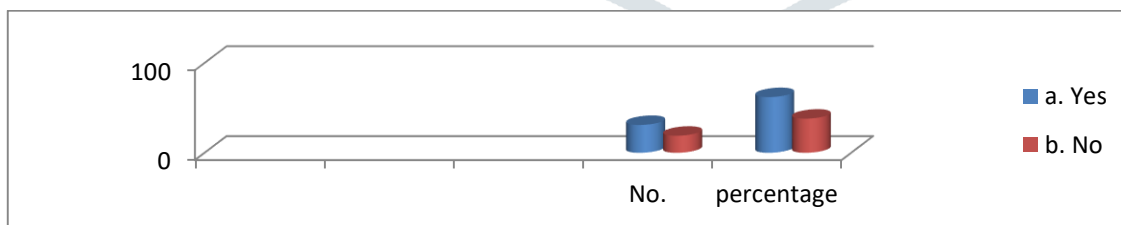**Figure 4.3.3 (d) Percentage of patients consuming sea products**

It can be observed from the table above that 62% of the respondents consume fish at least 1-2 per week, while 38% do not consume fish.

Table 4.3.3(d) Do you consume packaged snack, cakes, pastries or sweetened drinks

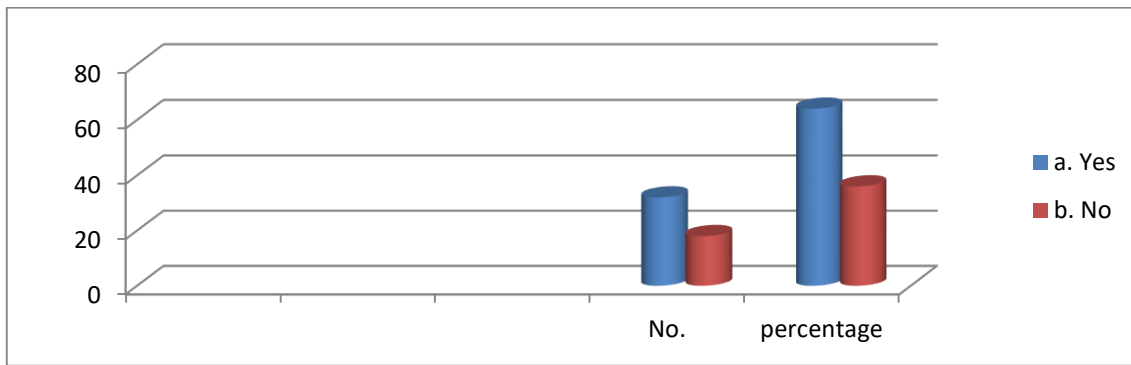| VARIABLES	NUMBER	PERCENTAGE
Yes	32	64
No	18	36

Figure 4.3.3(e) Percentage of patients consuming packaged snacks
From the table above it is evident that 64% consumed packaged snacks, whereas 36% do not consume.

Table 4.3.3(e) Do you regularly eat 2-3 portion of fruits and vegetables per day

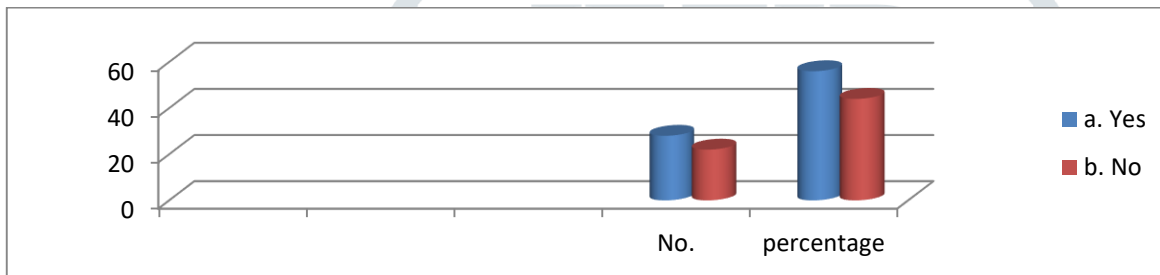| VARIABLES	NUMBER	PERCENTAGE
Yes	28	56
No	22	44

Figure 4.3.3(f) Percentage of patient consuming fruits and vegetables
The tables above explains that 56% of the respondents consume 2-3 portions of fruits and vegetables per day, while 44% do not consume fruits or vegetables.

4.3.4 FOOD FREQUENCY TABLE

Food items	Daily		Twice a week		Thrice a week		Occasionally		Rarely	
	No.	%	No.	%	No.	%	No.	%	No.	%
Rice	42	84	7	14	1	2				
Wheat	10	20	15	30	3	6	16	32	6	12
Oatmeal	2	4	7	14	1	2	9	18	31	62
Lentil	29	58	15	30	1	2	5	10		
Horse gram	1	2	4	8	5	10	19	38	21	42
Green leafy vegetable	9	18	15	30	1	2	15	30	10	20
Other vegetable	15	30	19	38	6	12	8	16	2	4
Fruits	1	2	5	10	3	6	19	38	22	44
Condiments and spices	26	52	12	24	5	10	4	8	3	6
Fishes & sea foods	2	4	23	46	5	10	11	22	9	18
Meat products	7	14	16	32	5	10	13	26	9	18
Egg	5	10	10	20	4	8	19	38	12	24

Milk products	6	12	11	22	2	4	15	30	16	32
Butter	10	20	6	12	4	8	10	20	20	30
Ghee	2	4	12	24	4	8	14	28	18	36
Sugar	39	78	7	14	1	2	2	4	1	2

From the table 4.3.4 it shows that 84% of the respondents consumed rice daily, 14% consumed twice a week, whereas the rest 2% consumed thrice a week.

As per the table 4.3.4 it is evident that 20% of the respondents consumed wheat daily, 30% consume twice a week, 6% consume thrice a week, 32% consume occasionally whereas 12% consume wheat rarely.

The table above reveals that only 4% of the respondents consumes oatmeal daily, 14% consume twice a week, 2% consume thrice a week, 18% consumes occasionally, while most of the respondents with 62% consumes oatmeal rarely.

From the table above it can be seen that 58% consumes dhal daily, 30% consume twice a week, 2% consumes thrice a week, and 10% consumes occasionally.

It can be observed in the table 4.3.4 that only 2% of the respondents consume horse-gram daily, 8% consume twice a week, 10% consumes thrice a week, 38% consumes occasionally while 42% consumes rarely.

From the table 4.3.4 it is evident that only 18% of the respondents consumed green leafy vegetables daily, 30% consumed twice a week, 2% consumed thrice a week, 30% consumed occasionally, 20% consumed rarely.

The table above depicts that 30% of the respondents consumed other vegetables daily, 38% consumed twice a week, 12% consumed thrice a week, 16% consumed occasionally, and 4% consumed rarely.

It is evident from the table above that only 2% of the respondents consumed fruits daily, 10% consumed twice a week, 6% consumed thrice a week, 38% consumed occasionally, and 44% consumed rarely.

From the table 4.3.4 it can be seen that 52% of the respondents consumed spices daily, 24% consumed twice a week, 10% consumed thrice a week, 8% consumed occasionally and 6% consumed rarely.

The table above depicts that only 4% of the respondents consumed fish daily, 46% consumed it twice a week, 10% consumed thrice a week, 22% consumed occasionally, 18% consumed rarely.

It can be observed from the table 4.3.4 that 14% of the respondents consumed meat daily, 32% consumed twice a week, 10% consumed thrice a week, 26% consumed occasionally, whereas 18% consumed rarely.

From the table above it can be seen that only 10% of the respondent consumed eggs daily, 20% consumed twice a week, 8% consumed thrice a week, 38% consumed occasionally and 24% consumed rarely.

It is evident from the table above that only 12% of the respondents consumed milk daily, 22% consumed twice a week, 4% consumed thrice a week, 30% consumed occasionally and 32% consumed rarely.

From the above table it can be said that 20% of the respondents consumed butter daily, 12% consumed twice a week, 8% consumed it thrice a week, 20% consumed occasionally, and 40% consumed rarely.

The table above reveals that only 4% of the respondents consumed ghee daily, 24% consumed twice a week, 8% consumed thrice a week, 28% consumed occasionally, and 36% consumed rarely.

It is evident from the table above that 78% of the respondents consumed sugar daily, 14% consumed twice a week, 2% consumed thrice a week, 4% consumed occasionally, and 2% consumed it rarely.

SUMMARY AND CONCLUSION

Nutrition plays an important role in every individual's life which determines the health status and well being. Liver is the largest organ in a human body it also plays an important role in bile production, absorbing and metabolizing bilirubin, supporting blood clots, fat metabolization, metabolizing carbohydrates, storing vitamins and minerals, helps metabolize protein etc. Since liver cirrhosis is a complication of various liver diseases which is caused by alcohol abuse, viruses, toxins, infections like hepatitis B or hepatitis C etc.

The present study was conducted to assess the symptoms and nutritional knowledge among patients with liver cirrhosis. From the study it was found that most of the patients experience loss of appetite depending upon the severity of the symptoms which ranged from moderate to high level. In addition most symptoms remain asymptomatic for week, months and even years which can also be said that some patients noticed different kinds of body changes which had a great impact on the immune system causing them to bleed, vomit, feeling fatigue, have swollen legs and experience abdominal pain. Majority of the patients were alcoholics who possess a bad habit of consuming excess alcohol than the normal intake. Some patient also acquired jaundice whereas some acquired due to their family history. In most of the cases patients also experience fever and their urine output is mostly yellow in colour.

While conducting the study it was found that some patients skip their breakfast which is the most important meal of the day. Most of them were underweight and malnourished. However from the study it was found that majority of the patients had little or no knowledge about nutrition and the dietary patterns which is the main reason for poor nutritional status with lower or higher BMI levels due to the imbalance of different nutrients which are the key factors of boosting the immunity.

It can be conclude that the present study which was done on symptoms and nutritional knowledge among patients with liver cirrhosis showed a negative impact on the health of the patients due to the effect of prolong alcohol intake, poor nutritional status, unhealthy dietary habits. From the data presented in the current study it was found that most of the patients had an average level of knowledge, poor health conditions and underweight due low levels of lean body mass. Hence management of cirrhosis at an early stage is important by incorporating a balance diet, physical activity, and medications.

RECOMMENDATION

During the process of this study, some constrains had been faced. Based on those constrains following recommendations are determined:

- More research needs to be done on this topic to find out the underlying causes that needs to be tackled up.
- Emphasis should be laid more on health awareness which will enable and improve the knowledge of every individual towards their dietary goals.
- Emphasizing the nutritional status to avoid poor or low BMI levels.

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