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ORIGINAL ARTICLE

Knowledge among Offspring of Type II Diabetic Patients Regarding their Risk of Developing Diabetes and Practices of Preventive Lifestyle

HUSNAIN MAAWYA[1], RAJA BILAL ZAFAR[2], MUHAMMAD NAEEM[3], AMIR RAZI[4], MUDDASSIR BARKAT[5], AMBREEN MUDDASSIR[6]

[1]Medical Officer, DHQ, Hospital Hafizabad
[2]Medical Officer, Holy Family Hospital Rawalpindi Medical University, Rawalpindi
[3]Medical Officer, Mayo Hospital Lahore
[4]Asssitant Professor, Lahore Business School, The University of Lahore
[5]Trainee Research Assistant, NHRC Shaikh Zayed Medical Complex Lahore
[6]Assistant Professor, Department of Medicine, Shaikh Zayed Hospital Lahore
Correspondence to: Dr. Amir Razi, e-mail: amir.razi@lbs.uol.edu.pk Cell: 03218842263

ABSTRACT

Aims: To assess the knowledge of off-springs of diabetic patients regarding, perceived risk of developing type II diabetes &possibilities of its prevention and behaviour of study participants to adopt healthy lifestyle for the prevention of diabetes was also explored.

Study Design: Cross sectional study

Place and Duration of Study: Department of Medicine, Shaikh Zayed Medical Complex, Lahore and Mayo Hospital Lahore from 1st February 2020 to 31st July 2020.

Methodology: Two hundred and fifty individuals were enrolled. A face to face interview of all study participants was conducted and a questionnaire was filled.

Results: There were 103(41.2%) had good knowledge regarding various aspects of diabetes, 120(48.0%) and 139(55.6%) had a good understanding of diabetes risk factors and prevention, respectively. It was shown that 74 (29.6%), had a high risk of getting diabetes in the future and only 112 (44.8%) of the individuals had strong diabetes preventive practices. A high score of preventive lifestyle was significantly associated with good level of knowledge of participants regarding diabetes (p=0.0165) and also with patients having great concern about their risk of getting diabetes in future (p=0.0052).

Conclusions: People who have one or both parents with type 2 diabetes are typically aware that they have a higher chance of developing diabetes themselves. They, on the other hand, frequently underestimate the danger and have limited knowledge of potentially effective preventative interventions. If they are to decrease their risk of diabetes and its consequences, they need correct knowledge on it.

Keywords: Offsprings of diabetics, Prevention of diabetes, Knowledge about diabetes

INTRODUCTION

Diabetes mellitus (DM) is an emerging public health concern with multiple complications and with increased prevalence. In spite of amazing improvement in both basic and clinical medical sciences, diabetes mellitus is still incurable and life-long disease and its number of patients is growing in all age groups and in both genders.[1]

Off-springs (daughter and son) of patients with type 2 diabetes are high risk group of developing type II diabetes mellitus.[2,3] Individuals having family history of diabetes have been shown to have a higher positive predictive value for diabetes than obesity.[4,5]

The World Health Organization (WHO) and the American Diabetes Association (ADA) indicated that family history is a main risk factor for development of DM.[6,7]. Inheritance of T1DM may reach up to 30%.[8] In addition; having a first-degree relative with DM is considered an important risk factor to develop T2DM, due to inheritance of genetic risk factors and/or a similar life style pattern among family members.[9]

Offspring of one parent with type II diabetes mellitus have a two to fourfold increase relative risk of developing the disease[10] equivalent to a 20–40% absolute risk.[11] The risk is even higher if both parents are affected and in some ethnic minority populations.[10]

Environmental factors such as use of high caloric diet and obesity, and life style changes due to increased urbanization and hygiene may also add to the risk of developing T2DM. All these factors are giving scope for decreasing the diabetes risk through lifestyle modification in individuals with a family history of diabetes.[12]

The mean prevalence of type 2 diabetes mellitus in Pakistan is 11.77%[13] which is increasing day by day. However, regular screening even if it is done for at risk group is unlikely due to financial reasons. The other approach for the prevention is engaging these people in preventive activities that require their awareness of risk and the possibilities for prevention.

In Pakistan there is no data showing the awareness of off-springs of diabetic patients regarding their risk of developing diabetes and their practices of preventive lifestyle. In this study the knowledge about DM among off-springs of diabetic patients, their perceived risk of DM as well as the practices to prevent DM, was assessed. Findings from the study will help Pakistani health officials to improve national health policy and design appropriate intervention strategies to control diabetes in the country.

MATERIALS AND METHODS

This cross sectional survey was a multicenter study

conducted in Department of Medicine, Shaikh Zayed Medical Complex, Lahore, and Mayo Hospital Lahore from 1st February 2020 to 31st July 2020. The study comprised 250 diabetic patients. Off-springs (son/daughter) of patients having type II diabetes mellitus between age 20-40 years were included. Off-springs (son/daughter) of patients with type II diabetes mellitus with known history of diabetes were excluded. A standardized pre-tested questionnaire was designed to collect information from each participant. The first part of the questionnaire comprises questions on demographics, including age, gender, marital status, education status and monthly income and occupation. Another question will be asked to know about the number of first degree relatives with known history of diabetes.Second part was developed to explore routine life style practices including dietary choices and physical activities, smoking/alcohol. In addition, ten "practice" questions like what the study participants do to prevent development of DM, including intake of type of food, regular physical exercise habits, smoking and behaviors, and regular checkup of blood sugar were included to assess practice. Last part of the questionnaire consists of questions to explore the belief of participants whether their health is under their own influence or not, if no then what are the barriers. A face to face interview of all study participants will be conducted. The interview will be done for first degree relative accompanying diabetic patient visiting diabetic clinic for their routine check-up.

Data was entered and analysed using SPSS version 20.Chi square test and Fisher exact test was applied to find the association between good knowledge, self-reported risk factors and concern over risk of developing diabetes with practices of preventive lifestyle score was determined. $p \leq 0.05$ was considered as significant.

RESULTS

Most of the participating individuals were female 142(56.8%). Participants having age more than 35 years were 90(36.0%). Majority of the participants were doing desk job 156(62.4%) [Table 1].

The overall knowledge of all study participants regarding these aspects of diabetes were scored as good (if knowledge score is >50%), average (if knowledge score is between 30-50%), and poor (if knowledge score is <30%). It was observed that out of 250 individuals, 103(41.2%) had good knowledge regarding various aspects of diabetes, 99(39.60%) individuals had average knowledge whereas only 48(19.20%) participants had poor or no knowledge about diabetes (Fig. 1).

Majority of participants 120(48.0%) and 139(55.6%) had a good understanding of diabetes risk factors and prevention, respectively, whereas a smaller number of people 82(32.8%) and 71(28.4%) had a good understanding of disease signs and symptoms and complications (Table 2).

Dietary habits, daily exercise routines, history of hypertension, and dyslipidemia were all questions that the research participants were questioned about in their daily lives. Their age and BMI were also recorded. Out of total 90 individuals who were above 35 years of age, majority were male 57 (63.3%). A total of 108 individual out of 250 study participants were obese and it was observed that obesity was more common among females 64(59.3%) than in males 64 (59.3%). Among 197 people having sedentary life style, mostly were females 113 (57.3%). Poor dietary habits were more common among males 71 (69.6%) as compared to females 31 (30.4%). 43 (57.3%) males participants whereas 27 (51.9%) females had history of hypertension and dyslipidemia respectively (Table 3)

On the basis of self-reported risk variables, all participants' risk levels were assessed. Participants in the study were asked if they had any of the diabetes risk factors listed in Table 3. High risk was assigned to those with ≥5 risk factors, moderate risk to those with 3-4 risk factors, and low risk to those with ≤2 risk factors. Out of a total of 250 research participants, it was shown that 74 (29.6%), 142 (56.8%), and 34 (13.6%) had a high, moderate, or low risk of getting diabetes in the future (Fig. 2)

It was determined whether or not they pursue a preventative lifestyle based on self-reported behaviours. It was determined that 112 (44.8%) of the individuals had strong diabetes preventive practices, whereas 67(26.8%) and 71 (28.1%) have respectively average and poor practices for the prevention of diabetes (Fig. 3).

Table 1: Demographical characteristics of study participants

Characteristic	No.	%
Age (years)		
≤35	160	64.0
>35	90	36.0
Gender		
Male	108	43.2
Female	42	56.8
Monthly Income		
<25 K	90	36.0
25-50 K	106	42.4
>50 K	54	21.6
Education		
Illiterate	39	15.6
Matric	55	22.0
Higher Secondary School	72	28.8
Graduate/Postgraduate	84	33.6
Profession		
Field Job	42	16.8
Desk Job	156	62.4
Housewife/jobless	52	20.8
Marital Status		
Single	101	40.4
Married	110	44.0
Widow	23	9.2
Divorced	16	6.4

Table 2: Levels of knowledge of study participants on various aspects of diabetes

Knowledge	Risk factors	Signs & symptoms	Complications	Prevention
Good	120 (48%)	82 (32.8%)	71 (28.4%)	139 (55.6%)
Average	98 (39.2%)	103 (41.2%)	80 (32.0%)	60 (24%)
Poor	32 (12.8%)	65 (26%)	99 (39.6%)	55 (22%)

The association between knowledge scores, presence of self reported risk factors, and concern over risk of developing diabetes in future with their behaviour and practices that the particpants had adopted for the

prevention of type II diabetes. It was observed that people (n=58) who had good knowledge about various aspects of disease e.g. symptoms, risk factors, complications and prevention of diabetes also had adopted a good preventive lifestyle and their association was statistically significant (p=0.0165). The relation between risk score calculated on the basis of presence of self reported risk factors of diabetes and score of preventive lifestyle was calculated. It was observed that there is no relation between these variables as p value was 0.9287 which is statistically in-significant. It was shown that 139 people (55.6%) were extremely anxious about the possibility of contracting an illness in the future, whereas 111 people (44.4%) were only slightly concerned. The majority of those (n=70) who were more concerned about their disease risk were among those who followed their diabetes preventive routines and maintained a healthy lifestyle. The association between a high level of worry about diabetes risk and a high score on the preventive life style was shown to be statistically significant (p=0.0052) (Table 4)

Table 3: Self-Reported Risk Factors among study Participants

Risk factor	Male n (%)	Female n (%)	Total (n (%)
Age > 35 years	57(63.3%)	33(36.7%)	90(100%)
BMI >27 Kg/m^2	44(40.7%)	64(59.3%)	108(100%)
Little or no exercise	84(42.6%)	113(57.3%)	197(100%)
More than one 1stdegree relatives are diabetic	64(52.5%)	58(47.5%)	122(100%)
Poor Dietary Habits	71(69.6%)	31(30.4%)	102(100%)
Hypertension	43(57.3%)	32(42.7%)	75(100%)
Dyslipedemia	25(48.1%)	27(51.9%)	52(100%)

Table 4: Association of various factors with score of preventive lifestyle for diabetes

Variable	Score of preventive Lifestyle			Chi square	P value
	Good	Average	Poor		
Knowledge of Diabetes					
Good	58	23	22	12.1179	0.0165
Average	38	32	29		
Poor	16	12	48		
Self-Reported Risk					
High	31	19	24	0.8709	0.9287
Moderate	65	39	38		
Low	16	9	9		
Concern over risk of developing diabetes					
Great concern	70	41	28	10.523	0.0052
Little or no concern	42	26	43		

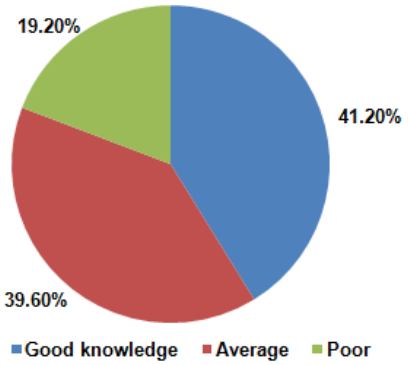

Fig. 1: Overall knowledge score regarding all aspects of diabetes

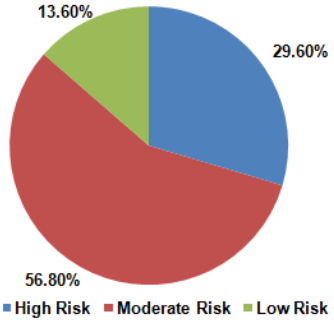

Figure 2: Distribution of study participants according to their risk of getting diabetes in future

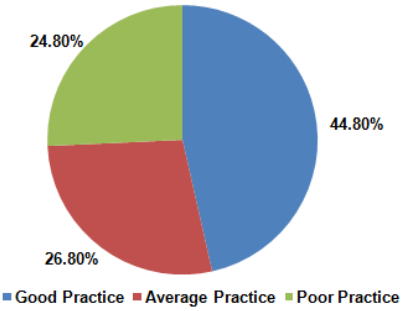

Fig. 3: Distribution of Study Participants according to their practices for prevention of diabetes

DISCUSSION

Despite the fact that several studies have looked into health beliefs among people with a higher familial risk of diabetes,[14,15]This study found 103 (41.2%) had good knowledge of various aspects of diabetes, 99 (39.60%) had average knowledge, and only 48 (19.20%) had poor or no knowledge of diabetes. Those who were taught about their diabetes risk as children of type 2 diabetics had a stronger impression of their susceptibility to the disease, a higher sense of its seriousness, a higher awareness of risk factors, and a higher dread of diabetes.

In the present study it was observed that obesity was more common among females 64(59.3%) than in males 64(59.3%). Among 197 people having sedentary life style, mostly were females 113(57.3%). Poor dietary habits were more common among males 71(69.6%) as compared to females 31(30.4%). 43(57.3%) males participants whereas 27(51.9%) females had history of hypertension and dyslipidemia respectively. Previous studies have found that most people with a family history of diabetes are ignorant of their higher risk of acquiring the disease.[16-18]This might be due to optimistic bias about future risk, which has been linked to perceived risk, concern, and severity for a variety of diseases. These findings also highlight the significance of doctors communicating risk information regarding diabetes, heart disease, and stroke such that risk perceptions match real illness risk.

In the present study, it was shown that 74 (29.6%), 142 (56.8%), and 34 (13.6%) had perceived a high, moderate, or low risk of getting diabetes in the future. The assessment was based on the basis of self-reported risk factors of diabetes. Another study found that having family members with CHD and/or stroke substantially influenced

perceived risk and anxiety among people at elevated familial risk for diabetes. For this population, tailored lifestyle treatments that assess health attitudes and emphasize ways for avoiding diabetes and its vascular consequences might be a viable strategy for lowering the worldwide burden of these significant but linked chronic disorders.[19]

Our study has shown that 112 (44.8%) of the off-springs of diabetic patients had strong diabetes preventive practices, whereas 67(26.8%) and 71 (28.1%) have respectively average and poor practices for the prevention of diabetes. People with a parent who has type 2 diabetes are typically aware that they have a higher chance of developing diabetes, according to other research. They, on the other hand, frequently underestimate the danger and have limited knowledge of potentially effective preventative interventions. If they are to decrease their risk of diabetes and its consequences, they need correct knowledge on these topics. [20]

It was observed in our study that a high score of preventive lifestyle was significantly associated with good level of knowledge of participants regarding diabetes (p=0.0165) and also with patients having great concern about their risk of getting diabetes in future (p=0.0052). It has previously been demonstrated that people are unlikely to take preventative action unless they view a condition as serious, feel susceptible to it,[21] and believe there is anything they can do to avoid it.[22] Despite the fact that they were aware that having a favourable parental history enhanced their diabetes risk, the majority of respondents did not believe they were individually at risk for diabetes. Furthermore, they undervalued the numerical risk of diabetes among persons with a similar family history to their own.

Education regarding the extent of family risk may change the risk perception of offspring. Our findings, on the other hand, show that raising offspring's own risk perception may raise their anxiety levels. While it is necessary for offspring to be concerned about diabetes to the extent that they are motivated to take preventive action, excessive worry can be counterproductive, resulting in denial or pathological anxiety or depression. The psychological consequences of instilling personal risk perceptions in one's children.

CONCLUSION

People who have a parent with type 2 diabetes are typically aware that they have a higher chance of developing diabetes themselves. They, on the other hand, frequently underestimate the danger and have limited knowledge of potentially effective preventative interventions. If they are to decrease their risk of diabetes and its consequences, they need correct knowledge on these topics.

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