Original article:

The Prevalence of Diabetes Mellitus Among High School and University Teachers in Mogadishu, Somalia

Mohamed Elmi Ibrahim[1], Recep Erçin Sönmez[2], Prof. Dr. Ahmed Yusuf Guleid[1],
Prof. Dr. Orhan Alimoğlu[2]

Abstract:

Background: Primary objective of the present study is to describe the main risk factorsof diabetes mellitus (DM) and to determine its prevalence among high school and university teachers in Mogadishu, Somalia. ***Materials and Methods:*** Current study is designated as a research survey in an attempt to collect data from members of a certain population in order to determine the actual status of diabetes mellitus (DM) in respect to multiple variables (risk factors, awareness, prevalence). The study populationhad beenselected fromhigh school and university teachers who reside and work in Mogadishu, Somalia. ***Results:***A total of 222 (M/F (135/87)) respondents were included in the study of whom mostly were university teachers (n=128 (57.7%)), and less were high school teachers (n=94 (42.3%)). Majority of the population had been consisted of those graduated with degree (n=100 (45%)), and less were the ones with diploma (n=51 (23%)), secondary certificate (n=40 (18%)), master degree (n=29 (13.1%)) and PhD (n=2 (0.9%)) in decreasing frequency. Most of respondents were less than 60 years of age (n=196 (89.2%)) that the majority were within 30-40 years interval (n=74 (33.3%)). Prevalence of diabetes mellitus (DM) was found as 36.5% (n=81). Though, only 15 (18.5%) patients had prior knowledge of which type of DM (1 or 2) they had. ***Conclusion:***Interactional educational programs should be conducted both in public environment as well as in schools to improve knowledge and awareness of the community about clinical outcomes of diabetes mellitus (DM) on common health. Establishment of new screening programs will aid in prevention of adverse effects related to diabetes mellitus (DM).

Keywords: Diabetes Mellitus (DM), Awareness, Education, Prevention

Introduction

Diabetes mellitus (DM) represents a group of metabolic diseases characterized by chronic hyperglycemia resulting from defects in insulin secretion, insulin action, or both which affects both men and women equally[1-3].In 2007; 23.6 million people (7.8%) in United States had type 2 DM. The number of people with DM worldwide is projected to increase to552 million by 2030 [4-8].

DM affecting high school teachers cause devastating, yet preventable consequences. In African countries,171 million individuals were reported to be affected byDM in the year 2000 [9].

High School teachers constitute largest category of lecturers employed in the education sector of Somalia. Yet, It is reported that more than 3% of schools are still without teachers, and 19% of them function with single teacher. To ensure comprehensive development of students, a teacher also has to organize co-curricular activities, sports, field trips etc.

Several relevant stress factors may affect teachers adversly in coping with teaching skills such as; managing with non-cooperative and aggressive children, differential concerns for childrens' learning and theirs' relationships with

1. Faculty Of Medicine and Surgery, Benadir University, Mogadishu, Somalia
2. Department of General Surgery, İstanbul Medeniyet University, İstanbul, Turkey

Correspondence to: Orhan Alimoğlu, MD Istanbul Medeniyet University, Department of General Surgery Address: Eğitim Mah. Dr. Erkin Cad. Kadıköy/İstanbul 34722 Turkey

E-mail: orhanalimoglu@gmail.com / mobile: 00905322528504

other members, etc. All these put them at riskof developing DM due to their nature of job.

In the context of limited evidence on the prevalence of DM among teachers, we designed this study to screen and identify prevalence of DM in high school and university teachersin Mogadishu, Somalia.

Materials and Methods

Current study had been designated as a descriptive research survery. Main objecitve was to collect data from members of high school and university teachers in order toput forward the actual prevelance of DM and by doing that it had been planned to describe the main causative factors and to propose prevention strategiesas well. Therefore, this study had required the collection of quantifiable information from the samples that was supposed to give most reliable and accurate results.

The study population had been composed ofhigh school and university teachers who reside and work in Mogadishu, Somalia. For purposes of convenience, ten high schools and ten universities had been chosen seperately for survey in the present study.

People willing to participate, high school and university teachers, and those who agreeto sign the consent form had been included in the present study.

The duration of survey was ten days and it was designed as to ensure the researchers to get relevant information from the respondents participated in the study.

Data Analysis

The data collected was edited for accuracy, consistency, uniformity and completeness and was analyzed with Statistical Package for Social Sciences (SPSS) (version 21.0).

Results

222 (M/F (135/87)) candidates had completed the survey of whom mostly were university teachers (n=128 (57.7%)), and less were high school teachers (n=94 (4.3%)) (Table 1). Majority of the population had been consisted of those graduated with degree (n=100 (45%)), and less were the ones with diploma (n=51 (23%)), secondary certificate (n=40 (18%)), master degree (n=29 (13.1%)) and PhD (n=2 (0.9%)) in decreasing frequency (Table 2). Most of the respondents were less than 60 years old (n=196 (89.2%)) that the majority were within 30-40 years interval (n=74 (33.3%)) (Table 3).

The first question of the survey had put forward the respondents' reply in terms of their knowledge if they had been diagnosed with DM or not. According to that, majority of the respondents replied as 'no' (n=141 (63.5%)) and the less had answered as 'yes' (n=81 (36.5%)) (Table 4). Interestingly, query about the knowledge of DM types (1&2)had revealed that only 6 (7.4%) of the respondents knew that they had type 1 DM and the other 9 (11.1%) respondents had stated that they had type 2 DM (Table 5). 73% (n=162) of the study group claimed that they knew about the major symptoms of DM, yet unsatisfactory answers were given when they were asked about each symptomin detail.

34 patients(42%) were under oral hypoglycemic treatment (OHT), 21 patients(25.9%) were on oral diet only and 4 patients(4.9%)had been taken insulin treatment. The rest (n=22 (27.2%))had been taken both OHT/insulin treatment and diet regulation.

Discussion

DM has a chronic clinical coursein which regulation of the disease mainly depends on patient's self-management [10-13]. Self-managementinclude monitoring blood glucose levels and taking medications regularly, maintaining a healthy diet and physical exercising. Despitetechnological and scientific advances has been establishedfor the management of DM, no reliable information on the prevalence of DM is available yet in Somalia.

Diabetes peer support for teachers is a valuable source of information which link patients together to provide mutual support for each other. Such teachers can be an integral facilitator to improve the relationship for those having DM and also to develop diabetes-specific self-care goals.

DM is the eighth leading cause of death in most of high-income countries according to World Health Organization (WHO factsheet. 2012). It has emerged as one of the most challenging health problems in the 21st century, and the developing countries have been consistently found to have a higher prevalence of diabetes affecting people[14].

Answers given by the respondents showed that

most of the teachers had no idea about the difference between oral and parenteral medications used for DM, whether if they may cause addiction or not, andin what terms to stop the medications during the illness.

Patient compliance with medications, diet and exercise was also assessed. It seemed that patients were more compliant with the use of medications(n=117 (52.7%)), though they were not familiar with exercises as much as use of medications and diet restrictions (n=12 (5.5%)).

Findings which were obtained during discussions among Somalia women had revealed that they did not have enough knowledge nor any awareness about the severity of the DM that may effect one's life and even common health in the future. Their knowledge towards DM was not more than a spiritual thing which some of them had stated that 'DM occur more in U.S. unlike in Somalia, because theirs' folk are kindly and active people that prevents them from being DM' according to their beliefs[15-16]. They defined the disease as one which causes tiredness, sleepiness, frequent urination and for which there is no cure. They do not believe that DM is a genetic disease. Besides, some of them did not know what type of diabetes they had. Interestingly, some group of Somalia men in the Project were shocked to learn of their initial diagnosis for DM because none were expectingfor having DM.

Conclusion

There is a vast need for implementing effective public health interventions to assist in halting the escalating problem of Diabetic in Somaliapopulation. It can be done through health system promotion and conduction of educational programs. These programs should concentrate on lifestyle changes including smoking cessation, dietary modification, normal weight maintenance, and weight reduction intervention as well as diabetes control. Conduction of screening programs for early detection ofobesity and diabetes would be preventive. Establishing a school environment which is free from smoking and encouraging the use of local school yards for increasing the physical activity and controlling weight of teachers are also recommended.

Table 1. Distribution according to occupational status

		Count (n=)	Percent (%)
	High School Teacher	94	42.3
	University Teacher	128	57.7
	Total	222	100.0

Table 2. Level of education

		Count(n=)	Percentage (%)
	Degree	100	45.0
	Diploma	51	23.0
	Secondary Certificate	40	18.0
	Master	29	13.1
	PhD	2	0.9
	Total	222	100

Table 3. Distribution according to age

		Count (n=)	Percentage (%)
	20 - 29	38	17.1
	30-39	74	33.3
	40 - 49	48	21.6
	50 - 59	36	16.2
	60<	26	11.8
	Total	222	100

Table 4. Prevelance of diabetes mellitus (DM)

		Count (n=)	Percentage (%)
	No	141	63.5
	Yes	81	36.5
	Total	222	100

Table 5. Distribution of patients according to awareness of theirs' types (1&2) of diabetes mellitus(DM)

	Diabetes Mellitus (DM)	Count (n=)	Percentage (%)
	Type 1	6	7.4
	Type 2	9	11.1
	Total	15	18.5

References:

1. KaisakiP, DelepineM, WoonP, Sebag-MontefioreL, WilderS, MenzelS, et al. Polymorphisms in type II SH2 domain—Containing inositol 5-phospatase (INPPL1, SHIP2) are associated with physiological abnormalities of the metabolic syndrome. Diabetes. 2004; 53: 1900–1904.

2. Lebovitz HE. Diagnosis, classification, and pathogenesis of diabetes mellitus. J Clin Psychiatry. 2001; 62: 5-9.

3. Jacobsen LV, Flint A, Olsen AK, Ingwersen SH. Liraglutide in Type 2 Diabetes Mellitus: Clinical Pharmacokinetics and Pharmacodynamics. Clin Pharmacokinet. 2016; 55: 657-672.

4. Prescribing for Diabetes England 2005-06 to 2013-14 - Health and Social Care Information Centre. 2014.

5. IDF Diabetes Atlas Group. Update of mortality attributable to diabetes for the IDF Diabetes Atlas: Estimates for the year 2013. Diabetes Res Clin Pract. 2015; 109: 461–465.

6. Xu Y, Wang L, He J, Bi Y, Li M, Wang T, et al. Prevalence and control of diabetes in Chinese adults. JAMA. 2013; 310: 948–958.

7. Global burden of diabetes. International Diabetes federation. Diabetic atlas fifth edition 2011, Brussels.

8. Anita DC, Prihatiningsih D. Biological Factors Related to Distress of Patients with Diabetes Type-2. International Journal of Human and Health Sciences. 2019; 3: 207-217.

9. Wild S, Roglic G, Green A, Sicree R, King H. Global prevalence of diabetes: estimates for 2000 and projections for 2030.Diabetes Care. 2004; 27: 1047–1053.

10. Morrison K. Low carbohydrate diets for diabetes control. Br J Gen Pract. 2005;55:884.

11. Rashid AA, Hamzah Z, Tan CE, Devaraj NK. The Association of Social Support, Self-Efficacy with the Duration and Complications of Type 2 Diabetes Mellitus (T2DM) in Patients of a Malaysian Primary Care Clinic. International Journal of Human and Health Sciences. 2019; Supplementary Issue.

12. Nielsen JV, Joensson EA. Low-carbohydrate diet in type 2 diabetes: stable improvement of bodyweight and glycemic control during 44 months follow-up. Nutr Metab. 2008; 5: 14.

13. John R, Pise S, Chaudhari L, Deshpande PR. Evaluation of Quality of Life in Type 2 Diabetes Mellitus Patients Using Quality of Life Instrument for Indian Diabetic Patients: A Cross-Sectional Study. *J Midlife Health*. 2019;10:81–88.

14. International Diabetes Federation. Diabetes atlas - 7th Edition. AK Al-Mahmood, AA Ismail

15. , FA Rashid, YN Azwany, Rabinderjeet Singh, Geoff Gill. Effect of Therapeutic Lifestyle Changes on Insulin Sensitivity of Non-obese Hyperlipidemic Subjects: Preliminary Report. Journal of atherosclerosis and thrombosis 14(3):122-7. DOI: 10.5551/jat.14.122

16. Permana, I. How Religosity and/or Spirituality Might Influence Self-Care in Diabetes Management : A Structured Review. Bangladesh Journal of Medical Science. 2018; 17: 185-193.