Khalij-Libya Journal
of Dental and Medical Research
http://journals.khalijedental.com.ly/index.php/ojs/index eISSN:2708-888X

Original article

Assessment of Risk Factors of Type 2 Diabetes Among Teaching Staff in Tripoli University

Aisha Elansari*, Hosam Elmahmoudi, Nadra Elalem, Ehab Sassi, Moad Mahfoud, Alarif Abukarbuah

Department of Anesthesia and Intensive Care, Faculty of Medical Technology, The University of Tripoli, Libya

Corresponding Email. *aisha.elansari@yahoo.com*

ABSTRACT

Background and aims. *Diabetes mellitus (DM) is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. The present study was conducted to determine risk factors associated with diabetes mellitus among teaching staff in university of Tripoli, Libya.* ***Methods***. *A total of 100 staff from university of Tripoli were included in this study. A prospective study was conducted from Sept 2021 to March 2022, by using a questionnaire that distributed manually to teaching staff from different faculties of the university.* ***Results***: *Out of 100 teaching staff, most of them were observed in age group under 45 years old and their body mass index ranged between 25-30kg/m². Cronbach's alpha showed (0.936), waist circumference with mean (m= 2.1200), body mass index with (m=2.0900), and family history with (m=2.0200) to be the most significant risk factor in DM. Other factors such as: antihypertensive drugs with (m=1.8500), age (m=1.8200), physical activity (m=1.4700) and eat vegetables with (m=1.4100), and history of high RBS with (m=1.1700).* ***Conclusion***. *The risk of developing type 2 diabetes within 10 years amongst teaching staff in university of Tripoli is slightly elevated and the most common risk factor was age and family history. It is necessary to raise awareness of the dangers of DM and its complication.*

Keywords. Diabetes mellitus, University of Tripoli, Risk factor.

Citation: Elansari A, Elmahmoudi H, Elalem N, Sassi E, Mahfoud M, Abukarbuah A. Assessment of Risk Factors of Type 2 Diabetes Among Teaching Staff in Tripoli University. Khalij-Libya J Dent Med Res. *2023*;7(2):184–187. https://doi.org/10.47705/kjdmr.237217

Received: 28/11/23; **accepted:** 26/12/23; **published:** 30/12/23

Copyright © Khalij-Libya Journal (KJDMR) 2023. Open Access. Some rights reserved. This work is available under the CC BY-NC-SA 3.0 IGO license https://creativecommons.org/licenses/by-nc-sa/3.0/igo

INTRODUCTION

Diabetes mellitus is a chronic heterogeneous metabolic disorder with complex pathogenesis. It is characterized by elevated blood glucose levels or hyperglycemia, which results from abnormalities in either insulin secretion or insulin action or both [1]. Blood glucose level is regulated by several hormones, primarily insulin. Insulin allows glucose to move out of the blood into cells throughout the body where it is used for fuel [2]. People suffered diabetes either do not produce enough insulin type 1 diabetes or cannot use insulin properly type 2 diabetes, or both which occurs with several forms of diabetes [3].

Type 2 diabetes (T2DM) is described as a combination of low amounts of insulin production from pancreatic β-cells and peripheral insulin resistance. Insulin resistance leads to elevated fatty acids in the plasma, causing decreased glucose transport into the muscle cells, as well as increased fat breakdown, subsequently leading to elevated hepatic glucose

production [4]. Insulin resistance and pancreatic β-cell dysfunction must occur simultaneously for type 2 diabetes to develop [5].

T2DM called non-insulin depending diabetes mellitus (NIDDM) accounts for more than 90% of patients [6]. Individuals with T2DM are at high risk for both microvascular complications including retinopathy, nephropathy and neuropathy and macrovascular complications such as cardiovascular comorbidities [7].

It is estimated by the WHO that 3% of the world's population 194 million have diabetes, the prevalence of diabetes for all age-groups worldwide was estimated to be 2.8% in 2000 and 4.4% in 2030. The total number of people with diabetes is projected to rise from 171 million in 2000 to 366 million in 2030 [8]. The prevalence of diabetes is higher in men than women, but there are more women with diabetes than men [9]. According to WHO, it is estimated that there were 88,000 diabetics in Libya the year 2000. This prevalence is estimated to reach 245,000 diabetics by the year 2030, in Libya according to local epidemiological studies, the prevalence for known diabetic patients aged over 20 years was 3.8% .as 50% of type 2 diabetic patients are unaware of their diabetes "undiagnosed" the actual prevalence is probably higher [10].

METHODS

Study design and study population

A total of 100 staff from university of Tripoli were included in this study. A prospective study was conducted from Sept 2021 to March 2022.

Data collection

A questionnaire was distributed manually to teaching staff in the university. The questionnaire was divided into two sections, The first section included gender, faculty, and presence of diabetes. The second section contains questions related to the risk factor.

The questionnaire is designed to take no more than 5 minutes to complete. Furthermore, to make the research more accurate, the survey was conducted in both English and Arabic.

Statistical analysis

Data were entered and analyzed by Microsoft excel software version 2010 and IBM SPSS Statistics 22. Answers frequency and percentage were used. Factor appearance proportion tested using a one sample Cronbach's alpha to obtain reliability (*pt*) 0.936.

RESULTS

From table 1, the percentage of male (57%) was higher than women. Most staff answers were for those aged under 45 years, with 49%, while 27% of the staff aged between 45-54 years, 17% aged between 55-64 years, and 7% were above 64 years. Majority of participants 41% had BMI ranged between 25-30kg/m², followed by 34% had >30kg/m². About 47% of participants had waist circumference in the category of >102 cm for men - >88 cm for women.

Table 1. Patients' demographics

Demographics	Number	Percentage
Gender		
Male	57	57%
Female	43	43%
Age		
Under 45years	49	49%
45-54 years	27	27%
55-64 years	17	17%
Over 64 years	7	7%
Body mass index		
<25kg/m²	25	25%
25-30kg/m²	41	41%
>30kg/m²	34	34%
Waist circumference		
<94cm for men - <80cm for women	35	35%
94-102cm for men – 80-88cm for women	18	18%
>102 cm for men - >88 cm for women	47	47%

Table 2 exhibited some inquiries about the possible risk factors of getting diabetes, and found that majority of respondents 53% do regular exercise, 59% of them eat healthy food. About 17% of participants have found their blood glaucous level above normal during routine medical checkup and 60% of them had family history of diabetes.

Table 2. Inquiries about the possible risk factors of getting diabetes.

Quires	Yes	No
Do you usually have at least 30 minutes daily physical activity	53%	47%
How often do you eat vegetables, fruit or berries?	59%	41%
Have you ever been found to have high blood glucose during medical checkup?	17%	83%
Do you have family history of diabetes	60%	40%

DISCUSSION

The incidence and prevalence of diabetes is increasing at an alarming proportion worldwide. In order to stem the pandemic, must adopt preventive strategies in form of health education policies to prevent or at least delay the onset of type 2 diabetes [11]. The most common risk factors for type 2 diabetes were age, family history, and obesity the majority of the participants were below the age of 45 years. These may have affected the overall score as the incidence and prevalence of diabetes rises steeply after the age of 45 years [12].

The result of the study reported that most of the participants were under 45 years old, but their risk was low, maybe due to the education of health workers about DM risk factor was higher than teaching staff. As for BMI and waist circumference, the majority of them was not suffer from obesity, unlike teaching staff most of them were obese. These results were agreed by pervious study [13].

Male was more than females (57% vs 43%, respectively). This was similar to previous study done among Nigerian participants [14].

CONCLUSION

The immediate identification of all risk factors associated with diabetes reduce the risk of developing and avoid this chronic disease. The risk factors for diabetes vary between individuals and this research does not clearly indicate the validity of the results accurately. The data from this study provide a foundation and direction for future research in the area of diabetes mellitus.

Conflict of interest. Nil

REFERENCES

1. Banday MZ, Sameer AS, Nissar S. Pathophysiology of diabetes: An overview. Avicenna J Med. 2020 Oct 13;10(4):174-188. doi: 10.4103/ajm.ajm_53_20.
2. Rahman MS, Hossain KS, Das S, Kundu S, Adegoke EO, Rahman MA, Hannan MA, Uddin MJ, Pang MG. Role of Insulin in Health and Disease: An Update. Int J Mol Sci. 2021 Jun 15;22(12):6403. doi: 10.3390/ijms22126403.
3. American Diabetes Association. Diagnosis and classification of diabetes mellitus. Diabetes Care. 2009 Jan;32 Suppl 1(Suppl 1):S62-7. doi: 10.2337/dc09-S062. PMID: 19118289; PMCID: PMC2613584.
4. Galicia-Garcia U, Benito-Vicente A, Jebari S, Larrea-Sebal A, Siddiqi H, Uribe KB, Ostolaza H, Martín C. Pathophysiology of Type 2 Diabetes Mellitus. Int J Mol Sci. 2020 Aug 30;21(17):6275. doi: 10.3390/ijms21176275. PMID: 32872570; PMCID: PMC7503727.
5. Cerf ME. Beta cell dysfunction and insulin resistance. Front Endocrinol (Lausanne). 2013 Mar 27;4:37. doi: 10.3389/fendo.2013.00037. PMID: 23542897; PMCID: PMC3608918.
6. Chatterjee S, Khunti K, Davies MJ. Type 2 diabetes. Lancet. 2017 Jun 3;389(10085):2239-2251. doi: 10.1016/S0140-6736(17)30058-2. Epub 2017 Feb 10. Erratum in: Lancet. 2017 Jun 3;389(10085):2192. PMID: 28190580.
7. Cade WT. Diabetes-related microvascular and macrovascular diseases in the physical therapy setting. Phys Ther. 2008 Nov;88(11):1322-35. doi: 10.2522/ptj.20080008. Epub 2008 Sep 18. PMID:

18801863; PMCID: PMC2579903.

8. Wild S, Roglic G, Green A, Sicree R, King H. Global prevalence of diabetes: estimates for the year 2000 and projections for 2030. Diabetes Care. 2004 May;27(5):1047-53. doi: 10.2337/diacare.27.5.1047. PMID: 15111519.
9. Kautzky-Willer A, Leutner M, Harreiter J. Sex differences in type 2 diabetes. Diabetologia. 2023 Jun;66(6):986-1002. doi: 10.1007/s00125-023-05891-x.
10. Bakoush O, Elgzyri T. Do we have a diabetes epidemic in Libya? Libyan J Med. 2006 Oct 17;1(2):123-5. doi: 10.4176/061016. PMID: 21526010; PMCID: PMC3081352.
11. Tabish SA. Is Diabetes Becoming the Biggest Epidemic of the Twenty-first Century? Int J Health Sci (Qassim). 2007 Jul;1(2):V-VIII. PMID: 21475425; PMCID: PMC3068646.
12. Wilmot E, Idris I. Early onset type 2 diabetes: risk factors, clinical impact and management. Ther Adv Chronic Dis. 2014 Nov;5(6):234-44. doi: 10.1177/2040622314548679. PMID: 25364491; PMCID: PMC4205573.
13. Al-Goblan AS, Al-Alfi MA, Khan MZ. Mechanism linking diabetes mellitus and obesity. Diabetes Metab Syndr Obes. 2014 Dec 4;7:587-91. doi: 10.2147/DMSO.S67400. PMID: 25506234; PMCID: PMC4259868.
14. Opadijo B, Adeyemi A. Risk of developing diabetes among healthcare workers in a Nigerian Tertiary Hospital. Mera: Diabetes International 21 (2008).