Diabetes mellitus related knowledge of entry-level students of a Medical University in UAE

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ABSTRACT

Objectives: The aim of this study was to assess diabetes mellitus (DM)-related knowledge among the entry-level students of Gulf Medical University.

Materials and Methods: A pre-tested questionnaire assessing the knowledge of DM was administered to students in the first semesters of the different programs in GMU. Data collected were transferred to PASW Statistics (Chicago, IL, USA, Version 18) and analyzed.

Results: Data collected from 119 students (25% males and 75% females) were included in the analysis. The students demonstrated a very high general knowledge about DM. 72% mentioned that DM is a disease affecting the pancreas, 90% recognized it as a condition of inadequate insulin action, 96% knew that there are several types of DM and insulin is required for the treatment of some diabetic patients and 93% knew that family history is a major risk factor. Knowledge about common symptoms and complications was also high. 92% of the students had the knowledge that DM is a chronic disease related to lifestyle and perceived that increasing physical exercise and dietary modifications may prevent the development of DM. This level of knowledge was found to be much higher than that of students in a non-healthcare university where only 46% knew about the involvement of the pancreas and 54% related it to inadequate insulin action. Additionally, only 57% knew that there are several types of DM and 67% linked DM to lifestyle.

Conclusion: Entry-level students (high school level education) from biological stream have a high DM-related knowledge. Their level of knowledge is much higher compared to similar students from a non-healthcare university.

Key words: diabetes mellitus, knowledge, lifestyle, high school

INTRODUCTION

Some of the factors responsible for type 2 DM (diabetes mellitus) are sedentary habits, obesity and inappropriate diet. Unfortunately all these are increasingly found in adolescent and young adult population predicting their future health[1,2]. A report from Centers for Disease Control and Prevention indicated that the rate of DM onset is higher among youth of ages 10-19 years compared to younger counterparts[3]. Association between elevated BMI and DM is well established, and it is found that a high proportion of the college students tend to gain weight during their first year of college[4,5]. It has also been reported that college students often have poor nutritional practices, and lead sedentary lives which result in markedly increased prevalence of obesity by the end of their undergraduate year[6-8].

The prevention of DM can be achieved by educating about the risk factors and symptoms of the disease. All age groups including the children, adolescents and young adults should be targeted in health promotion related to DM prevention, educating them not only about DM but also focusing on healthy eating and physical activity habits[9].

Healthcare professionals and medical students have a very important role in increasing the awareness about and the prevention of DM, and health promotion[10]. This study to assess the lifestyle practices and knowledge about DM was conducted with the students who had just entered the medical university.

MATERIALS AND METHODS

A cross sectional survey was conducted in October 2010 using a pre-tested, self-administered, structured questionnaire.

All the students enrolled in the First year of the four colleges (medicine, dentistry, pharmacy and allied health sciences) of Gulf Medical University participated in the study. Explanations of the objectives and the method of filling out the questionnaire were given. Ethical approval was obtained from the Ethics and Research Committee of the authors' institution. Participation was anonymous and full confidentiality of the data collected was ensured.

A structured questionnaire with closed ended questions was developed after extensive literature search[11-13]. The content validity of the questionnaire was obtained through a review process with a diabetologist, general medicine specialist and family health physician. The statements in the questionnaire were assessed by the panel to ensure that they covered the study objectives.

The questionnaire was pre-tested on a group of ten students to identify any problems relating to question design, flow and interpretation. Following the pilot study, the inconsistencies and the inaccuracies identified were corrected. The pre-tested data were excluded from the data analysis.

The questionnaire was divided into the following sections:

1. Socio-demographic characteristics: age, sex, height and weight.
2. Medical history: personal and family history of diabetes, hypertension, hypercholesterolemia and heart attack.
3. Health behavior and practices of participants.
4. Knowledge about DM including risk factors, symptoms and complications.
5. Perceived beneficial behavioral changes: participants were asked to select those which theyt hought would prevent diabetes.
6. Sources of information regarding diabetes: participants were asked to select all the sources from where they obtained information.

The participants were required to answer the questionnaire using "Yes", "No" or "Unsure" as the response.

Statistical analysis: Data was analyzed using the statistical package SPSS19 version. Categorical variables were described by frequency analysis.

RESULTS

A total of 119 students participated in the study of which 30 (25%) were males and 89 (75%) were females. The majority of the students were between 18-20 years of age. All the students were enrolled in the First year of one of thecolleges of GMU andliving in UAE for more than 15 years. Table 1 shows personal and family history of the students. From the self-reported height and weight, BMI was calculated. A respondent with a BMI of 25 to 29.9 was regarded as overweight and one with a BMI ≥ 30 was considered as obese[14].

Table 1. Personal and Family History

Personal history	Percentages
Have very good health	44
Had a health check-up in last 12 months	57
Had blood sugar tested in last 6 months	62
Overweight (BMI calculated)	20
Obese (BMI calculated)	10
Have Diabetes mellitus	1
Have hypertension	5
Have high cholesterol	5
Family history	
Diabetes mellitus	55
Hypertension	49
Heart attack	35

The health behavior and practices are shown in Table 2. Though 75% of the students were trying to maintain or reduce weight, only 37% exercised regularly.

Table 2. Health behavior and practices

Behavior and practices	Percentages
Do you exercise regularly (150min/week)	37
Are you trying to reduce or maintain weight	75
Does your diet include vegetables	80
Does your diet include fruits	79
Use tobacco	5

Table 3 shows the students' general knowledge of DM, including its risk factors, symptoms and complications. Almost all of them knew that there are several types of diabetes and that insulin is required for some diabetic patients. Family history as a risk factor received maximum number of correct responses. The results obtained on the knowledge of risk factors, symptoms and complications were higher than that expected with students who had just entered the medical university.

Table 3. General knowledge on diabetes mellitus, its risk factors, symptoms and complications

A. General Knowledge on Diabetes Mellitus	Participants selecting the correct response (%)
DM is a condition of high blood sugar	93
DM is a condition of inadequate insulin action	90
DM is non-contagious	88
Insulin is required for some diabetic patients	96
DM is a disease affecting pancreas	72
There are several types of diabetes	96
DM is a long term disease	91
DM is related to life style	90
B. Knowledge on Risk factors for Diabetes	
Family History	93
Obesity	85
Decreased physical activity	74
Age above 40 years old	67
Pregnancy (delivering a baby more than 4Kg)	48
C.Knowledge on Symptoms of Diabetes	
Excessive feeling of thirst	82
Excessive urination	86
Unexplained Weight loss	68
Excessive eating	49
Slow healing of cuts and wounds	80
Tiredness and weakness	87
D.Knowledge on Complications of Diabetes	
Eye problems	74
Kidney problems	70
Loss of sensation in arms and legs	53
Gangrene in limbs that require surgical removal	50
Cardiovascular disease	60
Oral and dental complications	57
Recurrent infection	60
Erectile dysfunction / loss of libido	33

The students have correct perceptions regarding the behavioral changes that can prevent the development of DM such as increasing physical activity (92%), reducing weight (85%), increasing vegetables (93%) and fruits (87%) in diet, and reducing sweets (93%), carbohydrate (84%) and total calorie intake (76%). 91% felt that regular exercise and regulated diet may prevent diabetes from developing.

The students use, to varying extents, many different sources of information to gain knowledge about DM. Some of these sources are as follows: internet (91%), books and magazines (87%), friends andrelatives (82%) and health professionals (81%).

DISCUSSION

Based on BMI classification of weight status, 30% of our students were overweight or obese. It is not surprising as many other studies including the one conducted with Lebanese university students had also reported a very similar prevalence among students[15]. Our students have reported a high prevalence of family history of diabetes (55%), hypertension (49), and heart attack (35%). This is also not surprising as several studies conducted in different parts of the world have shown a tremendous increase of these metabolic disorders[16]. The health consciousness of these young adults should be appreciated as 62% of them had their blood sugar level tested in the previous six months. High family history of DM and other metabolic disorders might be the force behind this positive attitude towards health. Regarding their eating habits, the majority of them included vegetables and fruits in their diet. Our students belong to a high socioeconomic status and it has been reported that higher quality diets are, in general, consumed by the better educated and more affluent people[17]. The majority of our students wishedto maintain or reduce weight but only 37% of them exercised regularly. Regular physical activity is an important behavior for promoting health and decreasing the risk of developing

diseases such as CVD, hypertension, diabetes, osteoporosis, obesity and colon cancer[18]. Physical activity patterns are established in childhood, adolescence and young adulthood, but unfortunately, the physical activity rates decline consistently during the adolescent years[19]. Factors that affect participation in physical activity include demographic variables, knowledge, attitude and beliefs about physical activity[20]. The most important reported barriers for physical activity among the students that are applicable to our students as well are lack of time due to busy class schedule and school work and the parents giving priority to academic success over exercise[21].

The participants of this study were the students who had finished their high school and had just entered the medical university. They would have had biological sciences as one of the subjects in their school curriculum. To the best of our knowledge none of the curriculums offered in schools had any section specifically on DM. The general knowledge of our students on DM is very high as almost all of them know that it is a condition of inadequate insulin action and insulin is required for the treatment of some diabetic patients. They know that it is a disease related to lifestyle and can be prevented. Family history and obesity are most identified as risk factors for DM. Polyuria, polydypsia and slow healing of cuts and wounds were identified as symptoms by almost 85% of them. Regarding the complications, they have a satisfactory knowledge about diabetic retinopathy (74%), nephropathy (70%), neuropathy (53%) and cardiovascular diseases (60%). The majority of them perceive that regular exercise and diet modification, which include increase of fibers and fewer total calories, may prevent diabetes from developing. Their knowledge about DM including the risk factors, symptoms and complications is much higher compared to the findings in a similar study conducted on non-healthcare related university students in UAE, where only 70% knew DM as a condition of high blood sugar, 46% about

the involvement of the pancreas and 54% related it to inadequate insulin action. Also, only 57% knew that there are several types of DM and 67% linked DM to lifestyle. Slightly above half of them identified obesity and decreased physical activity as risk factors[22]. Comparing our observations with those of another similar study conducted on preclinical year medical students in Pakistan, our students had either equal or even higher knowledge on certain aspects related DM[10].

The students have used all the sources of information including internet, books, friends and health professionals to a great extent which is responsible for the surprisingly high level of knowledge in these high school pass outs. It should be appreciated that the students who are selected to get admission in GMU are not only high scorers in their school but also highly motivated and interested to gain knowledge regarding health and diseases. We anticipate that during their training in the university, not only will they gain knowledge and skills but also adopt healthy lifestyle practices to become good-health related professionals and role models for the society.

STRENGTHS AND LIMITATIONS

This study was performed on a particular group of high school pass out students who are interested to become health related professionals. While this is strength with regards to applicability of results to similar population, it may not hold for other student population groups.

CONCLUSION

Intervention is required to promote physical activity and reduce obesity among young adult students. These students' knowledge about DM is surprisingly high which can be attributed to high family history of DM, general intelligence, and interest and motivation to gain knowledge.

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