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EXTENT OF KNOWLEDGE ABOUT CAUSES AND COMPLICATIONS OF FATTY LIVER DISEASE AMONG THE POPULATION IN TABUK CITY, SAUDI ARABIA

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ABSTRACT

Background: Metabolic Dysfunction-Associated Fatty Liver Disease (MAFLD) defined as the presence of ≥5% of hepatic steatosis, in the absence of competing liver disease etiologies, has been increasingly world widely in both morbidity and mortality, the highest prevalence was found in the Middle East and South America, Liver damage ranging from simple steatosis to steatohepatitis, advanced fibrosis, and cirrhosis, despite its prevalence and impact on health and social life it remains less knowledgeable because the community does not have enough information about it.

Materials and Methods: This is an exploratory cross-sectional and questionnaire-based study conducted among 584 Tabuk City residents, Saudi Arabia: Saudi and non-Saudi, aged ≥18 years old.

Results: The prevalence of knowledge about causes of fatty liver disease was 21 % between male participants and 20% between female participants, and the prevalence of knowledge about complication of fatty liver disease was 18 % between male participants and 20% between females' participants. However, 89% of males and 95% of females think that they need more information about fatty liver disease.

Conclusion: It was concluded that the knowledge of causes and complications of fatty liver disease among the population in Tabuk City residents are insufficient, despite the presence of risk factors which may lead to fatty liver disease among them. It was found that there is no relation between awareness about causes and complication of fatty liver disease and gender, age and education of participants. Therefore, awareness campaigns must be held to increase the awareness about fatty liver disease and its complication and how they can prevent getting the disease, among the population in Tabuk City.

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INTRODUCTION

Metabolic Dysfunction Associated Fatty Liver Disease (MAFLD) is defined as the presence of ≥ 5 % of hepatic steatosis, in the absence of competing liver disease etiologies, such as chronic viral hepatitis, use of medications that induce steatosis such as amiodarone or tamoxifen, and other chronic liver diseases, such as autoimmune hepatitis, hemochromatosis, Wilson's disease, or significant alcohol consumption. [1]. Most patients are asymptomatic; It is often detected on routine abdominal ultrasound examination or by an incidental biochemical abnormality during routine blood tests [2, 3]. Liver damage ranging from simple steatosis to steatohepatitis, advanced fibrosis, and cirrhosis [4, 5]. The risk of MAFLD is increase with an individual who has metabolic syndrome, type 2 DM, hypertension, high body mass index, and dyslipidemia [6]. MAFLD has been increasingly world widely in morbidity and mortality. Its global prevalence is 25.24%, with the highest prevalence in the Middle East and South America and lowest in Africa [7]. In the United States is reported to be between 10% and 30%, with similar rates reported from Europe and Asia [8,9]; in Saudi Arabia, the morbidity increases dramatically due to the high prevalence of obesity and DM [10,11]. Patients with MAFLD have a risk to develop nonalcoholic steatohepatitis (NASH), which is a more progressive type of liver disease, patients with NASH were considerably more likely than those with simple steatosis to develop cirrhosis, which is the third most common cause of death, following cardiovascular events and non-hepatic malignancies, and it's complications such as decreased liver function, portal hypertension, and increased risk for development of hepatocellular carcinoma[1,2,6]. However, there was no study to estimate the extent of knowledge about causes and complications of fatty liver disease among the population in Tabuk City. This study aims to estimate the extent of knowledge about causes and complications of fatty liver disease among the population in Tabuk city, Saudi Arabia.

MATERIALS AND METHODS

Ethical consideration: Ethical approval was obtained from the Research Ethical Committee in the Faculty of Medicine, Tabuk University, under approval number: [READ 0061]. All Participants included in the research were informed that their participation is completely voluntary, and they are allowed to refuse to continue the questionnaire at any time they desire. All questionnaires were kept safe after being answered, and there were no names recorded on the questionnaires.

Study design and setting: This was an exploratory cross-sectional questionnaire-based study conducted among five hundred eighty-four Tabuk city residents, via filling an online questionnaire collected and analyzed between November & December 2019.

Study area: Tabuk City is Tabuk Region's capital city, located in the northwest of Saudi Arabia. It has a population of 930,507.

Study participant and sample size: All Tabuk city residents, Saudi and Non-Saudi nationalities, age 18 years old or older, males and females were invited to voluntary participation in the study by answering the

research questionnaire distributed to them through social media applications. Those under 18 years old and those who are not a Tabuk city citizen were excluded from the study. The sample size was calculated from the formula: n = Z2 P Q / d2 where Z = 95 % confidence (1.96), P = prevalence assuming that 50 % prevalence at 5 % CI which is equal three hundred eighty-four participants. we got seven hundred fifty-eight response on the online questionnaire, the study was conducted on five hundred eighty-four participants; after excluding incomplete data and exclusion of participant who fulfilled to the inclusion criteria.

Data collection tool: This is an exploratory cross-sectional and questionnaire-based study conducted among five hundred eighty-four adults living in Tabuk city, Saudi, and non-Saudi, aged ≥ 18 years old, the sample collected between November & December 2019. The questionnaire was not obtained from previous literature. The questionnaire was in tow languages Arabic and English; it was online by using Google Forms, which was distributed through social networking applications. The questionnaire was conducted through 2 divisions; the first section were concerned with age, gender, educational level, weight and height (to calculate their Basal metabolic index) , and asking about if the participant had diabetes mellitus, and if the participant had hypertension, and if the participant had high blood cholesterol level , while the second section evaluating the estimation of extent of knowledge about causes and complications of fatty liver disease, which were concerned with if the participant had information about fatty liver disease , if the participant Know the causes which lead to fatty liver disease , if the participant Know complications of fatty liver disease , if the participant know what are the ways to prevent fatty liver disease , if the participant think fatty liver disease is curable , if the participant think that he need more information about fatty liver disease and it is complications and how to prevent it .

Data management and analysis: Data entry and analysis were performed using Microsoft Excel 2010 (Microsoft Corporation One Microsoft Way Redmond, WA 98052-6399 USA).

RESULTS

In this study, we aimed to know the extent of knowledge about causes and complications of fatty liver disease among the population in Tabuk City, Saudi Arabia. In this study enrolled five hundred eighty-four participants, 349 are males, and 235 are females; the ages of the participants between both sexes, 18 to 25 years: 334 participants, 26 to 30 years: 50 participants, 31 to 40 years: 97 participants, 41 to 50 years: 71 participants, 51 years or above: 32 participants, the educational level of Bachelor degree or higher between males and female was 60 %, 75 % respectively. 4 % of male's participant have diabetes and 2 % for female. 5 % of male participants are diagnosed with hypertension and 3 % for females. 7 % of male participants are found with high lipid profile (Hyperlipidemic) and 6 % for females. 31 % of males and 25 % of females have BMI between 25 - 29.9, and 16 % of males and 16 % of females have BMI between 30 - 34.9, and 16 % of males and 10 % of females have BMI > 35 [Table 1]. The prevalence of absence of knowledge about causes of fatty liver disease was as the following: Participants who Aged 30 or

Table 1. Demographic of participants in the study.

Category		Males	Females
Aged 30 or younger		237	147
Aged 31 or older		112	88
Who has secondary school degree or less		103	58
Who has Bachelor's degree or higher		246	177
Diabetic		4%	2%
Hypertensive		5%	3%
With high lipid profile (Hyperlipidemic)		7%	6%
Body mass index	<18.5 (Under weight)	4%	11%
	18.5 - 24.9 (Normal)	33%	38%
	25 - 29.9 (Over weight)	31%	25%
	30 - 34.9 (Obese)	16%	16%
	>35 (Extremely obese)	16%	10%

younger Males 77 %, Females 73 %; Participants who Aged 31 or Older Males 83 %, Females 91 %; Participants who got Secondary School degree or less Males 82 %, Females 81 %; Participants who got Bachelor's degree or higher Males 78 %, Females 79 %; Diabetic participants Males 71 %, Females 100 %; Hypertensive participant Males 67 %, Females 75 %; Hyperlipidemic participants Males 81 %, Females 100 %. The prevalence of absence of knowledge about complications of fatty liver disease was as the following: Participants who Aged 30 or younger Males 80 %, Females 24 %; Participants whom Aged 31 or Older Males 86 %, Females 79 %; Participants who got Secondary School degree or less Males 86 %, Females 81 %; Participants who got Bachelor's degree or higher Males 80 %, Females 79 %; Diabetic participants Males 79 %, Females 83 %; Hypertensive participants Males 72 %, Females 62 %; Hyperlipidemic participants Males 85 %, Females 33%. The prevalence of participant who thinks the fatty liver disease is not curable was as the following: Participants who Aged 30 or younger Males 52 %, Females 44 %; Participants who Aged 31 or Older Males 61 %, Females 51 %; Participants who got Secondary School degree or less Males 55 %, Females 29 %; Participants who got Bachelor's degree or higher Males 54 %, Females 73 %; Diabetic participants Males 57 %, Females 57 %; Hypertensive participants Males 44 %, Females 62 %; Hyperlipidemic participants Males 58 %, Females 29 %. The prevalence of absence of knowledge about how to prevent fatty liver disease was as the following: Participants who Aged 30 or younger Males 79 %, Females 76%; Participants who Aged 31 or Older Males 85, Females 92 %; Participants who got Secondary School degree or less Males 84 %, Females 84 %; Participants who got Bachelor's degree or higher Males 79 %, Females 81 %; Diabetic participants Males 79 %, Females 83 %; Hypertensive participants Males 72 %, Females 75 %; Hyperlipidemic participants Males 81 %, Females 93 %. The prevalence of participant who thinks that they need more information about the fatty liver disease was as the following Participants who Aged 30 or younger Males 87 %, Females 96 % Participants who Aged 31 or Older Males 12

Table 2. Results in percentage of questions asked to male and female participants answers were either Yes, No or I don't know.

Question asked	Gender	Total Number of answers	Aged 30 or younger answered yes	Aged 31 or older answered yes	Aged 30 or younger answered no	Aged 31 or older answered no	Aged 30 or younger answered I don't know
Do you know causes of fatty liver disease?	Males	349	3%	17%	77%	83%	-
	Females	235	27%	9%	73%	91%	-
Do you know complication of fatty liver disease?	Males	349	20%	14%	80%	86%	-
	Females	235	26%	11%	74%	89%	-
Do you think fatty liver disease is curable?	Males	349	48%	39%	6%	7%	46%
	Females	235	56%	49%	8%	10%	36%
Do you know the ways to prevent fatty liver disease?	Males	349	21%	15%	79%	85%	-
	Females	235	24%	8%	76%	92%	-
Do you think that you need more information about fatty liver disease?	Males	349	87%	92%	13%	8%	-
	Females	235	96%	93%	4%	7%	-
Do you suffer from Diabetes Mellitus ?	Males	349	1%	11%	90%	82%	9%
	Females	235	2%	4%	93%	94	5%
Question Do you suffer from Hypertension?	Males	349	2%	12%	86%	78%	12%
	Females	235	1%	7%	87%	85%	12%
Do you suffer from High blood cholesterol level?	Males	349	2%	20%	80%	62%	18%
	Females	235	1%	14%	85%	71%	14

%, Females 93 %; Participants who got Secondary School degree or less Males 93 %, Females 91 %; Participants who got Bachelor's degree or higher Males 87 %, Females 93 %; Diabetic participants Males 13 %, Females 100 %; Hypertensive participants Males 83 %, Females 100 %; Hyperlipidemic participants Males 88 %, Females 100 %. [Table 2, 3].

DISCUSSION

This study was conducted among five hundred eighty-four adult Tabuk City, Saudi

Table 3. Negative answers (No, I don't know) significance according to demographic of participants.

Question asked	Gender	Total Gender	Aged 30 or younger	Aged 31 or older	Secondary School degree or less	Bachelor's degree or higher	Diabetic	hypertensive	Hyperlipidemic
Do you know causes of fatty liver disease?	Males	79%	77%	83%	82%	78%	71%	67%	81%
	Females	80%	73%	91%	81%	79%	100%	75%	100%
Do you know complication of fatty liver disease?	Males	82%	80%	86%	86%	80%	79%	72%	85%
	Females	80%	74%	89%	81%	79%	83%	62%	93%
Do you think fatty liver disease is curable?	Males	54%	52%	61%	55%	54%	57%	44%	58%
	Females	47%	44%	51%	29%	53%	50%	62%	29%
Do you know the ways to prevent fatty liver disease?	Males	81%	79%	85%	84%	79%	79%	72%	81%
	Females	82%	76%	92%	84%	81%	83%	75%	93%
Do you think that you need more information about fatty liver disease?	Males	11%	13%	8%	7%	13%	7%	17	12%
	Females	5%	4%	7%	0%	7%	0%	0%	0%

Arabia residents, who were asked about their knowledge regarding fatty liver disease. No previous studies were conducted to study the extent of knowledge about causes and complications of fatty liver disease among the Tabuk City residents. MAFLD defined as the presence of ≥ 5 % of hepatic steatosis, in the absence of competing liver disease etiologies, it has been increasingly world widely in both morbidity and mortality. The highest prevalence was found in the Middle East and South America. Liver damage ranging from simple steatosis to steatohepatitis, advanced fibrosis, and cirrhosis. Although it is the prevalence and harmful impact on health and social life, it remains less knowledgeable because the community does not have enough information about it. This study showed that the knowledge about causes and

complications of fatty liver disease among the population in Tabuk city is insufficient, and there was no difference in awareness between them, despite the presence of risk factors of fatty liver disease [Tables 1,2]. It was found that there is no relation between awareness about causes and complications of fatty liver disease and the gender of participants [Tables 2, 3]. The study also showed no association between awareness about causes and complications of fatty liver disease and participants' educational degrees [Tables 3]. In addition to that, it has been found there is no difference in awareness between persons who aged 31 and more and person who aged 30 or less in Tabuk city [Tables 2, 3]. 6 % of males and 9 % of females think that fatty liver disease is not curable and 48 % of males and 38 % of females don't know either curable or not [Tables 3], and 81 % of males and 82% of females don't know how to prevent fatty liver disease [Tables 3], and 89 % of total males and 95 % of total females think that they need more information about fatty liver disease [Tables 3] indicates the highest need and desire of Tabuk city residents to obtain enough information about the causes and complications of fatty liver disease and how they can prevent getting the disease.

Conclusion and recommendations: upon the study, it was concluded that the knowledge of causes and complications of fatty liver disease among the population in Tabuk City residents are insufficient, despite the presence of risk factors which may lead to fatty liver disease among them. It was found that there is no relation between awareness about causes and complications of fatty liver disease and gender, age, and educational degrees of participants. Therefore, awareness campaigns must be held to increase awareness about fatty liver disease and its complication and prevent getting the disease among the population in Tabuk City.

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