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Awareness of Diabetes Mellitus among the Non-Diabetic Young Population of Various Universities of Lahore

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Author`s Contribution

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A B S T R A C T

Objective: The objective of this study was to assess the awareness of diabetes mellitus among the non-diabetic young population.

Methodology: This cross-sectional study was completed in 6 months from 1st January 2019 to 1st July 2019. In this survey 157 participants were selected through convenience sampling from the University of Lahore, University of South Asia, and Comsat University. Data was collected after taking informed written consent. The questionnaire consisted of questions regarding demographic data, general knowledge, risk factors, symptoms, complications, precautions, lifestyle, and non-medical measures. Data analysis and coding were done through SPSS version 25.

Results: The research shows that out of a total of 157 participants 64% of non-diabetics had poor knowledge, 34% had medium knowledge and 2% of participants had good knowledge regarding awareness of diabetes mellitus. 33 (21%) were male and 124 (79%) were female. The participants had a mean age of 25.5 years. 103 (65.6%) belong to the urban area while the remaining 54 (34.4%) belong to the rural area. The current research reveals that the mean score regarding diabetes knowledge in the young population is 9.78 ± 4.78 out of a total score of 24.

Conclusion: In the presenting research serious level of unawareness was found in the young population regarding diabetes. More than 1/3rd of the participants answered that they don't know about the general knowledge, risk factors, symptoms, complications, precautions, lifestyle, and non-medical measures of diabetes.

Keywords: Diabetes Mellitus, Awareness, young population, non-diabetics.

Introduction

Diabetes is one of the most common non-communicable diseases in the world with a considerably higher rate of mortality and morbidity. Research has been conducted in 2021 by Milbary et al, according to which Diabetes Mellitus is in the top seven entities which result in death globally.[1] According to International Diabetes Federation, there are over 451 million cases of diabetes with an estimate of getting 693 million by 2045 and the developing countries are at more risk as compared to the developed countries.[2,3] In Asian countries additionally, the quantity is rising day by day, in step with International Diabetic Federation, there were over nine million cases of diabetes mellitus in Pakistan with a prevalence of 7.6 percent, with an estimate to get double in 2030.[4] The economy is being adversely affected by an uneven burden due to diabetes in the past few years. Until 2010 diabetes mellitus was causing a burden of 376 billion USD globally with an estimate to result in the loss of 490 billion USD by 2030.[5]

In most cases, patients get conscious of their disease only when they already get involved in one of its serious complications.[6] Furthermore, the association of other diseases with diabetes further complicates the situation. So, efforts are required to delay the outcomes of disease. The level of awareness of the public regarding diabetes is very crucial for the proper administration, and management and to delay the outcomes of diabetes. This study was conducted to check the knowledge of diabetes in the young population who were non-diabetic, as the awareness of diabetes is very important

regarding its risk factors, prevention, treatment, and its complications. Previously there was not enough work done on awareness of diabetes in the non-diabetic young population.

Due to unawareness of its common symptoms and sedentary lifestyle, nowadays young adults are also developing diabetes. The non-diabetic population should get the awareness of diabetes to prevent diabetes and its complications. Moreover, knowledge of diabetes will help in early detection. Familiarity and understanding of diabetes are very necessary to improve the health-related quality of life.[7]

Methodology

This cross-sectional study was completed in 6 months from 1st January 2019 to 1st July 2019. In this survey 157 participants were selected through convenience sampling from the University of Lahore, University of South Asia, and Comsat University. After taking informed written consent a self-structured questionnaire was provided which consisted of questions regarding demographic data, general knowledge (ten questions), risk factors (one question), symptoms (three questions), complications (four questions), lifestyle, and non-medical measures (four questions). Both males and females aged between 18 to 30 years, who had no previous history of diabetes and did not use any hypoglycemic drugs were included. Hypertensive, cancer, and patients with chronic respiratory problems were excluded.

By adding the scores for all 22 questions total score was calculated. 1 score was given for correct answers and 0 scores were given for wrong or don't know answers. Individual scores for each of the six sections: general knowledge, risk factors, symptoms, complications, lifestyle, and non-medical measures were also calculated. A study conducted in the region of Saudi-Arabia also used the same method for the calculation of scores related to knowledge of diabetes.[8]

Data analysis and coding were done through SPSS 25. Descriptive statistics were used to describe the variables. Mean and standard deviation was determined for quantitative data while the qualitative data was presented in the form of frequency and percentages.

Results

In this study out of a total of 157 participants, 33(21%) were male and 124(79%) were female. 103(65.6%) participants belong to the urban area while 54(34.4%) belong to the rural area. Table I shows the responses of the participants for different items of the questionnaire. The score for general

Table I: Evaluation of knowledge of diabetes among the non-diabetic young population

Questions	Yes	No	Don't Know
General Knowledge:			
Eating too much sugar and other sweet foods is a cause of diabetes.	36(22.9%)	51(32.5%)	70(44.6%)
The usual cause of diabetes is a lack of effective insulin in the body.	57(36.3%)	80(51%)	20(12.7%)
Diabetes is caused by the failure of the kidneys to keep sugar out of the urine.	71(45.2%)	48(30.6%)	38(24.2%)
Kidneys produce insulin.	89(56.7%)	24(15.3%)	44(28%)
In untreated diabetes, the amount of sugar in the blood usually increases.	59(37.6%)	38(24.2%)	60(38.2%)
Diabetes can be cured.	62(39.5%)	47(29.9%)	48(30.6%)
A fasting blood sugar level of 210 is too high.	64(40.8%)	49(31.2%)	44(28%)
The best way to check my diabetes is by testing my urine.	61(38.9%)	44(28%)	52(33.1%)
There are two main types of diabetes: Type 1 (insulin-dependent) and Type 2 (non-insulin dependent).	69(43.9%)	42(26.8%)	26(29.3%)
A diabetic diet consists mostly of special foods.	87(55.4%)	52(33.1%)	18(11.5%)
Risk factors:			
If I am diabetic, my children have a higher chance of being diabetic.	62(39.5%)	43(27.4%)	52(33.1%)
Symptoms:			
Diabetes can cause loss of feeling in my hands, fingers, and feet.	52(33.1%)	17(10.8%)	88(56.1%)
Shaking and sweating are signs of high blood sugar.	54(34.4%)	34(21.7%)	69(43.9%)
Frequent urination and thirst are signs of low blood sugar.	49(31.2%)	32(20.4%)	76(48.4%)
Complications:			
Diabetes often causes poor circulation.	52(33.1%)	61(38.9%)	44(28%)
Cuts and abrasions on diabetes heal more slowly.	67(42.7%)	46(29.3%)	44(28%)
Diabetes can damage my kidneys.	50(31.8%)	49(31.2%)	58(36.9%)
Precautions:			
Diabetics should take extra care when cutting their toenails.	64(40.8%)	39(24.8%)	54(34.4%)
A person with diabetes should cleanse a cut with iodine and alcohol.	56(35.7%)	39(24.8%)	62(39.5%)
Tight elastic hose or socks are not bad for diabetics.	54(34.4%)	16(10.2%)	87(55.4%)
Lifestyle and non-medical measures:			
Regular exercise will increase the need for insulin or other diabetic medication.	73(46.5%)	44(28%)	40(25.5%)
An insulin reaction is caused by too much food.	59(37.6%)	42(26.8%)	56(35.7%)
Medication is more important than diet and exercise to control my diabetes.	90(57.3%)	21(13.4%)	46(29.3%)
The way I prepare my food is as important as the foods I eat.	56(35.7%)	51(32.5%)	50(31.8%)

knowledge regarding diabetes, risk factors, symptoms, complications, precautions, lifestyle, and non-medical measures were 41.72%, 39.5%, 32.9%, 37.9%, 36.9%, and 47.13% respectively. The scores regarding the general knowledge of diabetes were good, but only 39.5% of participants knows that diabetes is not curable. The lowest score rate of the participants is in the question "Eating too much sugar and other sweet foods is a cause of diabetes" was 22.9%. The highest score participants earned was in the question is whether "Medication is more important than diet and exercise to control my diabetes or not" was 57.3%. The knowledge of participants regarding lifestyle and non-medical measures was also good. However, the results show that the participants had a low level of knowledge in the questions of risk factors, symptoms, complications, and precautions. The results of the questionnaire showed that the mean score is 9.78 ± 4.78 with a minimum score of 2 and a maximum of 20.

Discussion

The research shows that only 40% population was aware of risk factors, complications, symptoms, and precautions associated with diabetes. Despite that all the participants had secondary education and continued further their studies in universities, the level of diabetes knowledge was remarkably low. A systematic review of nineteen articles was conducted in the region of Saudi Arabia, which shows the inadequate knowledge regarding risk factors and complications in the general population and students as well.[9] This research reveals that the mean score regarding diabetes knowledge in the young population is 9.78 ± 4.78 out of a total score of 24. In a study conducted in Kuwait by Al- Hussaini et al, the average score to check diabetes-related knowledge of adolescents was 63% out of the total score.[10] In the presenting research, a serious level of unawareness was found in the young population. A study conducted by Ramasubramanian et al in the region of Chennai also reveals the lack of knowledge of the population regarding diabetes.[11] This shows that serious efforts should be done to enhance the knowledge and awareness regarding diabetes in developing countries like Pakistan and India to improve health-related quality of life and decrease the burden on the economy. About 1/3rd of the participants believed that sugar is caused by sweets and a diet rich in sugar. A study conducted in the regions of Rawalpindi and Islamabad showed that only 12.9% of participants were aware that diabetes is not caused by eating too much sugar.[4] A study conducted in Kuwait also reveals the lack of knowledge about the effect of diet and exercise on the prevention of diabetes.[12] Only 43.9% of the participants knows that diabetes is of two types 26.8% answered in no and 29.3% answered that they have no idea. A study conducted in north Malaysia to check the knowledge of non-diabetic adults regarding diabetes shows participant misconception about the types of diabetes.[13] In the presenting study, only 39.5% of the participants were aware that those who have a family history of diabetes will have a higher chance of getting diabetes. A study conducted in the rural area of China also supports that subjects who have a family history of diabetes have more chances of getting affected by diabetes.[14] A study conducted in the region of Karachi illuminates that family history increases the risk of diabetes and reports the low knowledge of participants about the role of family history.[15]

In this study, only 13.4% of the population was aware that medication is not more important than diet and exercise to control diabetes. Research conducted by S Kristina et al in the rural area of Indonesia shows that 67.4% of participant believes that medication is the only way to control diabetes.[16] A study conducted in Jordan shows that 37.7% of participants do not know the significance of exercise and do not get involved in regular exercise.[17] This study reveals the low level of participants regarding complications. A study conducted in Bangladesh shows that the participants do not understand the complications of diabetes as more than 50 % of them were obese.[18] A study conducted in 2018 in the northern region of Saudi Arabia also reveals the lack of knowledge about the association of obesity with diabetes.[19]

Limitations: The limitations of this study were that small sample size was used in the study. Data was collected from a small area and only from the young population. Resources available for the study were limited.

Recommendations: This research recommends that serious efforts should be done to increase the knowledge of the public, especially the young population regarding diabetes. There is a need to conduct further studies on larger scales and in different areas of Pakistan to estimate the level of awareness. The use of mass media, educational seminars, pamphlets, and charts should be encouraged and implemented. Health care professionals should play their part to educate the public about the side effects, risk factors, and complications of diabetes and promote a healthy lifestyle.

Conclusion

This is the first research conducted in the region of Lahore to check the awareness level of diabetes mellitus in the young non-diabetic population. In the presenting research, a serious level of unawareness was found in the young population regarding diabetes. Moreover, most of the participants had no idea about whether diabetes is curable or

not, or they believed that diabetes is curable. More than 1/3rd of the participants show poor knowledge about the risk factors, symptoms complications, and precautions of diabetes.

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