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Knowledge about non-alcoholic fatty liver disease among family physician in primary health center at prince sultan medical military city, 2020

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Abstract
Background: Identification of population at risk of NAFLD necessitates knowledge about associated conditions, screening strategies, in addition to a time investment to perform an evaluation. Furthermore, knowledge about management strategies including self-management and appropriate referral is a key to reducing further morbidity and excess mortality.

Objectives: To assess the knowledge, awareness of management strategies, attitudes, and perceptions regarding NAFLD, and the barriers to providing care for patients diagnosed with NAFLD.

Methods: This was a cross-sectional survey among family physicians at Primary Health Center at Prince Sultan Medical Military City (PSMMC) in Riyadh, Saudi Arabia. Data was collected through a self-administered questionnaire that contains questions that measure the level of knowledge, attitude, and practice barriers, besides the demographic data. The questionnaire was taken from another study after taking the author's permission.

Results: A total of 160 family physicians participated in the current study, 56.58% were males, and the qualifications were mostly (60.87%) SBFM. The overall mean (±SD) score of the knowledge level was 5.12, indicating a poor knowledge level. The total mean score differed significantly only by the number of years passing out faculty. More than half (53.9%) of the participants reported screening obese and diabetic patients for NAFLD, and 61.3% refer NAFLD patients to a gastroenterologist. Only 6.2% of the participated physicians know the NAFLD prevalence in Saudi Arabia, and less than one-quarter (23.6%) know who they should screen for NAFLD. Lack of patients compliance and lack of physician confidence were the main barriers to NAFLD management among the participated physicians, by 62.1%, and 43.5%, respectively.

Conclusion: Overall, the knowledge level about NAFLD among the participated physicians is poor, which highlights the need for a better understanding of NAFLD and the best way forward would be continuous medical education of clinicians on this subject.

Keywords: Prevalence, knowledge, Non Alcoholic fatty liver, primary care physicians

Introduction
Globally, the incidence and prevalence of nonalcoholic fatty liver disease (NAFLD) are rapidly rising, with an incidence projected to increase by up to 56% in the next 10 years [1-5]. The estimated global prevalence of NAFLD is about 25% [2], ranging from 13% to 42% in Africa [2] and Southeast Asia [5], respectively. The disease prevalence in Saudi Arabia was estimated to be 24% [6, 7].

NAFLD includes a spectrum of diseases including nonalcoholic fatty liver (NAFL) or simple steatosis, and nonalcoholic steatohepatitis (NASH), that can progress to cirrhosis and hepatocellular carcinoma (HCC) [7, 8]. There is a close correlation between NAFLD and metabolic syndrome, best characterized by diabetes and obesity, which mirrors the increasing incidence of these conditions [10]. However, Bril F *et al.* reported that NAFLD can be seen in non-obese as well as in many insulin-resistant patients without metabolic syndrome [11].

Since primary care physicians are seeing an increasing burden of associated conditions including diabetes, obesity, hypertension, and hyperlipidemia), this setting presents the best opportunity to identify and evaluate a broad cohort of susceptible NAFLD patients. Therefore, without adequate identification of individuals at risk, there is a significant loss of opportunity for early intervention. Identification of population at risk necessitates knowledge about associated conditions, screening strategies, in addition to a time investment to perform

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an evaluation. Furthermore, knowledge about management strategies including self-management and appropriate referral is a key to reducing further morbidity and excess mortality [12].

Till now there is no laboratory test or imaging technique that can conclusively diagnose NAFLD, but they can offer a strong indication of hepatic steatosis and/or fibrosis which is the ultimate goal of screening. NAFLD diagnosis requires that there is evidence of hepatic steatosis on imaging or histology, and other causes of liver disease or steatosis have been excluded [13].

Ultrasound is an acceptable first-line diagnostic procedure for steatosis, but has low sensitivity in obese subjects and suffers from operator variability [14]. Transient electrography offers improved sensitivity/specificity over conventional ultrasound by translating liver stiffness into stages of fibrosis [15]. Physicians overly depend on abnormal liver enzymes to identify NAFLD patients, thus patients with significant liver disease can be overlooked, potentially missing opportunities for intervention. Although liver biopsy is the gold standard method for diagnosing and staging NAFLD, the majority of patients can be effectively diagnosed noninvasively with tests that are routinely available in the clinic today [16].

In the literature, there is a scarcity of information regarding family physicians awareness regarding NAFLD, particularly in Saudi Arabia. Given the growing significance of the problem, the important role of family physicians, we surveyed a sample of family physicians at Primary Health Center at Prince Sultan Medical Military City, Riyadh, Saudi Arabia to define their knowledge, awareness of management strategies, attitudes, and perceptions regarding NAFLD, and the barriers to providing care for patients diagnosed with this damaging and prevalent condition.

Aim and Objectives
Assessing the knowledge among family physician will help in identify if there is gap of knowledge about the condition and overall management Leading to improvement of management of Non-Alcoholic Fatty Liver disease. More cost efficiency efficacy on the institute. More physician knowledge and confidence, the better outcomes. Moreover, to identify the level of knowledge about Non-Alcoholic Fatty liver disease among family physician

Methodology
This was a cross-sectional survey study that has been conducted among family physicians at Primary Health Center (PHC) at Prince Sultan Medical Military City (PSMMC) in Riyadh, Saudi Arabia. The study population was recruited based on the following inclusion criteria: all the family physicians in PHC at PSMMC who are on duty, and family physicians with subspecialty like diabetes, women health, or geriatric health were included. While the exclusion criteria were: retired family physician, undergrad doctor, family physician who are doing fellowship study, and family physician who are on full-time administrative job.

Data was collected through a self-administrated questionnaire that contains questions that measure the level of knowledge, attitude, and practice barriers in the targeted population regarding NAFLD. Besides, the demographic data including age, gender, qualification, and designation were addressed. The questionnaire was taken from another study, the author was contacted and a permission document to use in it was taken [17]. This questionnaire was then locally validated through 3 consultants (Family medicine consultant, Public health consultant, and a Hepatologist).

The study was conducted after taking the ethical approval of the IRB committee of the military service department at the ministry of defense and research ethics in Prince Sultan Medical Military City. Participants were informed about the goal of the study and the consent was taken. The participants were also informed that they have the right to withdraw from the study at their given time, data will be kept confidential and will be used for research purposes only.

Statistical analysis
Data were analyzed by using Statistical Package for Social Studies (SPSS 22; IBM Corp., New York, NY, USA). Continuous variables were expressed as mean ± standard deviation and categorical variables were expressed as percentages. The t-test and one way ANOVA were used for continuous variables. Chi-square test was used for categorical variables. Univariate logistic regression was used to assess the associated factors with the low level of knowledge about Non-Alcoholic Fatty liver disease among family physicians. A p-value <0.05 was considered statistically significant

Results
A total of 160 family physicians participated in the current study, more than half of them (56.58%) were males, and the highest percentage (29.75%) were in the age group of 27-30 years old. The qualifications were mostly (60.87%) SBFM and 28.75% of the participants was consultant. Data is shown in table (1)

Table 1: Sociodemographic characteristics of the participants

		Number	%
Designation	senior house officer	14	8.75
	resident	43	26.88
	consultant	46	28.75
	registrar	25	15.63
	senior registrar	32	20.00
Qualifications	diploma	4	5.80
	SBFM	42	60.87
	ABFM	10	14.49
	MRCGP	12	17.39
	PhD	1	1.45
Age	less than 26	11	6.96
	27-30	47	29.75
	31-35	36	22.78
	36-40	3	1.90
	41-45	42	26.58
	older than 45	19	12.03
Gender	male	86	56.58
	female	66	43.42
years passing out faculty	less than 5 years	42	26.75
	5-10	50	31.85
	11-15	40	25.48
	> 15	25	15.92

Family physicians attitude towards Non-Alcoholic Fatty liver disease is shown in table (2). More than half (53.9%) of the participants reported screening obese and diabetic patients for NAFLD, and 61.3% refer NAFLD patients to a gastroenterologist. Half (50%) of the participated physicians

reported not reading any guidelines regarding NAFLD. Prescribing vitamin E for NAFLD was reported by 18.5%, while most of the physicians (83.4%) think that NAFLD is a major health problem.

Table 2: Attitude about Non-Alcoholic Fatty liver disease among family physician

		Number	%
Do you screen patients obesity diabetes NAFlD	yes	83	53.9
	no	71	46.1
Do you refer patients NAFLD gastroenterologist	yes	95	61.3
	no	60	38.7
Have you read guideline lecture NAFLD	no	80	50.0
	read guideline	39	24.4
	attended lecture	32	20.0
	other	9	5.6
Do frequently use vitE patients NAFLD	yes	29	18.5
	no	128	81.5
Do you think NAFLD major health problem	yes	126	83.4
	no	25	16.6

The level of knowledge about NAFLD among family physician participated in the current study is shown in table (3). Only 6.2% of the participated physicians know the estimated prevalence of NAFLD in Saudi Arabia at 25%. Also, less than one-quarter (23.6%) know who they should screen for NAFLD, and 37.3% aware of the methods available for diagnosis (USS, CT, and liver biopsy). Liver biopsy is indicated for patients at risk of steatohepatitis and cirrhosis, and this was only known by 36.6% of the participated family physicians. For disease management, it was correctly answered by only 14.9% of the respondents. NAFLD is not an inherited disease and can lead to cirrhosis, and this was correctly known by 63.4% and 84.5% of the participated physicians, respectively. a poor knowledge level regarding the best diet for patients with NAFLD was shown in the current study, as only 18.6% know the hypocaloric diet is the one. Similarly, only 17.4% of the physicians know the drugs that can precipitate worsen NAFLD. Almost 60% of the participants know that NAFLD patients should receive treatment if the levels of ASL and ALT are high.

Table 3: Level of knowledge about Non-Alcoholic Fatty liver disease among family physician

	Correct answer	
	Number	%
Estimate prevalence NAFLD SA	10	6.2
Who you screen NAFLD	38	23.6
Is family screening NAFLD recommended	106	65.8
Methods available for diagnosis	60	37.3
Indications liver biopsy	59	36.6
Management NAFLD involves	24	14.9
it is not inherited	102	63.4
it can lead to cirrhosis	136	84.5
Which the best diet patient NAFLD	30	18.6
Which patients NAFLD receie pharmacological treatment	96	59.6
What dangerous side effects vitameE	136	84.5
Which following drugs preccipitate worsen NAFLS	28	17.4

The current study addressed the barriers to NAFLD management among the participated physicians and results came out with the finding that lack of patients compliance and lack of physician confidence were the main reasons by 62.1%, and 43.5% of the physicians, respectively, as shown in table (4).

Table 4: Participants' answers about Barriers for NAFLD management

	Number	%
lack of confidence in manafing it	70	43.5
time constraints	61	37.9
cost of evaluation and treatment	28	17.4
lack of compliance by patient	100	62.1
not comfortable to discuss obesity with patient	17	10.6

The mean and standard deviation for the score of knowledge about NAFLD among family physicians by sociodemographic characteristics is shown in table (5). The overall mean (±SD) score of the knowledge level was 5.12, indicating a poor knowledge level. the results showed that the total mean score differed significantly only by the number of years passing out faculty, being the highest among those graduated since 11-15 years with a mean score of 5.73 (±1.66). On the other hand, the total knowledge score did not differ significantly (P 0.034) by any other assessed demographic variant including age, gender, qualification, or designation, since all P values were >0.05.

Table 5: Mean and standard deviation for the score of knowledge about Non-Alcoholic Fatty liver disease among family physician by sociodemographic characteristics

		Mean	SD	P value
Designation	senior house officer	5.36	1.74	
	resident	4.81	1.56	0.376
	consultant	5.41	1.45	

	registrar	4.88	2.01	
	senior registrar	5.22	1.26	
Qualifications $	diploma	5.25	1.89	0.188
	SBFM	5.52	1.50	
	ABFM	4.10	1.20	
	MRCGP	5.25	2.42	
	PhD	4.00	0.00	
Age	less than 26	5.09	2.17	0.629
	27-30	5.13	1.42	
	31-35	4.81	1.33	
	36-40	5.67	1.53	
	41-45	5.43	1.80	
	older than 45	5.00	1.56	
Gender	male	5.22	1.55	0.618
	female	5.09	1.63	
years passing out faculty@	less than 5 years	4.93	1.42	0.034*
	5-10	4.86	1.47	
	11-15	5.73	1.66	
	> 15	4.96	1.46	
Over all		5.12	1.57	

* Significant p value

$ From Post Hoc test there is a significant deference between SBFM & ABFM (P value = 0.019)

$ From Post Hoc test there is a significant deference between less than 5 & 11-15 (P value = 0.018), also there is a significant deference between 5-10 & 11-15 (P value = 0.008)

The univariate logistic regression for the associated factor with a low level of knowledge about Non-Alcoholic Fatty liver disease among the participated family physician is shown in table (6). Generally, non of the studied factors showed any significant association with the low knowledge level, as all P values were >0.05.

Table 6: Univariate logistic regression for the associated factor with low level of knowledge about Non-Alcoholic Fatty liver disease among family physician

		Odds ratio	95% CI		P value
			Lower	Upper	
Designation	senior house officer	0.60	0.17	2.13	0.430
	resident	1.24	0.48	3.24	0.657
	consultant	0.65	0.26	1.64	0.367
	registrar	1.07	0.36	3.16	0.907
	senior registrar*	1.00			
Qualifications	diploma	1.88	0.15	23.40	0.625
	SBFM	0.63	0.18	2.23	0.468
	ABFM	5.62	0.54	58.91	0.150
	MRCGP&PhD*	1.00			
Age	less than 26	1.27	0.28	5.87	0.757
	27-30	1.07	0.36	3.16	0.900
	31-35	1.65	0.52	5.24	0.393
	36-40	0.36	0.03	4.74	0.440
	41-45	0.88	0.29	2.63	0.820
	older than 45*	1.00			
Gender	male	0.90	0.47	1.74	0.759
	female*	1.00			
years passing out faculty	less than 5 years	1.01	0.36	2.84	0.981
	5-10	1.20	0.44	3.28	0.729
	11-15	0.46	0.16	1.29	0.139
	> 15*	1.00			

* Used as a reference

Discussion

We set out this cross-sectional survey study to assess family physicians knowledge about NAFLD, as well as their attitude towards its diagnosis and management and barriers for that. The results revealed that, overall; the participated family physicians have poor knowledge about and attitude towards diagnosis and management of NAFLD, and lack of patients' compliance was the main barrier for NAFLD management.

The vast majority of the current study participants were unware of the prevalence of NAFLD in Saudi Arabia, a finding that is similar to a previously published study among primary care in USA. Besides, this study was similar to ours in the point that the overwhelming majority of the participated physicians reported NAFLD as an important major health problem, [18]. Despite this, screening rates for NAFLD in diabetics and obese patients were low, as less than one-quarter of the family physicians reported screening patients for NAFLD, and almost half of them don't screen diabetic and obese patients for NAFLD. A previous study

addressed the attitudes of primary care physicians (PCPs) toward screening for viral hepatitis, as well as to a lesser extent, NAFLD [19], and they demonstrated a lack of adherence to screening guidelines of liver disease by PCPs.

The largest proportion of the participated family physicians expressed a lack of patients' compliance and lack of confidence in managing NAFLD as major barriers in their ability to evaluate and manage these patients. Said A *et al.* in their study reported lack of confidence in their knowledge regarding NAFLD as the major barrier [18]. A high proportion of family physicians who reported screening NAFLD patients in the current study don't refer to specialists. This is possibly related to confidence in their initial assessment. Given that such proportion would not refer to a specialist as the first step in the management of NAFLD patients, working for improving knowledge regarding evaluation and management of NAFLD is essential.

The mainstays of therapy for NAFLD are weight loss through lifestyle intervention with a combination of exercise and appropriate caloric restriction. Such modalities mainly tackle the underlying metabolic syndrome and are often preventive [20]. The current study revealed a far poor knowledge regarding NAFLD management and the appropriate diet for NAFLD patients. Better results were obtained from Said A *et al.* study since more than 70% of the PCPs correctly recognized the best diet for NAFLD compared to only about 19% in the current study [18]. This indicates family physicians needing to acquire further knowledge on diet. For Vitamin E prescription, about 18% of family physicians in the current study would recommend vitamin E frequently in management, which indicates that they may not agree with or know about recent trials showing efficacy of vitamin E for NAFLD in non-diabetics [21]. Another explanation for such findings might be the concerns regarding prostate cancer and coronary artery disease with vitamin E supplementation, although we did not explore this further [18].

Almost two-thirds of the current study participants were not able to correctly recognize the available methods for NAFLD diagnosis. In a similar study, methods for diagnosis including USS, MRI, transient elastography and liver biopsy were recognized by 95.7%, 24.6%, and 16.7% and 63.8%, respectively, while 38.4% recognized the non-invasive methods available for diagnosis [17]. Such findings highlight poor knowledge among the respondents, which necessitates continuous medical education on emerging modalities of diagnosis.

The identification of common drugs causing hepatic steatosis was very poor, and this was similar to a previous study finding [18], but contrasts with studies done elsewhere [17].

Reading guidelines can help practitioners in evaluating and managing complex conditions such as NAFLD [22, 23]. However, despite the existence of such guidelines, practitioners are often unaware of their existence [24]. In our case, have of the clinicians don't read such guidelines.

Limitations
As with any study, the current study has its limitations including the small sample size that was restricted due to the COVID-19 pandemic. Besides, the sample wasn't taken from the whole kingdom of Saudi Arabia; therefore the results cannot be generalized.

Conclusion
Overall, this study highlights that a better understanding of NAFLD is requisite and the best way forward would be continuous medical education of clinicians on the subject. Important barriers to the diagnosis and management of NAFLD in the primary care setting were identified. Future work should examine the best ways to impart education and emphasize the role of family physicians in NAFLD management.

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