



Knowledge Assessment of Type 2 Diabetes Mellitus in First Professional Medical Students

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Authors' contributions

This work was carried out in collaboration among all authors. Authors ZK, MM and MZ designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors ZK and MM managed the analyses of the study. Authors MZ and HS managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Objective: To assess the knowledge of first professional medical students of Bolan University of Medical and Health Sciences Quetta about Type 2 Diabetes Mellitus.

Methodology: This cross sectional descriptive study was carried out on first professional MBBS students of Bolan Medical College Quetta from 1st May 2017 to 30 June 2017 (two months). The sample size was 200 students. The questionnaire included 12 questions about diabetes mellitus, related to general knowledge of Type 2 diabetes mellitus. The students were divided into two groups. The group I was the students who think that they have knowledge of type 2 diabetes mellitus and the group II was the students who think that they have poor or deficient knowledge of type 2 diabetes mellitus. Each question was allocated 5 marks. After giving marks to all replied questions, the total 60 marks for 12 questions were further categorized as; A score of less than 20 poor, 21—30 average, 31—40 good, > 40 excellent. The results were analyzed by SPSS.

Results: There were 174 (87.0%) students who had some knowledge of type 2 diabetes mellitus, while 26 (13.0%) had no any knowledge of diabetes mellitus. The students having age of 20 years or more were 126 (63%) where majority 107 (53.5%) were studying in second year. There were

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102 (51%) male and 98 (49%) female students. The knowledge of investigation and diagnostic criteria for type 2 diabetes mellitus were found significant amongst all. The knowledge of etiology, symptoms, course, treatment and complications were found insignificant. Only 10 (5%) students had excellent knowledge of type 2 diabetes mellitus.

Conclusion: The students having an age of more than 20 years had excellent and more knowledge of type 2 diabetes mellitus. The problems of diabetes mellitus among their relatives and friends, its causative factors, symptoms and course was found insignificant. The knowledge of diagnostic test and interpretation had a positive correlation but insignificant. Majority of students 96 (48%) had average knowledge of diabetes mellitus.

Keywords: Diabetes mellitus; female; knowledge; male; students.

1. INTRODUCTION

Diabetes mellitus is increasing with a consternation rate worldwide. The expected death may rise to more than 5 million at the end of 2035 [1]. Diabetes mellitus is defined as a chronic disease that resulted either due to insufficient insulin production or poor utilization of insulin by body where insulin regulates the blood sugar [2]. Hyperglycemia may lead to serious complications to the body tissues. It is associated with two fold high risk of death [3].

At the end of 2017, 35.3 million adult population were found having type 2 diabetes mellitus in Pakistan. One to every six person is suffering from type 2 diabetes mellitus in Pakistan. Amongst this figure, 9.04% of population is without knowing their disease [4]. Lack of knowledge about diabetes mellitus and its chronic complications is a fundamental public health problem. Knowledge of type 2 diabetes mellitus and its prevention can contribute to community positively [5]. The severity of this disease is extensive and coupled with unawareness of population. Informative knowledge is necessary for sufficient diabetic management while self-education is the keystone of treatment for all types of diabetes mellitus. Patient requires knowledge and skilled information to formulate up-to-date choices and to assist self-directed modifications in behavior and to lessen the menace of associated complications [6].

Various studies alarmed that the knowledge of type 2 diabetes mellitus is very poor in under developed and developing countries. Having knowledge of various common diseases are of utmost importance to meet the challenges of increasing healthcare costs [7-9]. In view of above factors, it is apparent that there is need to see the knowledge of type 2 diabetes mellitus in the daily life of our community.

2. METHODS

This cross sectional descriptive study was conducted on first professional medical students of Bolan University of Medical and Health Sciences Quetta during the period 1st may 2017 to 30th Jun 2017 (2 months). This study included 200 students (n=200), who gave prior informed consent for this study. The selection was made by non probability convenient sampling technique. Students of both genders were included. A validated questionnaire made in English was introduced to analyze the knowledge on type 2 diabetes mellitus. The questionnaire included 12 questions about diabetes mellitus related to general knowledge of diabetes like; etiology, symptoms, course, investigations, diagnosis, control, treatment, complications and prevention. Each question was allocated 5 marks. After calculating marks of all questions, a total 60 marks were further categorize as score of < 20 poor, 21—30 average, 31—40 good, > 40 excellent. The students were further subdivided into two groups. The group I was the students who think that they have knowledge of diabetes mellitus and the group II was the students who think that they have no knowledge of diabetes mellitus.

The data was recorded on prescribed forms. The collected data was analyzed by using SPSS version 21. Descriptive statistics were used to determine frequency and percentage distribution. Bivariate analysis including odd ratio, confidence interval and Chi-square test were used to determine the association of knowledge with etiology, symptoms, course, complications, prevention, control, investigations and treatment. The level of significance was < 0.05.

3. RESULTS

In this study, most of the respondent students 109 (54.55%) were between 20—21 years of

age, 74 (37%) between 18-19 years and 17 (8.5%) students were more than 22 years of age. The mean age was 19.94 ± 1.2 years. The students who were 20 or more than 20 years had 4.5 times more knowledge of diabetes than those who were less than 20 years. It was also found significant. There were 102 (51%) males, while 98 (49%) females. Gender has no correlation with diabetes knowledge and was found not significant. There were 107 (53.5%) second year MBBS students, while 93 (46.5%) first year MBBS student. There was a weak correlation of knowledge with years of study but it was found significant correlation. There were 174 (87.0%) students who had some knowledge of diabetes mellitus while 26 (13.0%) had no knowledge of diabetes mellitus.

During this study it was clearly revealed that 184 (92%) students knew about the diabetes mellitus and thought that this disease is a major growing problem of Pakistan. According to the results, 108 (54%) students have the problem of diabetes in their family. Only 08 (04%) respondents did not know the causes of this disease. Knowledge of diabetes among the relatives, friends with the causative factors of diabetes was found insignificant. The common presenting symptoms of diabetes were known by 32 (16%) of students, while 168 (84%) students did not know about symptoms. The students who had the knowledge of diabetes and the students who had no any diabetic knowledge had a correlation of 3:1. Alarmingly only 03 (1.3%) students knew the course of diabetes mellitus while 98.5% didn't knew the course. It had no correlation and was found insignificant.

Majority of the students 170 (85%) know that blood sugar is a test to diagnose diabetes mellitus, while 30 (15%) had no idea how to diagnose diabetes mellitus. It was also found significant. Most of the students 116 (58%) knew the diagnostic criteria of diabetes mellitus, while 84 (42%) did not know the diagnostic criteria of diabetes mellitus. How to measure and control the diabetes mellitus was known by 66 (33%) of students. While 134 (77%) had no idea about how to control. The treatment modalities were well known by 10 (5%) students, while 190 (95%) was unaware about the treatment. The students who had the knowledge of diabetes had no correlation with knowledge of treatment and it was found insignificant. The results told that 146 (73%) knew some of the complications of diabetes mellitus while 54 (27%) students did not know about the complications of diabetes

mellitus. The knowledge of prevention of diabetes mellitus knew by 62 (31%) of students, while 138 (69%) had no idea that how to prevent this disease. The students who had the knowledge of diabetes had 7:4 times more knowledge of prevention than those who had no knowledge of diabetes and it was found significant (Table 1).

Among total of 200 medical students, 10 (5%) were excellent, 83 (41.5%) scored good, 96 (48%) average, 11 (5.5%) were poor during the assessment of diabetes mellitus knowledge (Table 2).

4. DISCUSSION

This study was aimed to assess the knowledge of diabetes mellitus among medical students of Bolan Medical College Quetta. The medical students were selected because they came from different educational setup and representing the whole province. The students can play a crucial role in awareness programs regarding this disease. The awareness level regarding diabetes mellitus can help out the community to lessen the complications, to improve the treatment and to prevent the complications [10]. In this study, the elder students and the students of second year had more knowledge of diabetes mellitus which found statistically significant. Correlation of existing literature to the current study of knowledge of diabetes mellitus had given mixed findings [11-13].

A study conducted in Turkey statistically stated no significant difference in the mean knowledge of medical students in various age groups [14]. In another study carried in Singapore stated that younger individuals had more exposure of internet, health awareness and medical books as sources of information [15]. This study founds' no difference of knowledge amongst male and female medical students. Literature also revealed that there is no relationship between knowledge gender [16]. In a study by Ahmed R. et al. the mean age for knowledge assessment was 50.5 ± 24.11 years [17]. There were 25.5% males and 74.5% females. In this study the mean age was 19.94 ± 1.2 years. There were 102 (51%) male and 98(49%) female.

In a study conducted by Iqbal T. et al. 32% participants had the knowledge that, excessive intake of sweets was one of the causes of diabetes [18]. In this study 88.5% had the

Table 1. Demographics and other variables association with diabetes mellitus

S. No.	Knowledge variables	Knowledge of diabetes mellitus		Odd ratio	95% confidence interval	'P' value
		Yes	No			
1.	Age of students					
	< 20 years	72 (36%)	2 (1%)	4.50	0.993 – 20.38	0.03
	Equal & above 20 years	112 (56%)	14(7%)			
2.	Gender					
	Male students	92 (46%)	9 (4.5%)	0.778	0.278 – 2.177	0.623
	Female students	92 (46%)	7 (3.5%)			
3.	Year of study					
	First year MBBS	79 (39.5%)	14 (7%)	0.107	0.024 – 0.048	0.001
	Second year MBBS	105 (52.5%)	2 (1%)			
4.	Knowing relatives/ friends					
	Having diabetes	100 (50%)	8 (4%)	1.190	0.428 – 3.308	0.738
	Having no diabetes	84(42%)	8 (4%)			
5.	Knowledge of etiology					
	Yes	177 (88.5%)	15 (7.5%)	1.686	0.194 – 14.62	0.632
	No	7 (3.5%)	1 (0.5%)			
6.	Knowledge of symptom					
	Yes	31(15.5%)	1 (0.5%)	3.039	0.378 – 23.8	0.267
	No	153 (76.5%)	15 (7.5%)			
7.	Knowledge of course					
	Yes	2 (1%)	1 (0.5%)	0.165	0.014 – 1.925	0.103
	No	182 (91%)	15 (7.5%)			
8.	Knowledge of investigation					
	Yes	166 (83%)	4 (2%)	27.66	8.073 – 94.81	0.000
	No	18 (9%)	12 (6%)			
9.	Knowledge of diagnosis					
	Yes	111(55.5%)	5 (2.5%)	3.34	1.116 – 10.02	0.024
	No	73 (36.5%)	11 (5.5%)			
10.	Knowledge of treatment					
	Yes	10 (5%)	0	1.092	1.046 – 1.140	0.339
	No	174 (87%)	16 (8%)			
11.	Knowledge of complications					
	Yes	137 (68.5%)	9(4.5%)	2.267	0.800 - 6,426	0.116
	No	47 (23.5%)	7 (3.5%)			
12.	Knowledge of prevention					
	Yes	61 (30.5%)	1(0.5%)	7.439	0.960 – 57.63	0.026
	No	123 (61.5%)	15 (7.5%)			

Table 2. Scores of knowledge

Scores	Number (Frequency)	Percentage
Poor (< 20)	11	05.5
Average (21-30)	96	48
Good (31-40)	83	41.5
Excellent (>40)	10	05

knowledge of etiology of diabetes mellitus. In another study conducted by Mumtaz S. et al. on medical students about the correct diagnostic criteria of diabetes mellitus according to WHO criteria was identified by 55% clinical students and 06% of preclinical students ($p < 0.001$) [19]. In this study most of the students 116 (58%) knew the diagnostic criteria of type 2 diabetes mellitus, while 84 (42%) did not know the criteria to diagnose diabetes mellitus. In a study conducted by Faheemullah et al. 50–60% of patients had the knowledge of complications of diabetes mellitus [20]. In this study 68.5% of students had the knowledge of type 2 diabetes mellitus. In the same study of Faheemullah et al. the majority of the patients 76 (79.1%) were illiterate; and amongst the literate, 36 (37.50%) had good, 24 (25%) had average and 36 (37.50%) had poor knowledge of diabetes mellitus complications. In this study 10 (5%) excellent, 83 (41.5%) good, 96 (48%) average, and 11 (5.5%) had poor knowledge of diabetes mellitus. These types of data are crucial to outline the design, execute and evaluate, successful interventional programs in Pakistan. The outcomes of this study might not utterly reproduce the concrete information on type 2 diabetes mellitus in the province of Balochistan. The counter intolerance could exist in this survey as the students may be liable to confer extra constructive answers in order to uphold the high level of awareness and understanding.

5. CONCLUSION

There were 174 (87.0%) of students who claimed that they had some knowledge of type 2 diabetes mellitus. Elder students of this had 4:5 times more knowledge than the younger students. It was found significant. Knowledge of type 2 diabetes mellitus among the relatives, friends, its causative factors, symptoms and course was found insignificant. The students who had the knowledge of type 2 diabetes mellitus had no any correlation to the knowledge of its treatment and it was found insignificant. The knowledge how to prevent type 2 diabetes mellitus was found 7.4

times more in those students who had the knowledge of diabetes mellitus compare to those who had no knowledge. It was also a significant correlation.

CONSENT

As per international standard or university standard, patient’s written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard, written approval of Ethics committee has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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