

Prevalence and Epidemiological Profile of Diabetes Mellitus Among Adult Dubai Population, Reflections from Dubai Household Health Survey

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Abstract

Background: Globally, the burden of diabetes mellitus is overwhelming. According to the World Health Organization (WHO), it is estimated that the total number of people with diabetes has risen from 108 million in 1980 to 422 million in 2014. The global prevalence of diabetes among adults over 18 years of age has risen from 4.7% in 1980 to 8.5% in 2014. WHO projects that diabetes will be the 7th leading cause of death in 2030. The accompanying shift in lifestyle to more sedentary activity with higher-fat diets and resultant obesity apparently underlies much of the increased prevalence of diabetes mellitus. **Objectives:** To study the prevalence and some epidemiological characteristic of diabetes mellitus among adult Dubai population. **Methodology:** Dubai Household Health Survey was conducted in 2014 as a Cross-sectional multistage stratified Cluster survey. Houses were visited to obtain detailed information on the different health-related issues. According to Dubai Statistical Center, the total population of Dubai at the end of 2014 was 2327350 (males 1613175, females 714175) (UAE 212000, Expatriates 2115350). Individuals aged ≥ 18 years were investigated for the history of Diabetes Mellitus. Related questions of the questionnaire were asked to 3716 persons. Data were entered to the computer using excel sheet and analyzed using SPSS 21. **Results:** The survey revealed that about 3.4% of the adult population have been diagnosed as diabetic (3.3% of males and 4.1% of females). The survey showed also that 16.3% of Emirati adult population have been diagnosed as diabetic (19.6% of males and 13.7% of females). Regarding age distribution, the survey showed that 2.6% of males and 2.6% of females in the age group 18-59 have been diagnosed as diabetic (not including pregnancy diabetes). **Conclusion:** The study outcome reflected that Diabetes is still one of the highest NCD rates worldwide, regional wise and national wise and almost reaching potentially epidemic proportions and its potential complications are enormous. It poses significant healthcare burdens on both families and society. Effective National comprehensive strategy at prevention, promotion and intervention level is still top priority and highly recommended.

Keywords

Diabetes Mellitus, Prevalence, Household Survey, Dubai Population

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1. Background

Globally, the burden of diabetes mellitus is overwhelming.

According to the World Health Organization (WHO), it is estimated that the total number of people with diabetes has risen from 108 million in 1980 to 422 million in 2014. The

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global prevalence of diabetes among adults over 18 years of age has risen from 4.7% in 1980 to 8.5% in 2014. WHO projects that diabetes will be the 7th leading cause of death in 2030. [1] This reflects an increase in associated risk factors such as being overweight or obese. Over the past decade, diabetes prevalence has risen faster in low- and middle-income countries than in high-income countries. [2]

The accompanying shift in lifestyle to more sedentary activity with higher-fat diets and resultant obesity apparently underlies much of the increased prevalence of diabetes mellitus. Several risk factors have been associated with type 2 diabetes and include: Family history of diabetes, Overweight, Unhealthy diet, Physical inactivity, Increasing age, High blood pressure, Ethnicity, Impaired glucose tolerance (IGT), History of gestational diabetes and Poor nutrition during pregnancy. [3-5]

Diabetes is a very important health problem in the countries of Gulf Cooperation Council (GCC). Saudi Arabia is considered as the seventh highest rate in the world in terms of diabetes incidence, with about 3.4 million people having been diagnosed with diabetes. The recent estimate of the disease showed that 24.4% of the adult population is suffering from DM. [6]

United Arab Emirates is one of the 19 countries and territories of the International Diabetes Federation (IDF) Middle East and North Africa (MENA) region. The federation has mentioned that there were over 1 million cases of diabetes (Total number of cases among adults (20-79 years) with diabetes is 1086300 in UAE in 2015 “14.6%”. Number of cases of diabetes in adults that are undiagnosed is 387200 according to the data of the federation. [7]

The majority of people with diabetes are affected by type 2 diabetes. This used to occur nearly entirely among adults, but now occurs in children too. Sophisticated laboratory tests are usually required to distinguish between type 1 diabetes (which requires insulin injections for survival) and type 2 diabetes (where the body cannot properly use the insulin it produces). Surveys are used sometimes to investigate the size of the problem by asking people and by obtaining blood sample. Dubai Household Health Survey has investigated the problem by asking the participants regarding diabetes.

2. Objectives

To study the prevalence and some epidemiological characteristic of diabetes mellitus among adult Dubai population.

3. Methodology

Dubai Household Health Survey was conducted in 2014 as a

Cross-sectional multistage stratified Cluster survey. Houses were visited to obtain detailed information on the different health-related issues. According to Dubai Statistical Center [8] the total population of Dubai at the end of 2014 was 2327350 (males 1613175, females 714175) (UAE 212000, Expatriates 2115350). Individuals aged ≥ 18 years were investigated for the history of Diabetes Mellitus. Related questions of the questionnaire were asked to 3716 persons. The investigation question was: “Have you ever been diagnosed with diabetes (high blood sugar)? Not including diabetes associated with pregnancy?” Data were entered to the computer using Excel sheet and analyzed using SPSS 21.

4. Results

The survey revealed that about 3.4% of the adult population have been diagnosed as diabetic (3.3% of males and 4.1% of females). The survey showed also that 16.3% of Emirati adult population have been diagnosed as diabetic (19.6% of males and 13.7% of females). Table 1 and Figure 1.

Table 1. Distribution of diabetes among study population according to Gender and nationality.

Diabetes	Nationality: Emirati		
	Males %	Females %	Total %
Yes	19.6%	13.7%	16.3%
No	80.4%	86.3%	83.7%
	100.0%	100.0%	100.0%
	Nationality: Non-Emirati		
Yes	3.0%	2.9%	3.0%
No	97.0%	97.1%	97.0%
	100.0%	100.0%	100.0%
	Nationality: Total		
Yes	3.3%	4.1%	3.4%
No	96.7%	95.9%	96.6%
	100.0%	100.0%	100.0%

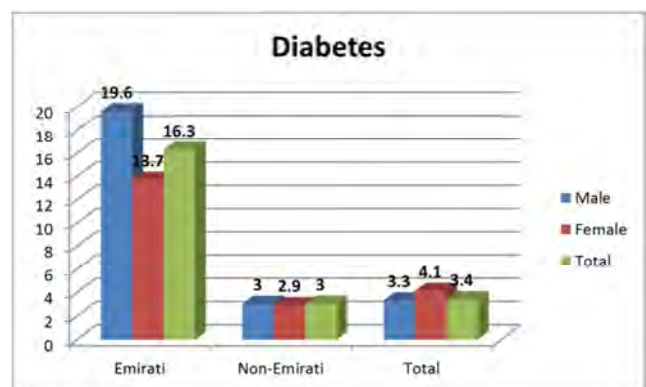


Figure 1. Distribution of diabetes among Dubai population according to gender and nationality.

Regarding age distribution, the survey showed that 2.6% of males and 2.6% of females in the age group 18-59 have been diagnosed as diabetic (not including pregnancy diabetes). Table 2.

Table 2. Distribution of diabetes among study population according to age and gender.

Diabetes	18-59 years of age		
	Male %	Female %	Total %
Yes	2.6%	2.6%	2.6%
No	97.4%	97.4%	97.4%
	100.0%	100.0%	100.0%
	Total age groups		
Yes	3.3%	4.1%	3.4%
No	96.7%	95.9%	96.6%
	100.0%	100.0%	100.0%

5. Discussion

The current study showed that prevalence of Diabetes among adult Dubai Emirati population as reflected by Dubai Household Health survey is 16.3% which is much less than another rate mentioned in another study conducted in Saudi Arabia [9] which showed that the prevalence of diabetes was 34.1% in males and 27.6% in females ($P < .0001$). The mean (Standard Deviation) age for onset of diabetes in males and females was 57.5 (13.1) and 53.4 (13.1) years, respectively ($P < .0001$). Females <50 years old had a higher prevalence than males in the corresponding age range—34.1% and 25.1%, respectively ($P < .0001$). The prevalence of diabetes decreased in patients older than 70 years. [9]

Another study conducted in Kuwait [10] has stated that the overall prevalence of type 2 diabetes in children was 34.9 per 100,000 [95% confidence interval (CI) 24.7-45.1]. There was a significant difference in prevalence between males (47.3, 95% CI 28.7-65.8) and females (26.3, 95% CI 14.8-37.8) at $p = 0.05$ and a significant trend for an increase in prevalence of type 2 diabetes with age ($p = 0.026$). The overall age-adjusted prevalence rate in the 2002 Kuwaiti population was 33.2 (95% CI 26.6-39.9), 41.6 (95% CI 31.2-52.0) in male and 24.6 (95% CI 16.4-32.7) in female children; the difference was significant at $p = 0.013$. There was no significant difference in prevalence between regions.

Nevertheless the current study results showed much higher prevalence of DM among adult population comparing to other studies carried out in Iraq [11] which showed the prevalence of reported diabetes was 6.2% and 6.8% had fasting plasma glucose >126 mg/dl (unknown and undetected) and also 6.8% had fasting plasma glucose (IFG) between 110-125 mg/dl. In the logistic regression adjusted for the possible confounders only age (age group 59 + years and BMI >30) were significantly and independently related to having FPG > 110 mg/dl. Subjects aged 59 + had 6-7 times higher odds ratio for having FPG > 110 compared to the age group <28 years. In those with a BMI level >30 they have 2-28 times higher odds ratio for having FPG > 110 mg/dl than those with a

BMI <25. Conclusion In conclusion age and obesity (age group 59 + years and BMI (> 30) were significantly and independently related to having undiagnosed diabetes and IFG. Active screening and preventive actions should be focused on this target group in order to detect risk subjects for diabetes and to prevent from diabetes development.

6. Conclusion

The study outcome reflected that Diabetes is still one of the highest NCD rates worldwide, regional wise and national wise and almost reaching potentially epidemic proportions and its potential complications are enormous. It poses significant healthcare burdens on both families and society. Effective National comprehensive strategy at prevention, promotion and intervention level is still top priority and highly recommended.

Conflict of Interest

The authors declare that they do not have any conflict of interest.

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