

KNOWLEDGE, ATTITUDE, AND AWARENESS OF WARNING SIGNS AND RISK FACTOR OF LIVER CIRRHOSIS AND DIABETES MELLITUS AMONG SECOND YEAR DENTAL STUDENTS - A SURVEY

Raja kumar¹, Dr.R.Priyadharshini^{2*}, Dr. Palati Sinduja³

¹Department of Pathology, Saveetha Dental College and hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, 162, Poonamalle high road, Velapanchavadi Chennai - 600077

^{2*}Assistant Professor, Department of Pathology, Saveetha Dental College and hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, 162, Poonamalle high road, Velapanchavadi Chennai - 600077

³Assistant Professor, Department of Pathology, Saveetha Dental College and hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, 162, Poonamalle high road, Velapanchavadi Chennai - 600077

Abstract

Background: Cirrhosis of the liver is otherwise known as liver cirrhosis or hepatic cirrhosis is the condition when our liver is damaged for the long term. Liver cirrhosis contributes to 23.59% of mortality in the world and it is also ranked 27th as a major cause of death in the world. The most common liver cirrhosis is pathogenic and nonpathogenic. Like more than 30 % of people are having liver cirrhosis with diabetes mellitus (DM). Most liver cirrhosis diseases can lead to diabetes which causes hepatogenous diabetes (HD). Our study aims to create awareness about the risk factor of liver cirrhosis and diabetes mellitus among second-year dental students.

Method: The survey on awareness of risk factors of liver cirrhosis and diabetes mellitus among the second-year dental students was conducted using a google form link. This study was conducted among 100 second-year dental students. A questionnaire related to liver cirrhosis was collected with options related to the symptoms, causes, treatments, and outcomes of liver cirrhosis and diabetes. .SPSS version 21.0 (IBM Inc, Armonk, NY, USA). Pie charts and Bar diagrams were used to represent output variables.

Result : The graph depicted that the main reason due to liver cirrhosis is 51.43 % said liver failure, 31.43 % said liver problem, 11.43 % said all of these, 5.71 % said liver disease. It shows the survival rate of persons suffering from liver cirrhosis , 71.43 % said 60 % -90 % , 20.00 % said 10 % -30 % , 8.57 % said 30 % - 60 % . We have seen the association between gender and awareness of liver cirrhosis

Conclusion : We can conclude that most of the students are aware of diabetes mellitus and how it can lead to liver cirrhosis. Reason: They need to be educated about the risk factors and complications of liver cirrhosis. Awareness camps, social media, workshops, seminars should be conducted to create more awareness on how diabetes mellitus can lead to liver cirrhosis.

KEYWORDS: Liver cirrhosis, awareness, necrosis, online survey, diabetes mellitus, Innovative technique, dental education

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INTRODUCTION

Cirrhosis otherwise called as liver cirrhosis or hepatic cirrhosis is the condition where our liver stops functioning because of long-term damage. India like country we can see most cases of chronic liver cirrhosis (CLDs) (Sharma, 2016). Multiple etiological factors lead to a similar clinical pathology syndrome in CLDs, although the rates of progression and clinical course may be different from person to person (Mukherjee *et al.*, 2017). Liver cirrhosis contributes to 23.59% of mortality in the world and ranked 27th as a major death in the world (Grant, 1988).

In India, alcohol consumption is more when we compare with the other countries so that in Indian we can see many cases of alcoholic liver cirrhosis. Worldwide we can see 57 % , liver cirrhosis is mainly due to HBV (30 %) and HCV (27 %) in 2006 (Wang *et al.*, 2014). Liver cirrhosis is pathogenic and non-pathogenic. It was found that more than 30% of people are a mainly having liver cirrhosis are also affected by diabetes mellitus . A study done by Garvia et al found that 96 % of patients are suffering from glucose intolerance and 30 % may be in clinical diabetes. Currently, diabetes mellitus mainly a risk factor for obese patients which leads liver cirrhosis (Garcia-Compean *et al.*, 2009).

Mainly liver play a major role in nutrients like protein, fats, and carbohydrates. It is not mainly a single disease but we can be categorised as clinical stages related to prognosis. Worldwide it is increasing from 676,000 in 1980 it increase to more than 1 million in 2010 . Hepatogenous diabetes is mainly an acquired condition that is mainly impaired by insulin and clearance and also due to pancreatic B cell dysfunction in liver (Kumar, 2018).

Previous literature mainly explained about the hepatocellular carcinoma which can also lead to (Tarao *et al.*, 2019) (Priya, Jainu and Mohan, 2018), complication (Kim *et al.*, 2020) like, chronic hepatitis play a major role in surveillance a patients (Tsoufias, 2019), alcohol mainly effect on liver and which can leads to cirrhosis (Chrystoja *et al.*, 2020).

The main motive of my research is to educate the general public about the risk factor and complication of cirrhosis. This type of research is required to make people awareness on the factor affecting the human liver for a long period. Through this research, people may gain knowledge about the signs of cirrhosis in the first stage itself. So that treatment can be planned before the disease progresses. Our team has extensive knowledge and research experience that has translate into high quality publications (Rao and Kumar, no date; Krishnan and Lakshmi, 2013; Devi and Gnanavel, 2014; Varghese *et al.*, 2015; Samuel *et al.*, 2019)(Kamisetty *et al.*, 2015; Patturaja and Pradeep, 2016; Felicita, 2017; Jain, 2017; Kumar, 2017)Our study aims to create awareness about the risk factor of liver cirrhosis and diabetes mellitus among second-year dental students.

MATERIALS AND METHODS

A prospective observational study was done. The study was ethically approved by the Scientific Review Board, Saveetha Dental College, Chennai. [Ethical approval number: IHEC/SDC/UG-1926/21/91]. The number of participants involved in this study is 100 college students. We used a simple random sampling method.

Study design and data collection

A self-designed questionnaire was prepared with the guidance of general physicians for this survey study. The reliability of the contents of the questionnaire was verified with study articles. The questionnaire complied with both the symptoms, causes, signs of both diabetes and liver cirrhosis. The questionnaire was forwarded to the second-year dental students through the google form link as data collection software. Subjects were given a week's time to complete the survey. The list of output variables included the demographic information and the knowledge, attitude, and awareness of warning signs and risk factors of liver cirrhosis and diabetes mellitus among second-year dental students, and the results were recorded in google excel sheets.SPSS version 21.0 (IBM Inc, Armonk, NY, USA). Pie charts and Bar diagrams were used to represent output variables.

RESULT

In the current study, the questionnaires were prepared and circulated among 100 second-year dental students through google forms link. [Figure 1] It shows the gender of the students 62.86 % are male and 37.14 % are female. [Figure 2] graph depicted that reason due to cirrhosis is 51.43 % said liver failure, 31.43 % said liver problem, 11.43 % said that all of these will be correct , 5.71 % said liver disease. [Figure 3] the figure shows symptoms of liver cirrhosis, 68.57 % had Yellow discoloration mainly in skin and eyes, 22.86 % had Itchy skin, 5.71 % had swelling in our legs, 2.86 % had weight loss. [Figure 4] It depicted different types of liver cirrhosis, 31 % had agreed that cardiac cirrhosis, 37.14 % agreed that it was alcoholic cirrhosis, 22.86 % agreed that biliary cirrhosis, 8.57 % agreed with post necrotic cirrhosis.

[Figure 5] Graph depicted risk factors of diabetes mellitus, 34.29 % agreed with Heart attack, 34.29 % agreed liver failure , 28.57 % due to Immunity loss, 2.86 % agreed due to kidney failure. [Figure 6] It shows awareness on the diagnosis of liver cirrhosis, 45.71 % agreed that it was needle biopsy, 34.29 % agreed CT scan , 17.14 % said MRI, 2.86 % said ultrasound.

[Figure 7] 34.29 % participants agreed that liver transplant, 31.43 % low sodium diet, 31.43 % said to avoid alcohol, 2.86 % said antibiotic. We have seen the association between gender and awareness of liver cirrhosis [Figure 8], treatment of liver cirrhosis [Figure 9], diagnosis of liver cirrhosis [Figure 10]

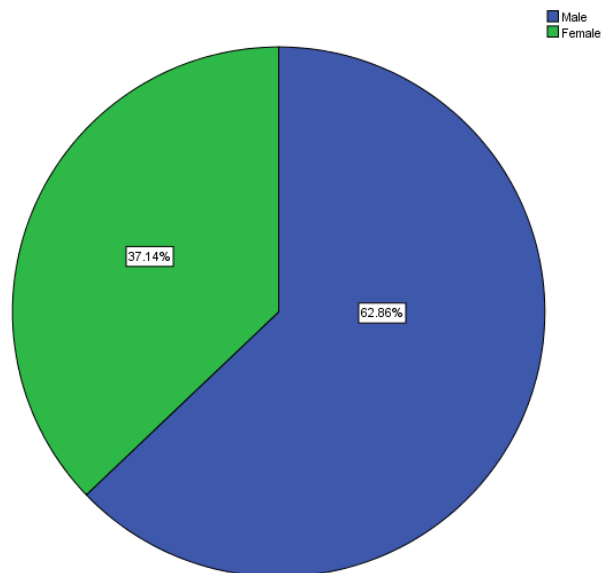


Figure 1 : Pie chart representing distribution of gender of the participants. 62.86 % - male (blue), 37.14 % - female (green)

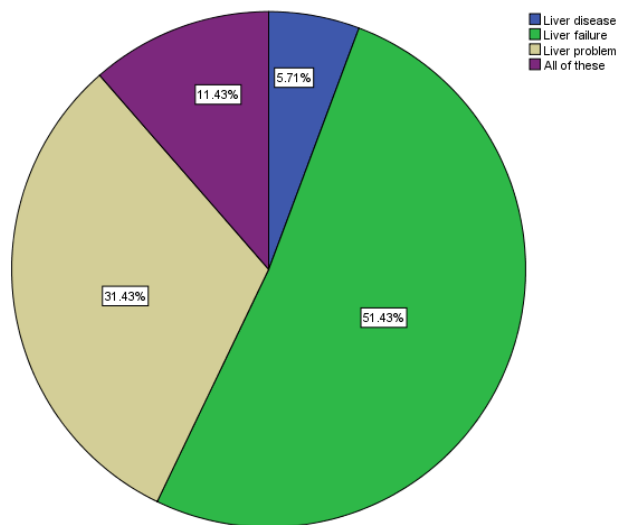


Figure 2 : Pie chart representing percentage distribution of responses about knowledge on liver cirrhosis, 51.43 % - liver failure (green), 31.43 % - liver problem (grey), 11.43 % - all of these (violet), 5.71 % - liver disease (blue) .

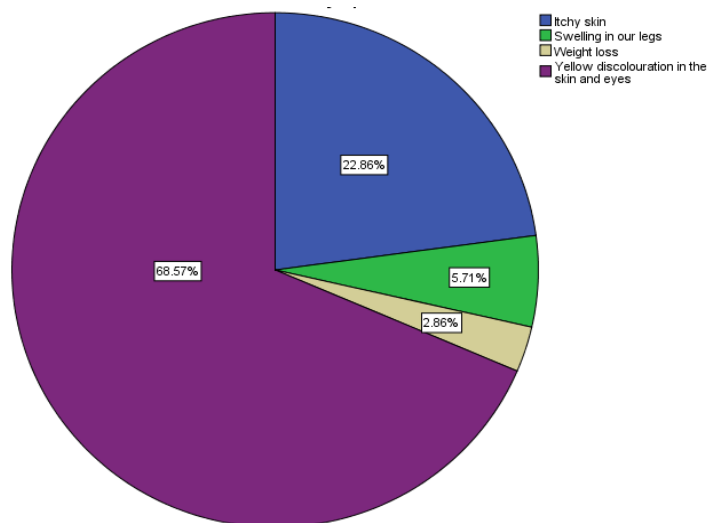


Figure 3 : Pie chart representing percentage distribution of responses about the awareness of symptoms of liver cirrhosis. 68.57 % - Yellow discolouration in the skin and eyes (Violet), 22.86 % - Itchy skin (blue), 5.71 % - swelling in our legs (green), 2.86 % - weight loss (grey) .

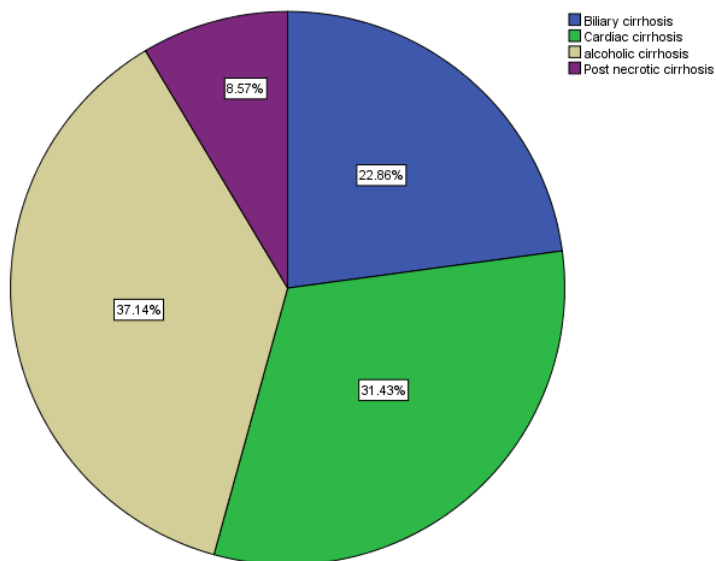


Figure 4 : Pie chart representing distribution of responses about awareness on different types of liver cirrhosis. 31 % - cardiac cirrhosis (green), 37.14 % - alcoholic cirrhosis (grey), 22.86 % - biliary cirrhosis (blue), 8.57 % - post necrotic cirrhosis (violet) .

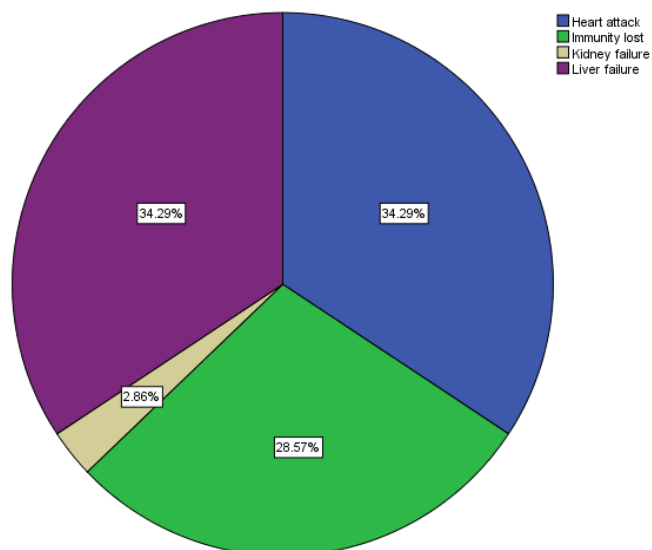


Figure 5 : Pie chart representing percentage distribution of responses about the risk factor of diabetes mellitus, 34.29 % - Heart attack (blue), 34.29 % - liver failure (violet), 28.57 % - Immunity lost (green), 2.86 % - kidney failure (grey).

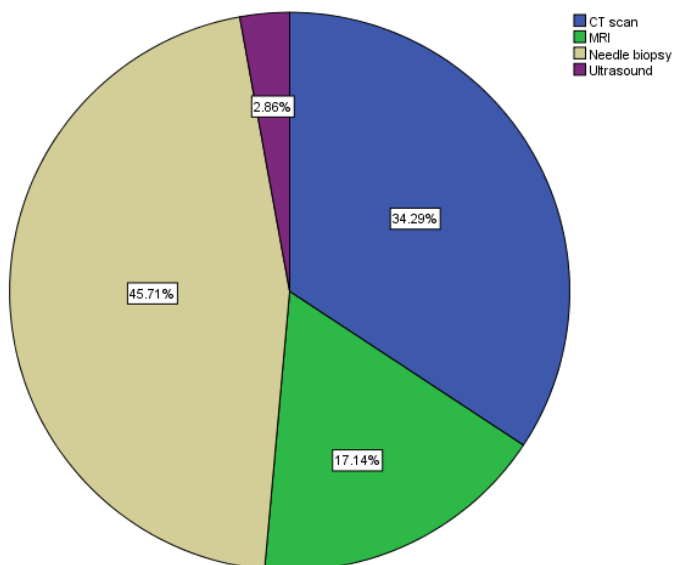


Figure 6 : Pie chart representing percentage distribution of responses about awareness on diagnosis of liver cirrhosis, 45.71 % - needle biopsy (grey), 34.29 % CT scan (blue), 17.14 % - MRI (green), 2.86 % - ultrasound (violet)

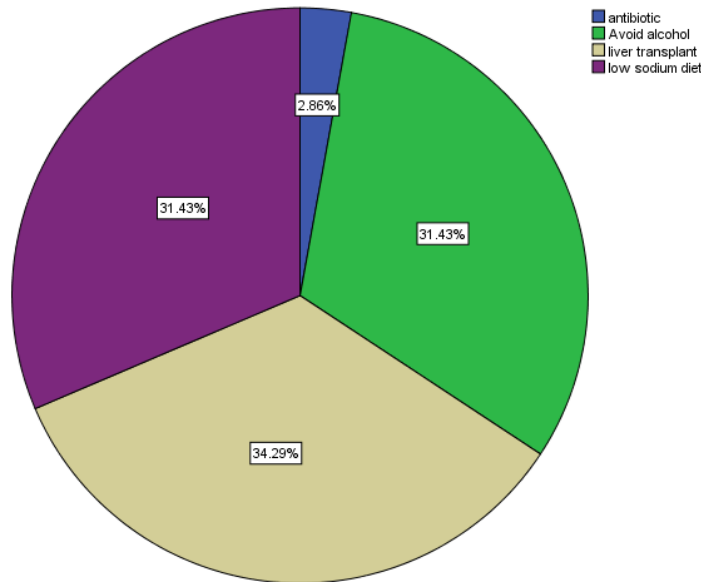


Figure 7 : Pie chart representing percentage distribution of responses about awareness on treatment modalities of liver cirrhosis, 34.29 % - liver transplant (grey), 31.43 % - low sodium diet (violet), 31,43 % - avoid alcohol (green), 2.86 % - antibiotic (blue) .

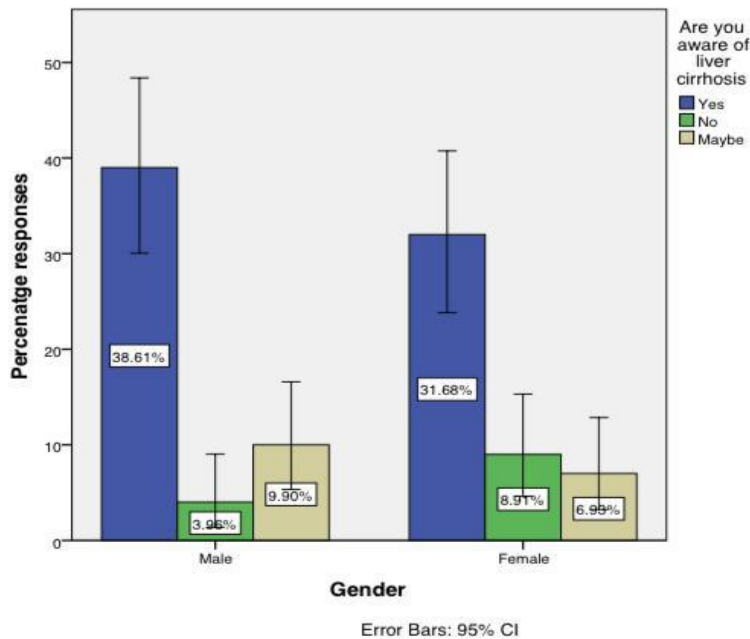


Figure 8 : Bar graph showing the association between the gender (X-axis) and responses to awareness of liver cirrhosis (Y-axis). 38.61 % of the male reported Yes, 31.68% of females responded as yes, 3% of male responded as No, 8.91% of females responded as No. 9.90 % of the male reported maybe and 6.99% of females responded as maybe. Blue denotes Yes, green denotes No and grey denotes Maybe. Chi-square test (Pearson Chi-square value = 1.764) $p = 0.525$ ($p > 0.005$ statistically not significant) .

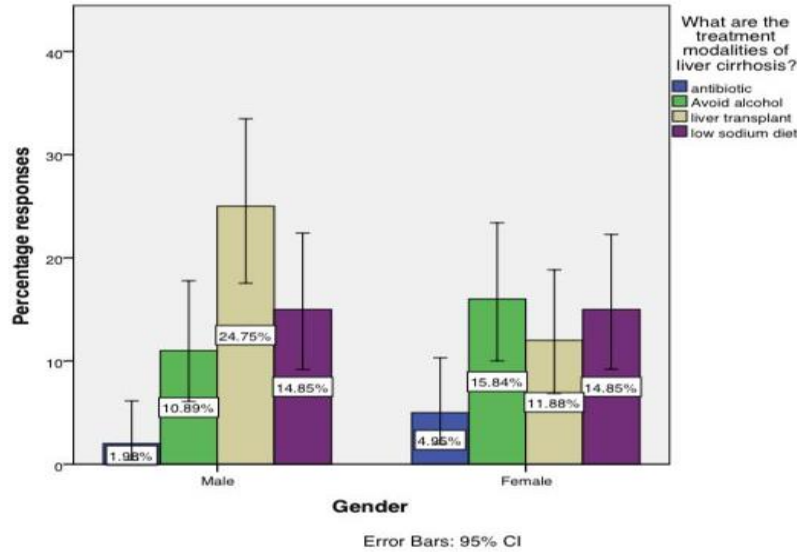


Figure 9 : Bar graph showing an association between the gender (X-axis) and responses to liver cirrhosis treatment (Y-axis). 24.57 % of the male reported liver transplants, 14.85 % of the females and male reported low sodium levels, 10.89% of male responded to avoid alcohol, 15.28 % of the females reported avoiding alcohol , 1.98% males used antibiotics and 4.96 % of the females reported antibiotics . Blue denotes antibiotic, green denotes avoiding sodium, violet denotes low sodium level and grey denotes liver transplant. Chi-square test (Pearson Chi-square value = 5.277) p = 0.525 (p > 0.005 statistically not significant) .

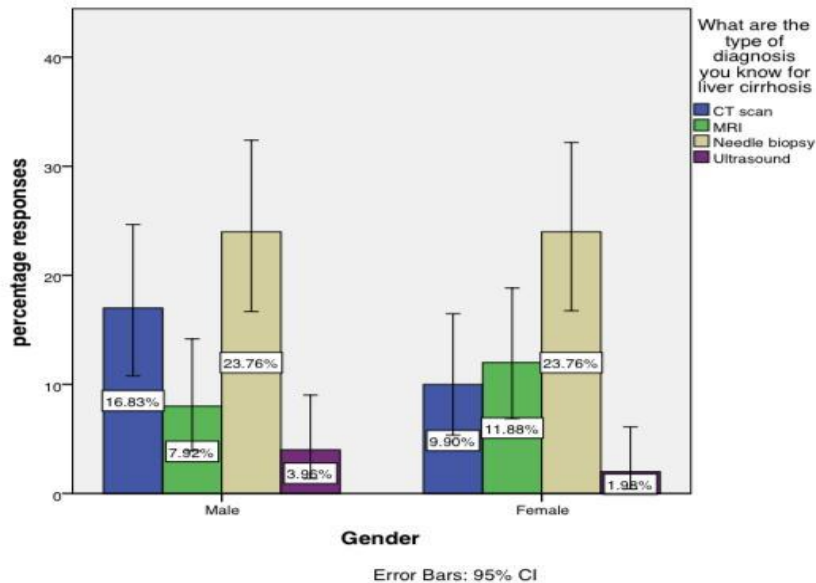


Figure 10 : Bar graph showing an association between the gender (X-axis) and responses to liver cirrhosis treatment (Y-axis). 16.83 % of the male reported CT scan and 9.9% females as CT scans. 23.57 % of the male and female reported needle biopsy and 7.92% males responded as MRI and 11.88 % of the females reported MRI, 3.96 % of the male reported ultrasound and 1.98% reported as ultrasound. Blue denotes CT scan, green denotes MRI, violet denotes ultrasound, and grey denotes needle biopsy. Chi-square test (Pearson Chi-square value = 5.285) p = 0.525 (p > 0.005 statistically not significant) .

DISCUSSION

Al - Essa Ma et al in the year 1998 state that play a role in symptoms of cirrhosis are yellow discoloration of the eyes (Al-Essa, Al-Mehaidib and Al-Gain, 1998), Dehghani SM et al in the year 2013 state that 67.9 % cause liver cirrhosis due to jaundice (Dehghani *et al.*, 2013), it was found that 54 % are aware of cirrhosis and 46 % are still not aware but when we compare with our study that we found that 74.29 % are students are aware of cirrhosis (Alzahrani, Al-Johani and Aljehani, 2018). Elkrief L et al the year 2016 state that glucose tolerance and diabetes lead to cirrhosis but when we compare with our study we found that diabetes mellitus is the main reason for cirrhosis (Elkrief *et al.*, 2016). Garcia et al in the year 2009 state that 30 % to 60 % of cirrhotic patients suffer from this metabolic disorder and insulin resistance in the muscular so that we can conclude that insufficient production of insulin is also the main reason for liver cirrhosis (García-Compean, Jaquez-Quintana and Maldonado-Garza, 2009). Study was done and mainly found that mitochondrial function provides an integrated vision of diabetes (Morio, Penicaud and Rigoulet, 2019).

Li X et al in the year 2019 states that metformin is the first-line defense agent in diabetes mellitus and it was found to be very much effective in cirrhosis/fibrosis (Li *et al.*, 2019). It was found that diabetes mellitus can affect different types of age groups and cause liver cirrhosis but compared with our study we found that 31.43 % of responses said that mainly middle age and childhood age groups are mostly affected by liver cirrhosis (Butt *et al.*, 2013).

Sae Wong et al in a year 2020 states that fatty liver is mostly affected in young adults with type 1 diabetes. When we compare it with our study was found that 31.43 % of childhood age are mostly affected by liver cirrhosis. So we can conclude that childhood age is the main age of chance of liver cirrhosis (Sae-Wong *et al.*, 2020).

The study shows the screening and identification of patients with advanced fibrosis (Park *et al.*, 2020). Blomdahl et al in the year 2021 it states that 95 % of the people with diabetes mellitus who consume a moderate amount of alcohol had a significant high advanced fibrosis compared with those who consume less amount alcohol is not affected by diabetes mellitus (Blomdahl *et al.*, 2021). It was found that hepatopathy is related to type 1 diabetes mellitus (Atmaca *et al.*, 2015). Akarm T kharroubi et al in the year 2015 states that 80 % - 90 % of children are affected by Type 1 diabetes which can be compared with our study that 34.43 % at the childhood age is mostly caused by liver cirrhosis which directly correlates with diabetes mellitus (Akram T Kharroubi, 2015).

Limitation of our study is the sample size, multiple questionnaire settings, responses bias, survey fatigue. Future study should aim to create awareness camps, social media, and workshops.

CONCLUSION

Within the limitations of the studies, we may conclude that students are having knowledge about liver cirrhosis and diabetes mellitus and their risk factor. Awareness camps, social media, workshops, diabetes mellitus, necrosis among school, college, and university students.

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CONFLICT OF INTEREST: The author declares that there were no conflicts of interests in the present study.

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