Knowledge of diabetes mellitus risk factors and complications among the students at Taif University

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Abstract

Background: Awareness and level of understanding of the complications, risk factors, and management of DM are major determinants for prevention of this silent disease, and its comorbidities.

Objectives: The purpose of this study was to explore the awareness of female students in Taif university (TU) about diabetes mellitus risk factors and complications and to promote public health awareness.
Methods: This cross-sectional study was conducted among 400 students (average age was 26 years and ages ranged between 18-33 years) who were selected randomly from university colleges, excluding medical students. Consent was taken from the participants. We used a paper questionnaire that was designed by researchers then translated to Arabic language. Collected data was analyzed utilizing SPSS program version 18. Results were expressed as mean +SD.

Results: In our study, the participants were classified depending on socio-demographic characteristics of students. Regarding the faculty, a high percentage of participants were from literature colleges, (55:3%) while the rest (44:8%) of students were from science colleges. 98.2% of participants were non-diabetics while only 1.8% were diabetics. However, more than half of participants had a family history of DM. Participants had a good knowledge of DM symptoms and risk factor regardless of DM history, while there was significant unfamiliarity of DM complications.

Conclusion: This is the first study to show the knowledge of DM risk factors and complications among girl students in Taif university. The results of our study emphasized the importance of increasing the efforts to educate the general population about DM.

Key words: Knowledge, Diabetes, risk, complications, students, Taif

Introduction

Diabetes mellitus is one of the most expensive serious diseases [1,2]. It is a chronic, incurable disease which leads to significant morbidity and mortality globally [3,4]. It raises public health concerns and become the leading cause of death and disability nowadays [5].

The global prevalence of diabetes in 2014 among adults over 18 years of age was 8.5% [6]. WHO projects that diabetes will be the seventh leading cause of death in 2030 [6]. Diabetes mellitus (DM) remains an expanding global health crisis, from 30 million people affected 10 years ago to about 135 million today, and an estimated 300 million by 2025[7]. One of the highest incidence areas of diabetes mellitus around the world is Saudi Arabia, reaching 23.7% [8].

Diabetes is a silent disease that will affect the body slowly and the individual will not recognise it until it becomes life-threatening [9]. Diabetes mellitus in many individuals is undetected for 4 to 7 years, therefore by this time the patient will already be having signs of micro-and macro-vascular complications [10].

Individuals with diabetes are at higher risk of many complications like heart disease, stroke, high blood pressure, blindness, kidney disease, nervous system disease, amputations, dental disease, and complications of pregnancy [11].

Diabetes Mellitus is thought to be main cause of death as a result of CVD (MI, PVD, and stroke) among diabetic patients [12]. There are some risk factors correlated with the development of diabetes such as old age, unhealthy dietary habits, obesity, sedentary lifestyles, lack of physical activities, and socioeconomic factors as: failure to access healthcare facilities in both rural and urban areas, urbanization, a country's economic and health transition has also been partly responsible for the high incidence of diabetes mellitus; a positive family history of the disease also contributes to increased cases of the disease [13,14].

Ignorance of the symptoms and risk factors by the population will prevent the early detection of the disease [15]. Moreover, in the future this silent disease will be remarkably challenging to the healthcare system, and its high cost will affect the economy of the country [16].

Awareness and understanding about DM, its complications, risk factors, and management are important issues for good control of the disease and improving quality of life [17]. Many patients only become aware that they have diabetes after having serious complications. Media and Healthcare professionals have dedicated a lot of effort to alert the population about the impact of diabetes [18].

An important step is to stop the increasing rate of diabetes mellitus and to raise public awareness about the disease [19]. In Taif city, it is not known how much the public actually know about diabetes and its associated secondary complications. This study aimed to assess the level of knowledge and awareness of DM among female individuals in Taif University, Taif city, Kingdom of Saudi Arabia (KSA(. This study aimed to assess Knowledge of diabetes mellitus risk factors and complications among the students at Taif University.

Subjects and Methods

Study design and duration: This was a cross-sectional study for 6-month duration, in the period from 1 October 2018 to 25 March 2019.

Study settings and sampling methodology: This study included 400 non-medical students chosen randomly from Taif University Saudi Arabia. Students had an average age between 18-33 years. The inclusion criteria were all Taif University students, and the exclusion criteria were all medical students.

Tools and data collection procedure: A paper questionnaire was designed for data collection by the researchers at Taif University which included 16 questions organized into five parts as follows:

I. The first part: social and historical data.
II. The second part: family history of diabetes and importance of glycemic control.
III. The third part: symptoms of diabetes.
IV. The fourth part: risk factors of diabetes.
V. The fifth part: complications of diabetes

Ethical approval: Ethical approval for this study was obtained from the ethical review committee of the college. Participants were informed about the nature of the study, and verbal and written consent was obtained from them all.

Data analysis

Data were analyzed using SPSS program version 18. The demographic variables of Participants (Academic year, college, personal and family history of DM) were expressed as number and percentage. Chi-squared test was used to find the association between knowledge of students about symptoms of diabetes with personal and family history. Knowledge about risk factors and complications were expressed as percentage and frequency. Good knowledge was considered if the participants correctly answered more than half of the questions about risk factors and complications of DM. A p-value of <0.05 was considered as statistically significant.

Results

In this study the total number was 400 female participants. Mean age was 20.9 ± 2.1. Minimum age was 18 years and maximum age was 33 years. Regarding faculty, 55.25% of students were from the literature college, 44.75% from science colleges. Most participants were from 3rd year (28.75%) and 1st year (25.5%). Regarding the disease state, only 1.8% of the students were diabetic and the

remaining 98.2% were non-diabetic. Slightly more than half of the participants (57.75%) have someone in the family suffering from DM (Table 1).

The relationship between knowledge about symptoms of DM and presence of histories revealed insignificant results in family history with a p value of 0.119. However, that relationship was significant (p value of 0.031) with personal history (Table 2).

Regarding the importance of glycemic control most of the participants agreed that glycemic control is important in management of the disease 66.5% (Figure 1).

About 49% (49.5%) of the participants agreed that there is no need to worry about complications if the disease is under control (Figure 2).

Participants were asked about their knowledge regarding risk factors and complications of DM, and the percentages of correct responses for the seven questions were 81.5%, 81.75%, 56% 46.25%, 39.5%, 28%,77.75%, 57% respectively (Table 3).

Discussion

This study was conducted to assess the knowledge of diabetes among female students at Taif university. In the present paper, the participants' knowledge was evaluated based on their perception of DM, which involved the symptoms, risk factors and complications.

Participants in this study have a good knowledge of diabetes symptoms whether they have a family member diagnosed with diabetes (57.7%) or not (42.3%). This indicates a correlation between level of education and the increase in DM knowledge, which is consistent with former research that has been done all over the world [20]. And moreover, because of the high occurrence of DM among Saudi population in Makkah region, which gives rise to the good knowledge of the symptoms of DM in this study. That was reassuring because early knowledge of the symptoms of diabetes means the person notices the disease and seeks medical help.

For the risk factors section, we noticed that the majority of the participants identify obesity and genetics as risk factors, 81.5% and 81.8% respectively. The agreement of obesity as the main risk factor among the participants is in line with the results and findings of a research study done in Jordan [21]. This knowledge is due to concentration of educational programs on obesity. With that said if we increase our efforts there will be a higher perception for all risk factors which can lead toward prevention of DM. Risk awareness within the community is the primary key to behavioral changes among the community [22]. When susceptible people have better risk perception the development of diabetes can be avoided.

In comparison to the good knowledge on symptoms and risk factors of DM, this paper showed significant unfamiliarity about the complications of DM among female students. Our study revealed serious levels of unawareness about the cardiovascular complications of DM (39.5%), even though, adults with diabetes are two to four times more likely to die from heart disease than adults without diabetes [23]. Only 28% of participants showed to have knowledge of stroke which is one of the serious complications. In fact, diabetes increases the risk of stroke as shown in the Framingham study [24], as there is almost 2.5-fold incidence of ischemic stroke in men with and a 3.6-fold risk in women with diabetes mellitus. 77% of participants were well informed about visual problems as a complication of diabetes and even 82.0% of them knew that they should have an eye exam once a year.

According to the Saudi MOH amputation prevalence due to diabetes is 51.5% [25] which is a preventable long-term outcome of diabetes; cases of unawareness of arising neuropathy were found to be about 57% in this study. The application of public education regarding diabetes symptoms and complications will help in decreasing the burden of diabetes among the people and their families followed by a decrease the entire diabetes burden among the society [18].

Strength and limitation

In our study we didn't enquire about sources of information. In addition, being a cross-sectional study it showed the relation between variables without concluding a cause-effect relationship.

Conclusion

This is the first report to show the Knowledge of diabetes mellitus risk factors and complications among the non-medical students at Tail University. Our data showed overall high knowledge levels about risk factor and complications of diabetes mellitus. At the same time, the present study showed strong relations between Knowledge about signs and symptoms of DM and the presence of a personal history of DM. In conclusion, our study indicates we need more efforts made in the university to increase the knowledge about risk factors and complications of diabetes, enhance general health and reduce the risks of complication and give more attention to individual health among Taif university students.

Table 1: Socio-demographic characteristic of the study participants

Age	Mean ± SD	
	20.9 ± 2.1	
Characters	**No.**	**percent**
Academic year		
1st year	102	25.5
2nd year	58	14.5
3rd year	115	28.75
4th year	66	16.5
5th year	33	8.25
6th year	26	6.5
Collage		
Sciences	179	44.75
Literature	221	55.25
Personal history of DM		
Yes	7	1.75
No	393	98.25
Family history of DM		
Yes	231	57.75
No	169	42.25

Table 2: Relationship between knowledge of students about symptoms of diabetes with personal and family history

Characters	Personal history of DM				*	p-value	Family history of DM				*	p-value
Knowledge about symptoms of DM	Yes		No				Yes		No			
	No.	%	No.	%			No.	%	No.	%		
Yes	5	71.4	363	92.4	6.94	.031	218	94.4	150	88.8	4.256	.119
No	0	0	9	2.3			4	1.7	5	3		
Don't know	2	28.6	21	5.3			9	3.9	14	8.3		

N.B.: * Chi-squared test

Figure 1: Participants response to question: "Do you know why glycemic control is important?"

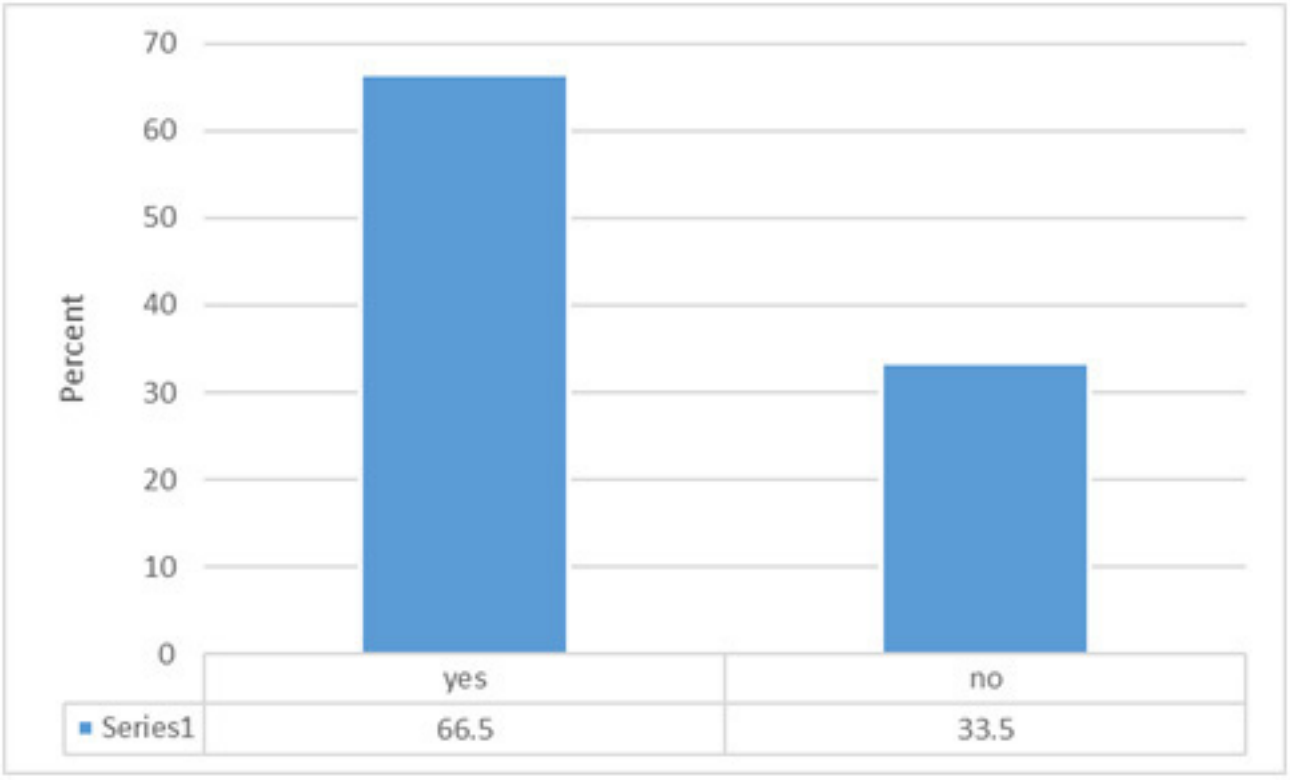


Figure 2: Participants response to: "As long as the diabetes is kept under control, there is no need worry about diabetic complications"

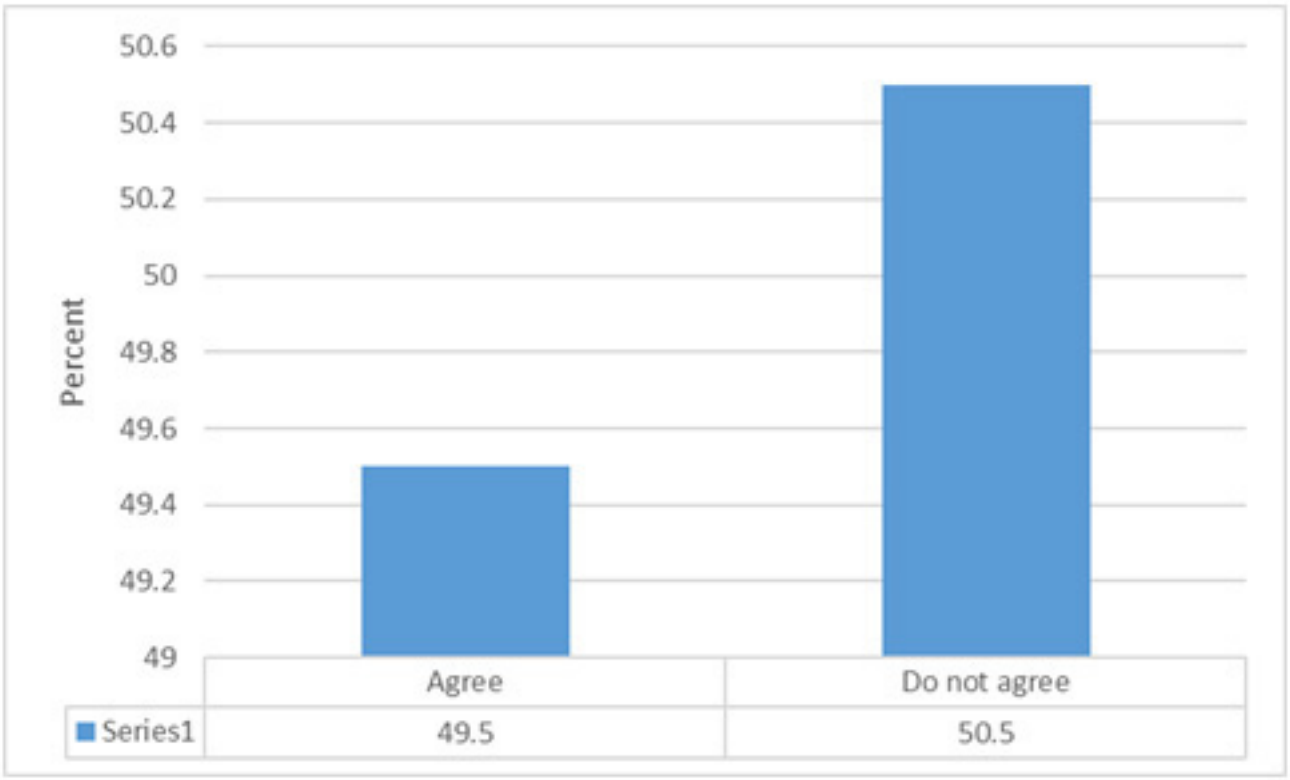


Table 3: Knowledge about risk factors and complications of diabetes among TU students

Risk Factors	No.	Percent
Obesity		
Yes	326	81.5
No	22	5.5
Don't know	52	13
Genetic factors		
Yes	327	81.75
No	26	6.5
Don't know	47	11.75
Aging		
Yes	224	56
No	77	19.25
Don't know	99	24.75
Complications	**No.**	**Percent**
Damages the kidney		
Yes	185	46.25
No	42	10.5
Don't know	173	43.25
Heart attack		
Yes	158	39.5
No	45	11.25
Don't know	197	49.25
Stroke		
Yes	112	28
No	63	15.75
Don't know	225	56.25
Visual problems or blindness		
Yes	311	77.75
No	32	8
Don't know	57	14.25
Loss of feeling in hands, fingers and feet		
Yes	228	57
No	23	5.75
Don't know	149	37.25

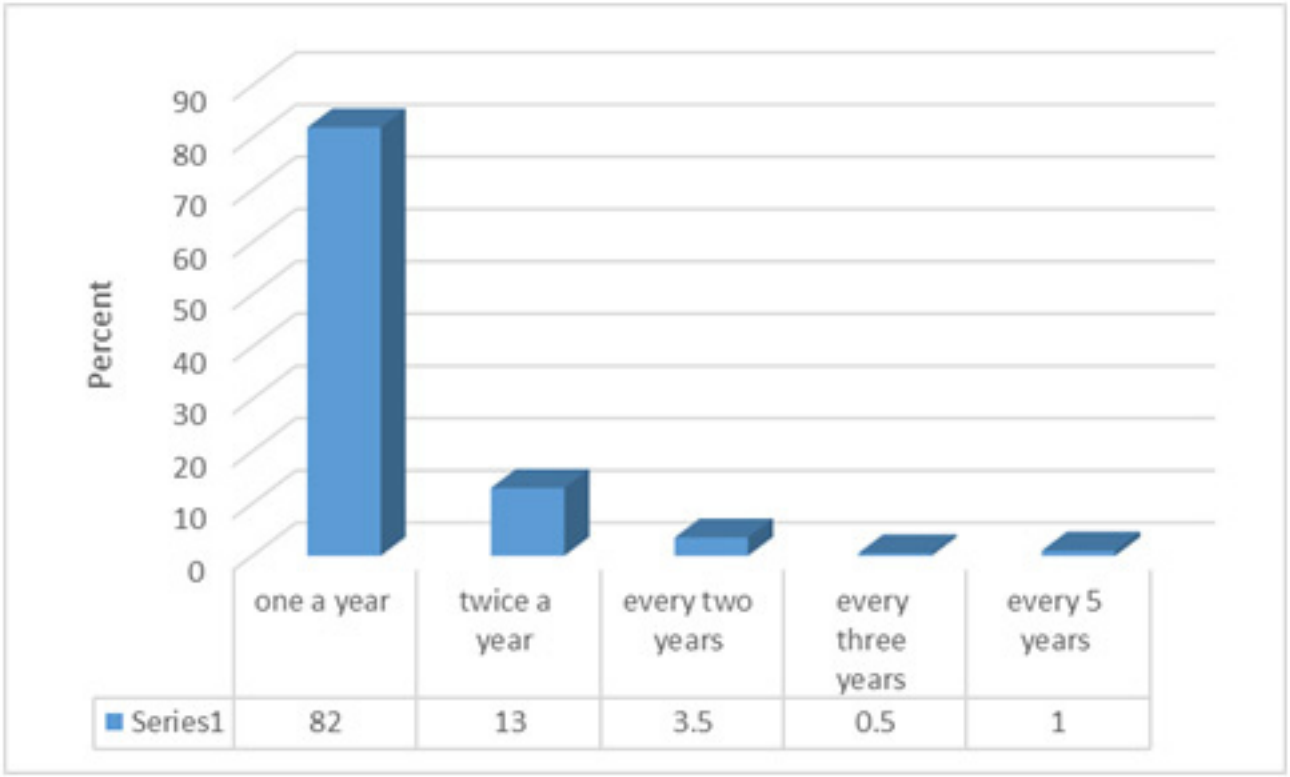
Table 4. Distribution of answers about risk factors of diabetes among TU students

Number of correct answers	Frequency	Percent
No correct answer	9	2.3
1 correct answer	25	6.3
2 correct answers	86	21.5
3 correct answers	174	43.5
4 correct answers	106	26.5
Total	400	100

Table 5. Distribution of answers about complications of diabetes among TU students

Number of correct answers	Frequency	Percent
No correct answer	4	1.0
1 correct answer	22	5.5
2 correct answers	43	10.8
3 correct answers	73	18.3
4 correct answers	89	22.3
5 correct answers	66	16.5
6 correct answers	61	15.3
7 correct answers	27	6.8
8 correct answers	15	3.8
Total	400	100

Figure 3. Participants response to question: "How often should you see the eye care practitioner if you have diabetes?"



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