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Public Knowledge of Diabetes Mellitus: A Cross-Sectional Study

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Abstract

General Background: Diabetes mellitus is a major non-communicable disease with a rapidly increasing global prevalence, making public awareness and understanding essential for disease prevention and management. **Specific Background:** Assessing public knowledge of diabetes mellitus can provide valuable information for identifying strengths and deficiencies in community awareness regarding the disease. **Knowledge Gap:** Although diabetes knowledge has been investigated in several populations, limited evidence was available regarding the level of public knowledge in Basrah City, Iraq, particularly concerning specific aspects of diabetes such as complications and management. **Aims:** This study aimed to assess public knowledge of diabetes mellitus among adults attending primary health care centers in Basrah City. **Methods:** A descriptive cross-sectional study was conducted between January and May 2009 among 600 diabetic and non-diabetic adults attending four primary health care centers. Knowledge was assessed using a structured questionnaire covering diabetes definition, risk factors, complications, prevention, control, and management. **Results:** More than half of the participants (55.5%) demonstrated a good level of diabetes knowledge, 35.2% showed an acceptable level, and 9.3% had poor knowledge. Higher proportions of correct responses were observed for diabetes control (71%) and risk factors (69%), whereas lower proportions were found for complications (56.7%) and management (53%). **Novelty:** This study provides population-based evidence on public diabetes knowledge in Basrah City and identifies specific knowledge deficiencies related to diabetes complications and management. **Implications:** The findings indicate generally satisfactory public awareness while highlighting the need for targeted educational interventions focusing on diabetes complications and disease management to strengthen community understanding and support diabetes control efforts.

Keywords: Diabetes Mellitus, Public Knowledge, Health Awareness, Primary Health Care, Cross-Sectional Study

Key Findings Highlights

More than half of participants demonstrated a high level of understanding regarding the disease.

Correct responses were highest for disease control and associated risk factors.

Deficiencies were identified in awareness related to complications and treatment management.

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Introduction

One of the most prevalent non-communicable diseases is diabetes mellitus (DM) [1]. Adult DM prevalence is rising globally and is predicted to reach 7.7% by 2030 [2]. Although diabetes is more common in highly developed nations, developing nations are experiencing the fastest rate of case growth [3]. The primary cause of the ongoing upward trend is the rise in type 2 diabetes patients [4], which is linked to increased incidence (28.5%), population growth and aging (39.7%), and the combination of these two causes (31.8%) [5]. Type 2 diabetes is believed to be mostly caused by a sedentary lifestyle combined with a high-energy Western-style diet, which highlights the importance of lifestyle as the primary risk factor for the disease [6]. In Jordan, 17.1% of adults had diabetes mellitus in 2008 [7]. Increased appetite and thirst, as well as frequent urination, which may result in serious long-term macro and microvascular issues, are among the many traditional signs of diabetes mellitus [8].

Furthermore, death may result from untreated complications [9]. Early diagnosis and appropriate treatment might minimize complications related to diabetes mellitus [8]. Physical therapy, a nutritious diet, and compliance to a prescribed medications can all help achieve optimal glycemic control [8]. As a result, understanding the illness and its consequences is crucial to managing diabetes. Patients who are properly informed about diabetes and its complications seek appropriate medical attention and treatment [10].

A knowledge, attitudes, and practices (KAP) based survey is thought to be an effective resource model for gaining access to the individual's qualitative and quantitative data [11]. A KAP questionnaire is used to help evaluate the efficacy of health education initiatives and to set the baseline value for use in subsequent evaluations [11]. A KAP-based questionnaire has been used in many studies to evaluate people's knowledge, attitudes, and behaviors regarding diabetes mellitus [12-16]. These studies have confirmed the need for increased awareness of how to manage risk factors and prevent diabetes. There is compelling evidence that people with diabetes who are well-informed and have a high level of health literacy manage their condition better [17, 18], using both pharmaceutical medication therapy and non-pharmacological treatments. Therefore, this study aims to assess the public knowledge of diabetes mellitus.

Methods

This descriptive cross-sectional study was carried out in Basrah City between January 1st and May 31st, 2009 on attendants of four primary health care centers located in four different areas of Basrah city (Al-Basrah, Al-Razi, Al-Kebala, and Al-Sha'ela). The study included all attendants, who were aged 20 years and above, whether diabetic or non-diabetic patients.

The participants were diabetic and non-diabetic subjects of both sexes attending four primary health care centers in four socioeconomically different areas in Basrah city. The total number of participants included in the study was 600 (336 female and 264 male), 150 participants from each centre. At the time of the visits, which extend from 9 to 12 a.m., a sample including 1 out of 3 attendants was taken during each day. Each centre was visited once weekly; non-response was not reported. Interviewing of each participant took about 15-20 minutes.

Family history: it included a history of diabetes mellitus among parents, brothers, sisters, sons, and daughters. It was considered positive if one or more of them had a history of diabetes mellitus. Knowledge-related questions: questions covered knowledge regarding definition, risk factors, complications, prevention, control, and management.

Definitions and measurements of selected variables: 1- Age: in terms of completed years at last birthday. Grouped as: less than 30 years, 30–50 years, and 50 years. 2. Sex: Classified as male and female. 3. Marital status: Classified as unmarried, married, and others (widowed and divorced). 4. Educational status: Classified as the following: Illiterate, Primary, Intermediate, Secondary, and Basic university and above 5. Monthly family income: Defined as <250000 I D for low income, 250000–500000 I D for intermediate income, and >500000 I D for high income. 6. Diabetes status: Classified as non-diabetics and diabetics. 7. Family history of diabetes mellitus: Classified as: Negative family history and Positive family history.

The pilot study was carried out in two primary health care centers, each of which was visited 2 days per week. For every question, a scoring system was created, with a score of 1 for a correct response and a score of 0 for an incorrect or "don't know" response. The overall score was between 0 and 34. Based on each participant's score, three categories were established: Poor: less than 40% of the possible points. 41–60% of the total score is acceptable. Good: more than 60% of the total score [19].

SPSS version 15 was used to analyze the data. Frequencies were computed when the data were collated. Significant correlations between variables were evaluated using the chi-square test, with a significance level of less than 0.05.

Results

Sociodemographic Data

The majority of the participants, 315 (52.5%), were between 30 and 50 years of age; 183 (30.5%) were less than 30 years of age. The mean age was (37.7±12.9) years, ranging from 20–78 years. The female proportion 56% more than the male proportion, 44%. The majority were married 83.2%, 11.2% were unmarried, and only 5.6% were either divorced or widowed. 18.7% of the study population were illiterate, the majority 33.7% had a primary level of education, while those with basic university level forms 21.5%. Most of them 66.3% had intermediate monthly family income, while 25% had low income, and only 8.7% had high income. Those with diabetes form 21.2% of the study population, and the majority, 338 (56.3%), had a positive family history of diabetes.

Table 1: Sociodemographic Characteristics of the Study Population

Characteristics	Category	No.	%
Age group	< 30 yrs	183	30.5
	30–50 yrs	315	52.5
	> 50 yrs	102	17
Sex	Male	264	44
	Female	336	56
Marital status	Married	499	83.2
	Unmarried	67	11.2
	Other	34	5.6
Educational status	Illiterate	112	18.7
	Primary	202	33.7
	Intermediate	67	11.2
	Secondary	90	15
	Basic university	129	21.4
Monthly family income	Low	150	25
	Intermediate	398	66.3
	High	52	8.7
Diabetes status	Yes	127	21.2
	No	473	78.8
Family history of diabetes	Positive	338	56.3
	Negative	262	43.7
Total	—	600	100

Level of Knowledge

As shown in Table 3.2, the majority of the study population 333 (55.5%) had good diabetic knowledge, 211 (35.2%) showed acceptable knowledge, and only 56 (9.3%) had poor knowledge.

Table 2: Level of diabetes knowledge among sample:

Level of knowledge	No.	%
Poor	56	9.3
Acceptable	211	35.2
Good	333	55.5
Total	600	100

3. Knowledge of Specific of diabetes mellitus among the study population

Table 3 shows that the lower percentages of the population with correct answers on knowledge of certain aspects of diabetes were noted about complications and management. Good knowledge was noted regarding risk factors and controls of diabetes mellitus.

Table 3. Distribution of correct answers on the knowledge of specific diabetes mellitus among the study population

knowledge of some aspects of diabetes mellitus	percent of correct answers
Definition	62.7
Risk factors	69
Complications	56.7
Prevention	66
Control	71
Management	53

Discussion

Distribution of the level of diabetic knowledge among sample

In this study, the degree of diabetes awareness was assessed among a sample of 600 employees of Basrah city's basic healthcare facilities. The data were somewhat encouraging, 55.5% of the subjects had a good level of diabetes knowledge, and 9.3% had a poor level of knowledge. The high average score could be attributed to the comparatively high percentage of responders with only a basic university education.

Similar results were found in a Singaporean study on public awareness of diabetes mellitus, which revealed that individuals knew a lot about the condition [20].

The results are unlike those which have been reported in a survey which was conducted in Oman, where the study showed that about 53.5%of the subjects had poor knowledge [21]. Based upon the results of a survey conducted in Chennai, India, it was reported that about one-third of the general public had poor knowledge about diabetes [12]. The differences between this study and the above-mentioned studies may result from variations in the study populations' socio-cultural traits, scoring systems, cut-off points, and study designs.

Knowledge of specific aspects of diabetes mellitus among the study population

This study showed that there were a defect areas in knowledge regarding diabetes complications and managements among the study population, and the percentage of correct answers was (56.7%), (53%) respectively This observation may suggest that people thought that the

management is the responsibility of the health providers, on the other hand they had a role regarding risk factors and control of diabetes mellitus this finding was in agreement with that of the study conducted in Gadap town, Pakistan, which found that there were a defect in knowledge regarding diabetes definition, managements and complications [22].

Conclusion

The results of this study showed that the public, as represented by the sample in this survey, generally had good knowledge about diabetes. The studied population showed some defects in knowledge about diabetes mellitus regarding complications and management.

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