RESEARCH ARTICLE

Assessment of knowledge regarding prediabetes among a sample of family physicians in (Baghdad city)

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Abstract

Objective: To assess the level of knowledge among family physicians regarding prediabetes.

Method: The cross-sectional study was conducted from March 1 to June 30, 2020, at primary healthcare centers in Al-Karkh and Al-Rusafa health directorates of Baghdad, Iraq, after approval from the ethics review committee of the College of Medicine, Mustansiriyah University, Baghdad. The sample comprised family physicians of either gender. Data was collected using an pre-designed, structured questionnaire that was disseminated online. Data was collected using SPSS 25.

Results: Of the 145 questionnaires distributed, 113(78%) were returned duly filled; 99(87.6%) females and 14(12.4%) males. The overall mean age was 34.21±5.8 years (range: 26-49 years), The knowledge level was good in 60(53.1%) cases, and 59(52.2%) suggested screening programmes as a preventive measure. Good level of knowledge was significantly associated with having diabetes or family member with diabetes 44(51.7%), attending training courses 37(44.1%) and professional experience >10 years 15(25%).

Conclusion: More than half the respondents had a good level of knowledge about prediabetes. There is a need to improve the knowledge of physicians further about prediabetes.

Key Words: Prediabetic, Metformin, Counseling, Family Physicians, Electronics.

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Introduction

Type 2 diabetes mellitus (T2DM) is a chronic inflammatory disease affecting the pancreas causing insulin resistance (IR) and destruction of beta cells, which is a modern pandemic and, according to the World Health Organisation (WHO), will become the 7th most common cause of death worldwide by the year 2030[1,2]. Prediabetes, as defined by the American Diabetes Association (ADA), is used for individuals whose glucose levels do not meet the criteria for diabetes, but are sufficiently elevated to increase the risk of cardiovascular disease[3]. Prediabetes carries a high risk for developing T2DM, and recent data showed that more than a third of people in the developed countries have prediabetes, making detection of prediabetes a fundamental step to keep people from transitioning to T2DM[4,5]. In Iraq, a study in 2015 found that the prevalence of prediabetes was 33.67%[6]. A more recent study in 2019 found the prevalence of prediabetes among adults in Baghdad to be 20.6%[7]. Most preventive healthcare screening for early detection and management of diseases takes place in primary healthcare centre (PHCCs) at the community level[8]. Once prediabetes is detected, there has to be a treatment plan to prevent or slow down the transition to T2DM[9]. Primary care has become a center point for diabetes management, with increasing demand for primary care physicians, and much of that increasing demand is driven by the aging population as the prevalence of T2DM increases with age[10,11]. A clear relationship between cardiovascular disease (CVD) and prediabetes has emerged over the years, and patients with prediabetes can suffer from coronary artery disease (CAD) even before progressing to T2DM. With this knowledge, healthcare providers should identify prediabetes and take appropriate measures to optimise glycaemic control. It is important to understand the family physicians' role in the early diagnosis and management of prediabetes[12,13].

The current study was planned to assess the level of knowledge among family physicians regarding prediabetes.

Subjects and Methods

The cross-sectional study was conducted from March 1 to June 30, 2020, at PHCCs in Al-Karkh and Al-Rusafa health directorates of Baghdad, Iraq, after approval from the ethics review committee of the College of Medicine, Mustansiriyah University, Baghdad. The sample was raised using convenience sampling technique/ Those included were family physicians of either gender.

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Data was collected using an pre-designed, structured questionnaire that was disseminated via email using the Google Docs format because of the coronavirus disease-2019 (COVID-19) pandemic. The questionnaire included an informed consent form that all the participants signed.

The study tool was designed under the supervision of a panel of experts from the Family and Community Medicine Department of the College of Medicine, Mustansiriyah University, in the light of previous studies [5,14-16].

The questionnaire had 3 parts. The first part comprised socio-demographic data, like age, gender, marital status, number of children, and professional data, like years since graduation, years of work as a family physician, personal or family history of T2DM, source of knowledge regarding prediabetes, Attending training courses about prediabetes or T2DM.

Part 2 of the questionnaire had 4 domains with 34 questions to assess the family physicians' knowledge regarding different aspects of prediabetes. Domain 1 contained 7 questions about definition and general information about prediabetes. Domain 2 had 14 questions related to risk factors of prediabetes. Domain 3 included 4 questions assessing the knowledge of family physicians about the criteria to diagnose prediabetes. Domain 4 had 9 questions to estimate the knowledge of family physicians about the management of patients with prediabetes.

The part 3 of the questionnaire contained question about family physicians' suggestions for preventive measures for prediabetes

The total knowledge score of the respondent ranged ranged between 0-34, where 0 was given for wrong and 'I do not know' answers, and 1 for the right answer. Scores 0-16 indicated poor level of knowledge, 17-26 fair, and 27-34 good level of knowledge.

Data was analysed using SPSS 25. Data was presented as mean ± standard deviation and ranges, or as frequencies and percentages, as appropriate. Chi-square test was used to assess the association between knowledge level and study variables, while the Fisher exact test was used when the expected frequency was <5. P<0.05 was considered significant.

Results

Of the 145 questionnaires distributed, 113(78%) were returned duly filled; 99(87.6%) females and 14(12.4%) males. The overall mean age was 34.21±5.8 years (range: 26-49 years). There were 66(54%) subjects aged <35 years, 98(86.7%) were currently married, 75(66.4%) were either diabetics or had a family history of diabetes. Overall, total knowledge level score was good in 60 (53.1%) cases, while it was poor in 7(6.2%) cases (Figure 1).

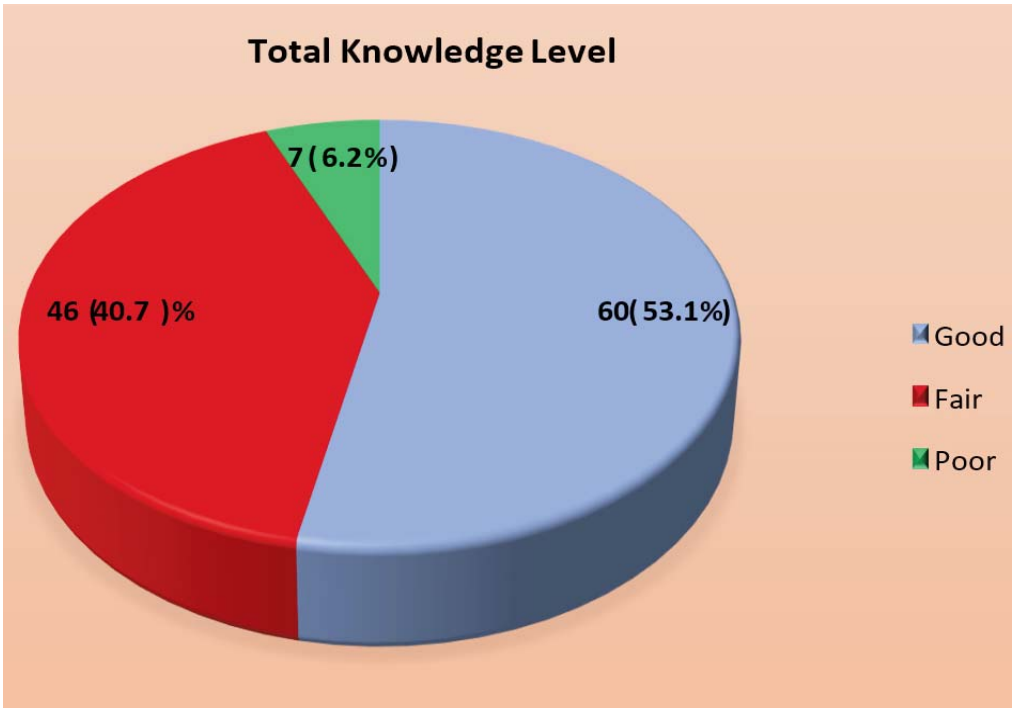

Figure-1: Distribution according to level of knowledge.

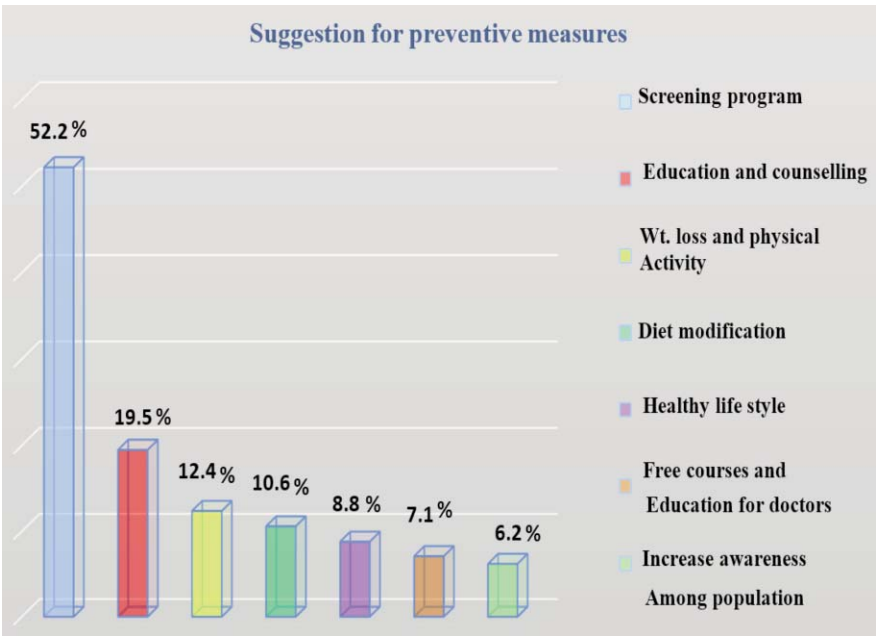

Figure-2: Respondents' suggestions about preventive measures.

The question that recived the highest correct answers was regarding blood sugar ranges of prediabetes 112(99.1%), while the one with the least number of correct answers was related to type 1 diabetes mellitus 41(36.3%). Domain-wise responses were collated (Table 1).

Good level of knowledge was significantly associated with having diabetes or family member with diabetes 44(51.7%), attending training courses 37(44.1%) and professional experience >10 years 15(25%). As for preventive measures, 59(52.2%) participants suggested screening programmes (Figure 2).

Table: Responses to the four domains of the study questionnaire/

Domain One (general information)	Correct answer	Incorrect answer
Prediabetes is an asymptomatic condition characterized by blood sugar levels above normal but below diabetic ranges	112 (99.1)	1 (0.9)
Prediabetes is a state that imparts a high risk for developing diabetes	108 (95.6)	5 (4.4)
Prediabetes has a low prevalence	72 (63.7)	41 (36.3)
It is also called Impaired Fasting Glucose	86 (76.1)	27 (23.9)
Individuals with prediabetes are at increased risk of developing retinopathy, nephropathy, and neuropathy	61 (54.0)	52 (46.0)
Prediabetes is a term used to describe people who are at high risk of Type 1 diabetes.	41 (36.3)	72 (63.7)
Diagnosing a patient with prediabetes is an effective way to increase patient awareness of their need for treatment	106 (93.8)	7 (6.2)
Domain Two (risk factors)		
Age more than 40 is a risk factor	111 (98.2)	2 (1.8)
Being over 25 years from African-Caribbean, Black African, or South Asian origin will increase the risk of T2DM	83 (73.5)	30 (26.5)
BMI more than 25 is not a risk factor	95 (84.1)	18 (15.9)
Having a pear-shaped body type, as fat accumulates around the hips and thighs rather than through the midsection is one of the risk factors of T2DM	32 (28.3)	81 (71.7)
Having a parent, brother or sister with diabetes will increase the risk of getting Type 2 diabetes	109 (96.5)	4 (3.5)
High blood pressure is a risk factor	88 (77.9)	25 (22.1)
High cholesterol is not associated with increasing risk for prediabetes	92 (81.4)	21 (18.6)
Smoking is a modifiable risk factor	93 (82.3)	20 (17.7)
Alcohol consumption is a modifiable risk factor	96 (85.0)	17 (15.0)
Ever having gestational diabetes or giving birth to a baby weighting more than 9 pounds is a risk factor	102 (90.3)	11 (9.7)
Polycystic ovarian syndrome is not a risk factor for prediabetes	70 (61.9)	43 (38.1)
Disturbed sleep is not associated with an increased risk of T2DM	43 (38.1)	70 (61.9)
Sedentary lifestyle is not a risk factor	94 (83.2)	19 (16.8)
Individuals with certain mental health conditions on antipsychotic medication are at lower risk of having T2DM	42 (37.2)	71 (62.8)

Discussion

Prediabetes is currently recognised as a reversible state that increases an individual's risk for developing T2DM, and, thus, identification of individuals with risk factor for prediabetes may help physicians understand potential interventions that may help reduce the number of people who may develop T2DM if left untreated; 37% of people with prediabetes may have diabetes within 4 years. Lifestyle modification may decrease the percentage of prediabetes patients in whom diabetes develops by up to 20%. The economic considerations are also important to keep in mind because the cost of care for T2DM patients and its complications far exceeds the cost of preventive care[17,18].

In the current study, the highest proportion of respondents were aged <35 years and the proportion of females was much higher than males. This might be due to the fact that the branch of family medicine contains more female physicians than other branches. This finding was similar to previous studies in the mid-Atlantic[14] and Latin American regions[19].

However, a study in Pakistan[15] showed male predominance, which might be due to cultural differences.

The current result revealed that more than half the respondents had a good level of knowledge about prediabetes. This result was close to that reported from the United States[20]. A gap was found regarding the knowledge of prediabetes progression, as more than half the respondents thought that prediabetes described patients at risk for T1DM. This misunderstanding might be due to confusion with T2DM or an incorrect idea about the types of diabetes. The study respondents were aware about the risk factors for prediabetes, as most of them answered the relevant questions correctly. This finding was similar to a previous study[14].

Also, a good number of the respondents knew the correct ranges of fasting blood sugar (FBS), oral glucose tolerance test (OGTT_ and glycated haemoglobin (HBA1c) for prediabetes. A previous study in US reported similar findings[20].

The majority of the current respondents believed that dietary counselling and physical activity were the cornerstone for managing prediabetes, and metformin was the second choice. Only few (21.2%) believed that metformin was more effective than lifestyle modification. This result is similar to a previous study in the mid-Atlantic region[14] which showed that approximately all physicians(99%) depended on diet modification and physical activity. More than half of the current respondents suggested screening programmes as preventive measures, which was in line with literature[14].

In the current study, there was a significant association between good level of knowledge and professional experience >10 years. This might be due to the acquired experience and knowledge gained in practising medicine over time. A significant association was also found between good level of knowledge and attending training courses, which might be due to the gained knowledge by continuous medical learning and sharing opinions with other physicians. Such findings was similar to previous studies in England[5].

In the present study, there was a significant association between good level of knowledge and personal or family history of T2DM. This might be due to more experience in dealing with the disease and the eagerness to get the latest information about it.

Limitation: The current study has limitations as the sample size was not calculated, which could have influenced the power of the study. The limited number of participants might restrict the ability to generalise the findings.

Conclusion

More than half the respondents had a good level of knowledge about prediabetes. Significant association was found for level of knowledge with professional experience >10 years, attending training courses, and having personal or family history of T2DM.

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