AWARENESS REGARDING DIABETES MELLITUS AND ITS MANAGEMENT AMONGST PATIENTS ADMITTED TO A TERTIARY CARE TEACHING HOSPITAL OF PAKISTAN

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ABSTRACT

Objectives: To find out awareness regarding Diabetes Mellitus and its management amongst patients admitted to a tertiary care teaching hospital of Peshawar

Material and Method: The study was conducted at Khyber Teaching Hospital and completed in 06 months' time. Non-Random Consecutive sampling technique was used for the collection of data. The survey was conducted as a cross-sectional study using questionnaires to guide the interview-based data collection from the patients. A pre tested questionnaire was used for data collection. Verbal consent was taken from the patients and data collected while respecting the anonymity of the individual participants. According to the recent data of prevalence of diabetes in Pakistan, the sample size was calculated to be 275 for the study. For the analysis of data SPSS version 23.0 was used. The Chi square test was used for significance testing of variables.

Results: A total of 275 interviews were conducted. Out of 275 who responded, 87.6% of the patients were suffering from Type 2 Diabetes Mellitus while 10.5% and 1.8% of the patients were suffering from Type 1 Diabetes Mellitus and Gestational Diabetes Mellitus respectively. Around 55% of the patients had poor knowledge about the disease. Almost 50.9% participants were unaware about the importance of regular glycemic monitoring, 27.3 % knew about HbA1c and its importance while 64.7% and 72.7% of the patient were unaware of recommended fasting and random blood glucose levels respectively. Approximately 48.7% of the participants were of the view that insulin is the end stage drug for diabetics and it in itself damages vital organs of the body.

Conclusion: The awareness of Diabetes and its complications is very low among the diabetic patients of Peshawar. Their awareness is crucial for us to control the increasing trends of the disease and its complications.

Key words: Awareness level, Diabetes Mellitus, Diabetic Patients.

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INTRODUCTION

Diabetes is a global health issue. The prevalence of type 1 and type 2 diabetes mellitus (DM) is increasing worldwide with rapid rising trends of type 2 diabetes, presumably because of increase in obesity and sedentary lifestyle[1]. It is a chronic disease caused by inherited and/or acquired deficiency in production of insulin by the pancreas or by the ineffectiveness of the insulin produced. Such a deficiency results in increased concentrations of glucose in the blood, which in turn damages many of the body's systems, in particular the blood vessels and nerves[2].

Diabetes is a major cause of morbidity and mortality, though these outcomes are not due to the immediate effects of the disorder. They are instead related to the diseases that develop as a result of chronic diabetes mellitus[3].These include diseases of large blood vessels (macro-vascular disease, including coronary heart disease and peripheral arterial disease) and small blood vessels (micro-vascular disease, including retinal and renal vascular disease), as well as diseases of the nerves[3].

Diabetes mellitus has a worldwide prevalence with an estimated 422 million people affected by it in 2014, almost doubling from 4.7% in 1980 to 8.5% in the adult population[2]. In Pakistan, DM is becoming increasingly prevalent with 11.77% of the population having type II DM[4]. In Punjab, Sindh, Baluchistan and Khyber Pakhtunkhwa the prevalence is 12.14%, 16.2%, 13.35 and 9.2% respectively

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in males and 9.83%, 11.70%, 8.9% and 11.60% in females respectively. Males in urban areas are comparatively more affected[5].

Studies done in the country have shown that majority of the diabetic patients are not managing their disease well with their knowledge about the disease being partly responsible for the same,. There is a direct correlation between the diabetic control and patient's knowledge about the disease. Studies show inadequate knowledge about DM and its complications in majority of the affected individuals[-7].This unawareness is reflected in the inadequate control of the disease process leading to the complications of the disease[8]. Those in the rural areas are far less knowledgeable than the urban residents.

We aimed to do a survey of the inpatients in the Khyber Teaching Hospital (KTH) Peshawar in order to determine their awareness regarding the diabetes, its management and its potential long-term complications. Also we targeted to know the patients' familiarity with certain myths about the disease.

MATERIAL AND METHOD

The study was conducted at a selected tertiary care level hospital of District Peshawar, i.e. Khyber Teaching Hospital (KTH), after being reviewed and approved by the Committee for Ethical Review of Research involving Human Subjects of KTH. Non-Random Consecutive sampling technique was used for the collection of data and data collection was completed in 06 months' time i.e. from 1st August 2019 to 31st January, 2020. The survey was conducted as a cross-sectional study using a pre tested questionnaire to guide the interview-based data collection from the patients, which were selected by convenience sampling. The sample size was calculated using open Epi calculator, keeping confidence interval of 99%. Sample size calculated is 275 based on current prevalence of type 2 Diabetes Mellitus in Pakistan which is 11.77%. A total of 300 patients, suffering from Diabetes Mellitus, were approached during data collection. Only those which were unable to communicate, with decreased consciousness and those aged <13 years were excluded from the study (25 patients).

Verbal consent was taken from the patients before starting the interview-based data collection using questionnaires to guide. Data was collected while respecting the anonymity of the individual participants. All questions were asked in lay man language (local language, i.e. Pushto) instead of using medical terms. Google translator software was used for the translation of the questionnaires. The questions were asked directly from patients and his/her correct response was filled as aware. At the end of the interview, patients were counseled and educated regarding their disease. For the analysis of data SPSS version 23.0 was used. Calculations were done for frequencies, percentages, mean and Standard Deviation. Chi square test was used for significance testing of variables.

RESULTS

A total of 275 patients were approached for the interviews who responded to the whole questionnaire. Out of 275 who responded the questionnaire, 91 were male patients while 184 female patients participated with their mean age of 54.3 +13.5 (Table# 1).

Regarding awareness a detailed questionnaire was asked from the participants to assess their awareness level about the disease they are suffering from. The participants were assessed through the casual knowledge grading system used throughout Pakistan. This system ranks knowledge as 70% and above A-grade (excellent knowledge), 60-69% B-grade (good knowledge), 50-59% C-grade (sufficient knowledge) and 49% and below D-grade (poor knowledge) (Figure #1).

Education plays a vital role and increases the opportunities of awareness. As KTH is a government hospital, hence patients' presented are mostly with low socio-economic and educational background. When patient's awareness level was compared with the educational status it showed that by increasing the education status of the patient, we found statistical significant improvement in the awareness about the disease among the patients (Table# 2).

As DM is a chronic condition, increasing the duration of the illness can make a patient more prone to develop complications of the disease. The duration of the disease is an important factor that plays a role in increasing the understanding of an individual. When the participants' awareness level was compared to the duration of their illness, it showed a statically significant improvement in awareness level with increasing duration of their disease (Table # 3).

Patients were also assessed whether they knew about the complications of diabetes. Almost 50.9% of the participants were unaware about the diabetic complications while 49.1% were able to recall more than 3 diabetic complications. Patients were also assessed for the complication they themselves were suffering from at the time of the study. We found that approximately 30% of the participants were suffering from more than one diabetic complication, such as retinopathy and nephropathy. The awareness level of the patients was also compared with the number of complications patients were having (Table# 4).

Patients were also assessed about their knowledge of glycemic monitoring. This included whether they were checking their blood glucose at home and its importance (Table# 5).

Patients were also assessed for the awareness

about managing their disease and diabetic medications' modification during the month of Ramadan, the effect of exercise, dietary modifications on diabetic control and requirement of routine check-ups including foot care and eye examinations (Table#6).

When patients were assessed for the certain myths which are commonly used in our society, we found out that majority of the people considered them to be true. Regarding myth of insulin as last therapy or insulin damaging kidneys, 48.7% of the participants were aware of this myth and believed it to be true while 46.2% of the patients were unaware of it but were uncertain about their opinion; majority of them were of opinion that it can be true, 5.1% of the people were unaware of this myth and were unable to decide about its truthfulness.

There is another myth about insulin that once a patient is on insulin, he/she does not need any dietary modification for the glycemic control. Almost 65.8% of the participants were aware of this myth and believed it to be true while 34.2% of the patients were unaware of it but were of opinion that it can be true. Participants were also assessed about the myth which state that "There are two types of diabetes mellitus, one damages your bones only and the other is in your blood and affects every system of your body". A majority (76.0%) of the participants had

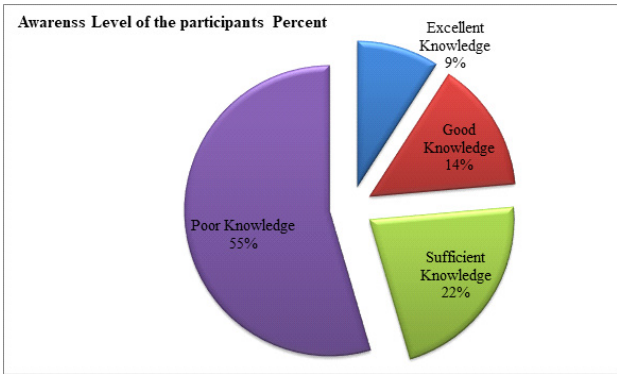

Fig 1: Awareness level of Participants.

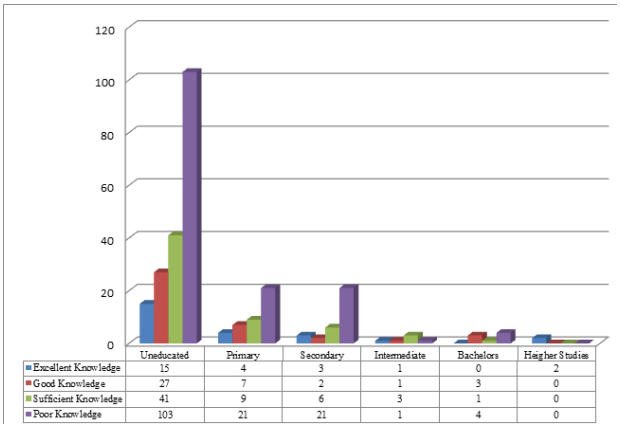

Fig 2: Relationship between educational status of the patients and their awareness

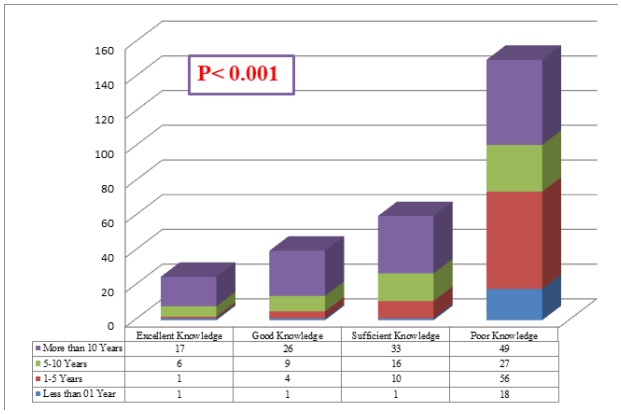

Fig 3: Statically significant improvement in awareness level with increasing duration of disease.

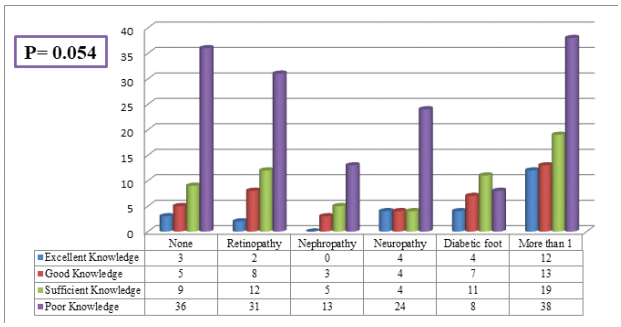

Fig 4: Statistical significant difference in the level of awareness of patients when the patients were affected from more than 01 complications of the disease.

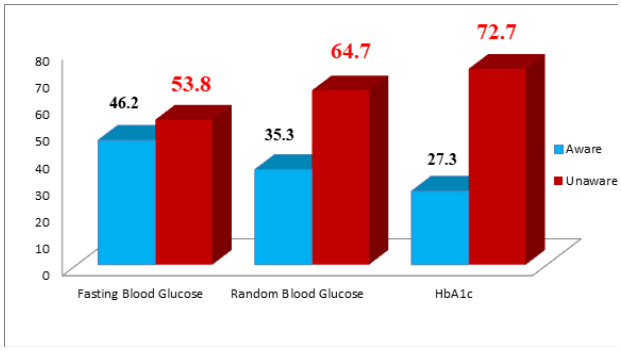

Fig 5: Awareness regarding Glycemic monitoring.

heard of this myth but they believed it to be untrue.

DISCUSSION

Multiple studies have reported that by increasing the understating of the disease, especially chronic illnesses, one can manage the disease more appropriately and rate of complications fall by improving the awareness level of patients[10]. We aimed this study to document the basic awareness level among the diabetic patients of Peshawar.

The results showed that the awareness level of the patients in our study was not up to the mark. Majority of the participants fell below sufficient knowledge level (55%). Similar results were found in a study conducted in

Table 1: Demographics of the participants.

	Frequency (n)	Percentage (%)
Gender of the participants		
Male	91	33.1
Female	184	66.9
Age of the participants		
Mean + S.D	13.5+ 54.3	
Type of Diabetes Mellitus Patient is suffering from		
Type 1 Diabetes Mellitus	29	10.5
Type 2 Diabetes Mellitus	241	87.6
Gestational Diabetes Mellitus	5	1.8
Duration Diabetes from which patient is suffering from in years		
Less than 01 Year	21	7.7
5-1 Years	71	25.8
10-5 Years	59	21.5
More than 10 Years	124	45.0
Family History of Diabetes Mellitus		
Yes	164	59.6
No	111	40.4
Diabetic Complication of participants themselves suffering from		
None	53	19.3
Retinopathy	53	19.3
Nephropathy	21	7.6
Neuropathy	36	13.1
Diabetic foot	30	10.9
More than 1	82	29.8
Diabetes Mellitus Treatment		
Life Style Changes	18	6.5
Oral drugs	88	32.0
Insulin	87	31.6
Insulin + Oral drugs	82	29.8

Table 2: Awareness regarding important variables for DM.

	Frequency (n)	Percentage (%)
Awareness about Hypoglycemic Symptoms		
Aware	161	58.5
Unaware	114	41.5
Awareness about managing Hypoglycemic Symptoms		
Aware	168	61.1
Unaware	107	38.9
Awareness about importance of foot care		
Aware	67	30.9
Unaware	159	69.1
Awareness about Glycemic control during Pregnancy		
Aware	13	4.7
Unaware	262	95.3
Awareness about effect of dietary modification for diabetic control		
Aware	181	65.8
Unaware	92	33.5
No comments	2	0.7
Awareness about effect of exercise for diabetic control		
Aware	181	65.8
Unaware	94	34.2
Awareness about managing the disease during Ramadan		
Aware	105	38.2
Unaware	170	61.8
Awareness about importance of Routine Medical Check-ups		
Aware	132	48.0
Unaware	143	52.0
Awareness about importance of Routine self-Check-up of feet		
Aware	91	33.1
Unaware	184	66.9
Awareness about importance of Routine Eye Check-ups		
Aware	100	36.4
Unaware	175	63.6

Quetta where it was observed that knowledge about diabetes; including awareness of complications of diabetes was poor[11]. Such results indicate that majority of the diabetic patients have not been educated about their disease by their physicians & other healthcare professionals. A few studies assessing the awareness levels of the healthcare professionals also have shown that even some of them don't have enough knowledge of diabetes, its complications and preventive strategies[12]. Many studies have been conducted to evaluate the awareness level in diabetic patients, but unfortunately the overall results are nearly the same[13,14]. The disease awareness is not only unsatisfactory in Pakistan but it's a global issue. Multiple studies in India, Singapore and Saudi Arabia reported inadequate education of the patients and general public about diabetes[15,16].

A similar study conducted in Malaysia states that the overall awareness levels of the patient was 81.9% along with the awareness about the risk factors of 69.6%. The study also reported that the patients with higher the educational status and income scored higher in the awareness levels[17]. Another study from India reported that the majority of the participants of their study had fair to good knowledge, they also stated that increasing the duration of the disease, increased the knowledge level of the patients[18]. Our study showed very similar results with statistically significant increase in awareness of the patients with increasing duration of the illness. Similar results were reported in Hong Kong[19].

In our study, approximately 51% of the participants were unaware of the complications of this lethal disease, while the remaining 49% were hardly able to enumerate more than three complications. A study conducted in Islamabad showed that the knowledge about complications of diabetes was not satisfactory. Only 32.4% female diabetics and 63% of male diabetics were aware of the complications [20]. Regarding the management of the disease when our participants were questioned about the target blood sugar levels majority were unaware of it. Only 35% of the patients knew about random blood glucose levels and were able to check them at home, while 72% of the patients were unaware of HbA1c, its importance and the measurement. Similar results were found in a study conducted in Turkey which showed that only 14.5% of the patients were able to check their plasma glucose levels by themselves and they were unaware about the significance of HbA1c[21].

It is extremely important to emphasize the fact that diabetes mellitus is incurable but controllable disease. Misunderstanding may cause the patients to be less cautious in taking preventive measures against the disease and its complications. In our study 60.4% of the patients believed in different myths regarding insulin while 89.4% of the population believed non-scientific myths regarding the disease itself to be true. This leads to misinterpretation of the disease, its complications and ultimately poor outcomes. A survey conducted in Karachi showed that more than 80% of respondents had misunderstandings about dietary management, similar to our study where approximately 65% of the participants were of the belief that once the patient is on insulin there is no role of dietary modification for the management of their illness[20].

A study conducted in Pakistan reported that 22.3% of diabetics had received diabetes education from their health care professionals. This was also observed during the survey that those patients who were frequently in touch with their physicians or had been counseled by a diabetes educator had some degree of awareness. This highlights the role of professional Diabetes Educators but unfortunately this approach is not being fully considered in Pakistan especially in public sectors.As stated above; the chronic lifelong disorders like diabetes can only be managed by proper education, counseling and use of rational treatment approaches by healthcare professionals to prevent short term and long-term complications. This will also decrease financial burdens, both for individuals and state as well, and decrease rates of morbidity and mortality.

A single center study on limited patients is the main limitation of this study. A large multicenter study across the country is the needed to find out the awareness level about diabetes mellitus.

We need to have national programs at basic health level to educate the patients about their disease at the start of diagnosis and there should be help available for them if they need any suggestion or guidance at any stage of their illness. The American Diabetes Association (ADA), clearly defined, the critical role of diabetes education in quality diabetes care. Courses like Diabetes Education and Self-Management for Ongoing and Newly Diagnosed Diabetes (DESMOND) or similar courses will help a lot.

CONCLUSION

Majority of the patients had poor or insufficient knowledge of Diabetes. Awareness of the public and in particular, patients is the need of the day to control the increasing trends of the disease in our community and prevent the long term mortality and morbidity associated with this disease.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Haroon M:	Concept, data analysis and final Supervision
Khan HA:	Questionnaire, Critical discussion and data interpretation.
Yousaf M:	Data Collection and proofreading.
Ali MA:	Statistical analysis and critical review.
Asad L:	Literature review and database searching.
Tauqir W:	Data Collection and proofreading.
Javeed E:	Data Collection and proofreading.
Rana G:	Literature review and database searching.
Afridi NR:	Literature searching.
Umam S:	Final drafting and proofreading.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.