Ali Akhtar [a]	Samreen Fatima [b]	Sufyan Junaid Usmani [c]
Zunaira Akbar[d]		Ovaisullah Shirazi[e]

Knowledge, Attitude and Practice Regarding Diabetes Mellitus Fever among the Population of Lahore, Pakistan

Abstract   *Diabetes mellitus is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. It is expected to increase up to 7.7% and will affect almost 439 million adults globally by 2030. The main aim of the study was to assess the demographic details of diabetic patients and their knowledge, attitude and practice regarding diabetes in Lahore, Pakistan. The prospective cross sectional study was done to know the level of KAP of diabetic population of the city; we visited different hospital's endocrinology and diabetes departments. Face to face interview was done by using structured questionnaire comprises of total 26 questions. Of the 350 participants 221(63.1%) were women and 129(36.9%) were men. The major age groups were of <39years 106(30.3%), 60> years 83(23.7%) and of 40-49years 89(25.4%). Around 185(52.9%) have done graduation and 29(8.3%) are illiterate. About 231(66%) have type 2 diabetes and 119(34%) suffering from type 1 diabetes. Almost 228(65.1%) admits that they have family history of diabetes. Major cause of diabetes as participants' claims is hereditary and obesity, both 118(33.7%). The frequent urination and increased thirst and hunger is the symptoms (62.9%). About 187(53.4%) of participants do exercise regularly and 194 (55.4%) follow planned diet. About 157(44.9%) had never any eye examination and 97(27.7%) had never any urine test. Around 236(67.4%) had never any lipid profile test. The study shows that participants have good knowledge of diabetes and have positive attitude towards DM but they have low or average practice scores.*

Key Words: Insulin, Type 2 Diabetes, Exercise, KAP, Hereditary

Introduction

Diabetes mellitus is a group of metabolic diseases characterized by hyperglycaemia resulting from defects in insulin secretion, insulin action, or both. There are 2 types of diabetes mellitus

Type 1 Diabetes Mellitus

Type 1 diabetes is immune mediated diabetes and there is an absolute lack of insulin due to the breakdown of islets of Langerhans in the pancreas. The other names of type 1 diabetes are:

1.   Insulin- dependent diabetes
2.   Juvenile- onset diabetes

This type of diabetes accounts for only 5 – 10 % of diabetes patients.

Type 2 Diabetes Mellitus

Type 2 diabetes is non-insulin dependent diabetes which include individuals who have insulin resistance with relative insulin deficiency to predominantly and insulin secretory defect with insulin resistance. The other terms used for type 2 are: -

1.   Non– insulin dependent
2.   Adult-onset diabetes

This type of diabetes covers almost 90 – 95 % of diabetes patients. (Mellitus 2005).

Research was conducted in 91 countries to gauge the level of diabetes prevalence on national level for all 216 countries spanning period from 2010 to 2030. Diabetes was found to be 6.4% among adults (between the age group of 20-79 years) in 2010 and has affected 285 million adults. However, it is likely to increase to 7.7%by 2030, will be affecting 439 million. It is predicted that there will be 69% increase in the

[a] Assistant Professor, Riphah Institute of Pharmaceutical Sciences, Riphah International University, Lahore, Punjab, Pakistan. Email: aliakhtar5657@gmail.com

[b] Pharm.D, University College of Pharmacy, University of the Punjab, Lahore, Punjab, Pakistan.

[c] Lecturer, Riphah Institute of Pharmaceutical Sciences, Riphah International University, Lahore, Punjab, Pakistan.

[d] Senior Lecturer, Riphah Institute of Pharmaceutical Sciences, Riphah International University, Lahore, Punjab, Pakistan.

[e] Senior Lecturer, Riphah Institute of Pharmaceutical Sciences, Riphah International University, Lahore, Punjab, Pakistan.

number of people with diabetes, in developing countries. In developed world, the percentage wise increase was recorded at 20%. The predictions are alarming especially the possibility of increase of this malaise in developing world. (Wild 2004).

Knowledge

Knowledge can be defined as:
The information or data regarding something obtained either by education or experience or a state of cognizance about something (Merriam-Webster 1828).

Attitude

It can be defined as:
The thinking or feeling of someone about something that affects the behaviour of a person (Merriam-Webster 1828).
Practice:
It can be defined as:
The activity of doing something again and again in order to become better at it. (Merriam-Webster 1828).

Materials and Methods

It is the prospective cross-sectional (study that is wide – spread and verified by independent results) study on KAP (knowledge, attitude & practice) of diabetic patients that visited the Diabetes and endocrinology department of different hospitals by using a validated questionnaire.

Study Location

The study location of our research comprises of various hospitals and general community of Lahore city. The hospitals visited for research purpose are as follows:

1. Diabetes institute of Pakistan, Lahore.
2. Sheikh Zayed hospital, Lahore
3. Services hospital- Services institute of medical sciences, Lahore

4. Jinnah hospital Lahore.

Approval of Study

Our research study on diabetes was corroborated by the "Ethics and Research Committee" of University college of pharmacy, University of Punjab, Lahore.

Inclusion Criteria

We consider the patients above the age of 15, having Type 1 & Type 2 Diabetes mellitus. They were taking medication for diabetes.

Exclusion Criteria

We did not consider the patients below the age of 15, chain smokers, drug addicts, and disabled persons.

Statistical Analysis

The statistical analysis of 2 variables.
Categorical Variable: It comprises of frequency & percentage of type 1 and type2 diabetes among patients during the research study.
Continuous Variable: It comprises of Mean & Standard deviation which is calculated by the studies made by us.

Results

Of the 350 participants 221 are females and 129 are males. More patients are of age less than 39 years. Almost 97% of participants are Muslims. The participants who take part in our research are mostly educated and literate. Around 52% of them are professed to be graduated. The female participants are mostly house wives; Above all the participants are able to take medical care of their diabetes. The exact frequencies and percentages are shown in the Table 1 below:

Table 1. Socio-Demographic characteristics of study Population

Variables	Frequency (%)
Gender	
Male	129 (36.9)
Female	221 (63.1)
Age groups	
<39	106 (30.3)
40-49	89 (25.4)
50-59	72 (20.6)
60>	83 (23.7)
Religion	
Buddhist	2 (0.6)
Muslim	341 (97.4)
Christian	5 (1.4)
Hindu	2 (.6)
Education	
Illiterate	29 (8.3)
Primary	60 (17.1)
Secondary	76 (21.7)
Graduation	185 (52.9)

Variables	Frequency (%)
Occupation	
Unemployed	99 (28.3)
Private business	59 (16.9)
Government employee	38 (10.9)
Private employee	30 (8.6)
House wife	124 (35.4)
Marital status	
Single	79 (22.6)
Married	251 (71.7)
Divorced	2 (.6)
Widowed	17 (4.9)
Monthly income	
<10,000	9 (2.6)
30-60,000	36 (10.3)
20,000	9 (2.6)
60,000 or above	84 (24.0)

Knowledge of Diabetes

The Knowledge of participants (diabetic patients) is evaluated based on their answers related to cause of diabetes, symptoms and available treatment options. Most of them were aware of type of diabetes they were suffering from insulin dependent or otherwise. More than 33% admitted the obesity and hereditary reasons to be the cause of their diabetes. Around 62% patients observed frequent urination and increased thirst and hunger to be the symptoms of diabetes. Around 45% of the total participants said that their main source of information were health personnel and 38% of them said that their relatives and friends provided them information about diabetes. Most of the participants were of the view that it can adversely affect the functioning of all body organs if it is left untreated. According to 67% of participant's treatment should comprise of exercise, insulin (medicine) and blood sugar monitoring. On asking whether a diabetic patient should check up on his blood pressure regularly 9.4% answered that there is no need to measure but majority about 53% said that they should measure their blood pressure regularly. The corresponding figures are shown below in the Table 2.

Table 2. Knowledge Regarding Diabetes among Study Population

Questions	Responses
1- Type of Diabetes	
(A) Insulin Dependent Diabetes	119 (34)
(B) Non-Insulin Dependent Diabetes	231 (66)
2- Family history of Diabetes	
(A) Yes	228 (65.1)
(B) No	122 (34.9)
3-Major causes of diabetes are	
(A)Hereditary	122 (34.9)
(B) Obesity	48 (13.7)
(C) Both	118 (33.7)
(D) none	62 (17.7)
4-Symptoms of diabetes	
(A) Frequent Urination	57 (16.3)
(B) Increased thirst or hunger	34 (9.7)
(C) Both	220 (62.9)
(D)Anemia	39 (11.1)
5-Source of information about Diabetes	
(A) Health personnel	158 (45.1)
(B) Radio/TV	24 (6.9)
(C) Newspaper/Magazine	32 (9.1)
(D) Relatives and friends	136 (38.9)
6-Diabetes if not treated will cause	
(A) heart disease	57 (16.3)
(B) kidney failure	90 (25.7)
(C) Respiratory failure	4(1.1)
	199(56.9)

Questions	Responses
(D) All	
7-Treatment of diabetes comprises of	
(A) Blood sugar monitoring	59 (16.9)
(B) Insulin	29 (8.3)
(C) regular exercise	22 (6.3)
(D) All of them	240 (68.6)
8-A diabetic patient should measure his blood pressure	
(A) Frequently	106 (30.3)
(B) Regularly	186 (53.1)
(C) No need to measure	33 (9.4)
(D) None	25 (7.1)

Attitude Regarding Diabetes

Less than 47% says that they do not exercise regularly while 53% says that they do exercise on a regular basis. About 55% answers in the affirmative saying that they follow a planned diet and 39% replies in negative and only 5% says that they don't know about planned diet. Around 74% of them think that missing dose of diabetic drugs /medicine will have adverse impact on their ability to control disease while 14 % respond in the negative (No) and 11% replies that they don't know about this. About 62% claims that they do aware that upon taking diabetic medication their sugar may fall below normal level and 19 % of them says that they do not aware of that fact while 18% replies in the negative. Around 77% of the patients who participated are of the view that they should remain in touch with their physician while 11 % answered in "NO" and around the same percent of patients don't know about this. Figures are shown in Table 3.

Table 3. Attitude about Diabetes among study participants

Questions	Responses
1-Do you exercise regularly?	
(A) Yes	187 (53.4)
(B) No	163 (46.6)
2-Are you following a planned diet?	
(A) Yes	194 (55.4)
(B) No	138 (39.4)
(C) Do not know	18 (5.1)
3-Do you think missing doses of your diabetic medication will have a negative effect on your disease control?	
(A) Yes	261 (74.6)
(B) No	49 (14.0)
(C) Do not know	40 (11.4)
4-Are you aware of your blood sugar levels fall below normal when you are taking drugs?	
(A) Yes	217 (62.0)
(B) No	64 (18.3)
(C) Do not know	69 (19.7)
5-Do you think you should keep in touch with your physician?	
(A) Yes	269 (76.9)
(B) No	41 (11.7)
(C)Do not know	40 (11.4)

Practice of Diabetes in diabetic Patients

Practice regarding diabetes mellitus among diabetic patients shows that most of them have tendency to check their blood pressure. Around 31% had checked their blood pressure the previous day and 30% had not checked since the last month, 22 % had got it checked in the previous week. This is evident from data that about 45% of participants never go for their eye check-up. Around 52% have their urine test while 27% never had any urine test. Blood sugar monitoring is almost good in all participants. Around 67% of the participants never had any lipid profile test that indicated poor cholesterol control or management. The figures are shown in the Table 4.

Table 4. **Practice of Diabetes among Study Participants:**

Questions	Responses
1-**When your blood pressure was last checked?**	104 (29.7)
(A) Last Month	78 (22.3)
(B) Last Week	110 (31.4)
(C) Yesterday	58 (16.6)
(D)15 days back	
2-**When was your last eye examination?**	112 (32.0)
(A) Last Month	54 (15.4)
(B) Last Week	27 (7.7)
(C) Yesterday	157 (44.9)
(D) Never	
3-**When was your last urine examination?**	
(A) Last Week	40 (11.4)
(B) Last Month	181 (51.7)
(C)Never	97 (27.7)
(D) yesterday	32 (9.1)
4-**When was your visit to your physician?**	75 (21.4)
(A) Yesterday	75 (21.4)
(B) Last Week	134 (38.3)
(C) Last Month	66 (18.9)
(D)15 days back	
5-**When was your blood sugar last checked?**	
(A) Morning	85(24.3)
(B) Evening	76(21.7)
(C) Yesterday	75(21.4)
(D)Two days back	114(32.6)
6-**When was your lipid last checked?**	
(A)Yesterday	16(4.6)
(B) Last Month	93(26.6)
(C)Last Week	5(1.4)
(D) Never	236(67.4)

Discussion

About 63% of the participants were female and most of the subjects were of age <39 years to 40-49 years. Most of the subjects are Muslim by religion, as Pakistan is the country where the majority of the population belongs to Islam religion. About 24% of the participants have income more than 60,000, though we exempt the income of house-wives as in the context of Pakistani culture where joint family system prevails house-wives have not any specific monthly income. The income of the family is considered as their income. About 99(28.3%) says that they are unemployed. The literacy rate of the participants was also high as 53% of them professed to be graduated.

Globally, the knowledge of diabetes mellitus among the diabetic patients is low as shown by the other research studies conducted in different regions of the world and countries. On the contrary to these studies the knowledge of our participants was good. Almost all of them knew about their type of diabetes. Around 66% are patient of type 2 while 34% are of type 1. About 65% of them admit that they have family history of diabetes mellitus.

Most of the participants answered correctly about the symptoms of the diabetes; perhaps they themselves experienced these symptoms or observed them in their relatives or friends.

Most of the subjects admit that their main source of information regarding diabetes is health professionals. This indicates that diabetic educators play important role in creating awareness among diabetic patients. In context of Pakistani culture 39% of patients says that their source of information about diabetes is their relatives and friends. This shows the cultural structure of Pakistani families.

Our research study has indicated our almost all participants are well aware of the fact that diabetes mellitus if not treated well it will affect their other body organs. The participants claim that they are following almost all available treatment options.

The level of knowledge of our participants about DM shows that they have enough knowledge of their disease. But this study is limited to the one city of Pakistan, Lahore is the second largest city of the country and as we mentioned above that literacy rate of participants was relatively high and living in the big city gives them an edge before others as they have more facilities of hospitals, more interaction with health professionals that obviously giving them more knowledge and information related to their disease.

Research has been done to assess the general awareness of patients in terms of KAP. Contrary to our study that shows satisfactory level of knowledge of DM among diabetic population .one study that was done, the results of which registered a poor level of KAP scores. (Upadhyay 2008)

Another recent study conducted among the young Saudi diabetic women (31-40 years) also reported poor KAP scores. (Saadia 2010). The research thus came to the conclusion that programmes designed to equip the patients with requisite knowledge can prove helpful in increasing knowledge scores among the diabetic community.

Our study shows positive attitude of participants towards diabetes mellitus. 53% of them claim that they do exercise regularly. Doing physical activity or exercise can help diabetic patients to increase glucose metabolism. Regular exercise helps Diabetes mellitus 2 patients to improve clinical risk factors and cardio respiratory fitness. Exercise is the basic side treatment recommended by most of the physicians worldwide that helps diabetic patients to keep their blood glucose level under control (Wei 2000).

The recent study done in the Malaysia reported that less than 50% of their research participants reports to exercise daily (Ng 2012) . In our study most of the subjects show a positive attitude towards DM as they do follow a planned diet. They also know about the consequences of missing dose. They firmly believe that they should remain in touch with their physicians. In our study improved knowledge and positive attitude towards DM doesn't assure a good practice of diabetes mellitus.

As 67% of our participants never had any lipid profile test that shows how unaware they are of their cholesterol level and that's the reason many DM patients are more prone to heart diseases.

About 44% of them never had any eye examination. About 27% of them never had any urine test that indicates poor practice of diabetes among DM patients. But at the same time measuring blood pressure and monitoring blood glucose level is most common practice among them. In one

study it is stated that the self –monitoring of blood glucose level helps diabetic patients to manage their disease well. (Welschen 2005)

Our study also shows that visiting their physician is also a common practice among them. This difference shows that they have good knowledge and attitude regarding diabetes but they are not practicing that knowledge completely in their practical life. In the one recent study that has done in the Malaysian population shows that participants have adequate knowledge of diabetes and positive attitude towards DM but at the same time their satisfactory KA doesn't assure complete control of DM (Wein, 2014)

The average score of practice may be because of lack of motivation among diabetic patients as most of them almost 24% are of age greater than 60 years. At that age of life people become less motivated and they have less urge to fight with their disease and somehow low financial statuses and many other concomitant diseases they less take care of themselves. The other main reason of low practice of diabetes among participants is poor finances as we mentioned above that about 28.3% are unemployed and a jobless person can't afford the expensive laboratory tests.

Conclusion

The study shows high level of knowledge and positive attitude towards diabetes mellitus but average score of practice of diabetes among participants. This indicates that despite having satisfactory knowledge and positive attitude that there is still room for improvement. Diabetic education programmes will play essential role in motivating patients as lack of motivation is the main cause for their low scores of practices of diabetes. And financial problems are also biggest hindrance in practicing diabetes medical care among diabetic patients. Government should make diabetic clinics that take care of diabetic patients having poor resources so that Pakistan can overcome the fast growing diabetes prevalence.

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