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Research Article

**AWARENESS OF DIABETIC PATIENTS ABOUT DIABETES IN  
PAKISTAN****Dr. Kainat Zahra, Dr. Muhammad Haris Kareem, Dr. Humble Bin Ahmed**  
Nishtar Hospital Multan, Pakistan**Abstract:*****Objective:** To find out the complexities and number of the diabetic patients who are at the early stage of diabetes.****Methodology:** A survey based on interviews of the diabetic patients consisting of 495 patients was started at Nishtar Hospital Multan. During a specific study period these patients were directed towards the clinic for interviews.****Results:** Different complications were discovered during the study of the patients. Long duration of diabetes, positive family history and age factor were few reasons resulting in complications. Most of them were unaware of the basic information regarding the disease. Most of the patients were having positive family history. Fatness and hypertension were few problems common in them. Only 14.5% were aware of how to check their plasma glucose level. Neither file consisting of HBA1c level. Even most of them were unaware about what does it mean.****Conclusion:** Few things needed to be done at home by the patients themselves, like checking of blood sugar levels. But unfortunately only few were aware of how to check it. In order to avoid different complexities, a diabetic patient must have a keen knowledge of how to ensure a required blood glucose level.****Key Words:** Type-2 Diabetes, knowledge, education***Corresponding author:****Dr. Kainat Zahra,**  
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**INTRODUCTION:**

Diabetes is a kind of disease whose victims need to be educated about the complications of the disease so that to live a normal life. This disease is spreading with an alarming speed affecting more than 110 million people. This alarming situation has created a dilemma for the inhabitants of this world. Few techniques need to be applied to keep the disease in control [1]. Keeping in view the high rate of this disease The National standards for Diabetes self-management education has declared that 'patients' education' is the only tool for solving the problems of the diabetes. Knowledge about the disease is not only needed for the victims but equally needed for the family members and relatives as well, so that to minimize the risk of getting the disease [2]. Knowledge about the symptoms of the disease is one of the most important things to be noted. Research reveals that people often don't have required knowledge of self-management skills.

The method includes certain precautions like avoidance of using drugs which causes several complications. Another thing need is to change the life style as well as the nutrition plans. To enhance the standard of a diabetic life style, regular ophthalmic examinations were mandatory [3]. All these methods and practices are of great importance for enhancing and smooth running of a diabetic life style.

**METHODOLOGY:**

Different questions were asked from the patients during the survey of data collection about the patients who were sent to different clinics at Multan. These questions were resulted from interviews with patients. The patients were enquired about their duration of disease. It was necessary to know that for how long the patient was suffering from it. Question

regarding family history were also asked to know about the other family members and their diseases history. As patients need to keep information about the disease so they were also asked about the sources of information used by them. Different complications faced by the patients and its duration were also enquired during the interviews. Few other questions included like level of plasma glucose level, arterial blood pressure, fatness and urine test results, their knowledge about hypoglycaemic reactions, precaution if such type of situation occurs [4]. Another important thing deals to patient self-management of disease was to check how much the patient is serious about his own checking of plasma glucose, whether he is serious about avoiding of any use of drugs. The most important thing during the survey was to know about how much his family members were helpful in patient's education about the different complications of the disease. Ethical approvals: The data collected during the survey was tested by SPSS software. Methods followed in the study were according the rules of Helsinki declaration of 2000. The study was according to the standard of the local ethical board.

**RESULTS:**

A different number of males and female's diabetic patients were sent to the polyclinic for study. Out of 495 patients 382 males and 113 females were interviewed. The results according to their demographic characteristics are tabulated below. After the analysis of the educational level of the patients, it was revealed that most of them nearly 85.9% were only having educational qualification of primary level, rest of 14.1% were educated up to secondary level.

<b>Table-I: Distribution of diabetes patients in accordance with their socio demographic characteristics. (n=495)</b>		
<b>Demographic Characteristics</b>	<b>n</b>	<b>%</b>
Age (years)		
<39	17	3.4
40-49	69	13.9
50-59	155	31.3
60-69	173	34.9
70+	81	16.4
Gender		
Male	113	22.8
Female	382	77.2
Education level		
Primary school and below	425	85.9
Secondary school and above	70	14.1
Presence of health insurance		
Present	474	95.8
Absent	21	4.2
DM history in family		
Present	241	48.7
Absent	254	51.3
Hypertension		
Present	276	55.8
Absent	219	44.2
Body mass index		
Normal	87	17.6
Obese	408	82.4
Smoking status		
Never smoked	376	76
Quit smoking	0	0
Smoking	119	24

The characteristics of all diabetic patients who had been part of this study is given in Table II. HBAC level of patients was critically studied and few points regarding patient's knowledge of the disease were noted. The patients were unaware of HBAC LEVEL

and its importance. There files were not updated and there was no result of HBAC Level. Other results which should be less were found very high. Urine was found to be 41.2% which was very high level.

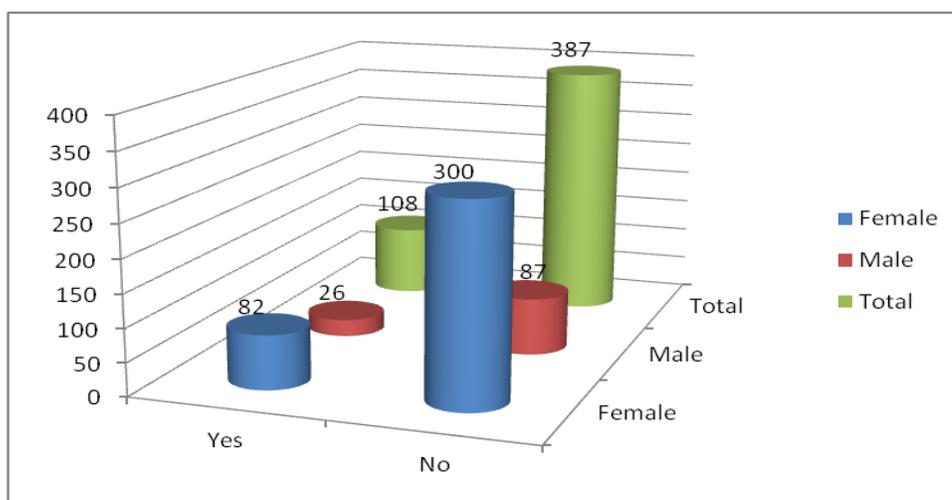
<b>Table-II: Characteristics of Diabetic patients</b>		
	<i>n</i>	%
Time since diagnosis (n=495)		
<5	191	38.6
05-Sep	129	26.1
Oct-14	97	19.6
15-19	42	8.5
20-+	36	7.3
Type of treatment		
No treatment	4	0.8
Diet control	42	8.4
Insulin	36	7.2
Oral hypoglycemic agents	273	55.2
Insulin+ Oral hypoglycemic	6	1.2
Agents		
Insulin+ Diet	13	2.6
Oral hypoglycemic agents+ Diet	122	24.6
Latest fasting blood glucose level		
>110mg/dl	65	13.1
110mg/dl ve uzeri	430	86.9
Diabetic complication		
Present	108	21.9
Absent	387	78.1
Urine analysis		
Not available	204	41.2
Albuminuria	7	1.4
Acetone	18	3.6
Proteinuria	7	1.4
Normal	291	58.8
Cholesterol level		
Analysis not available	206	41.6
<200mgdl	149	30.1
>200mg/dl	140	28.3
Lipid level		
Analysis not available	223	45.1
<150 mg/dl	105	21.2
>150 mg/dl	167	33.7

Similarly, cholesterol and lipid were also 41.6% and 45.1%. Table III & IV shows the complications of the students with respect to their age and gender. According to the Table nearly 21.9% patients were suffering from complications. There was no difference in men and women with respect to complication and it was equally developing between them. Age of the patients and duration of the disease were somehow in relation to the complication, but the most important was the duration of the disease.

Table V shows answers to different question which were asked from patients. They were enquired about their knowledge of diabetes, about the medium they use for collecting such information and lastly their capability of

checking their plasma glucose level by themselves. The most astonishing thing was that their source of information was the "railway hospital" which was a second stage health care institution, whereas the patients were in the early stage of diabetes. Few were aware about the symptoms like the hypoglycaemic symptoms. Some were found to be serious of their education about the disease and its controls. Only 14.5% were aware about how to check their plasma level. Table VI consists of the information about the age of patients, duration of disease, past history and complications caused by the hypoglycaemic reaction. Complications can be caused by many other factors like extended duration of disease, increased age and a positive family history.

Gender	Yes		No		Total
	n	%	n	%	
Female	82	21.5	300	78.5	382
Male	26	23	87	77	113
Total	108	21.8	387	78.2	495



**Figure 1 : Complications according to gender**

	Complication		Test value
	Yes X± SD	No X± SD	
Age	61.77 ± 8.47	58.02 ± 10.28 r=0.15 p=0.001	t=3.87 p
Disease period	11.33 ± 7.46	6.62 ± 5.52 r=0.30 p=0.000	t= 6.10 p

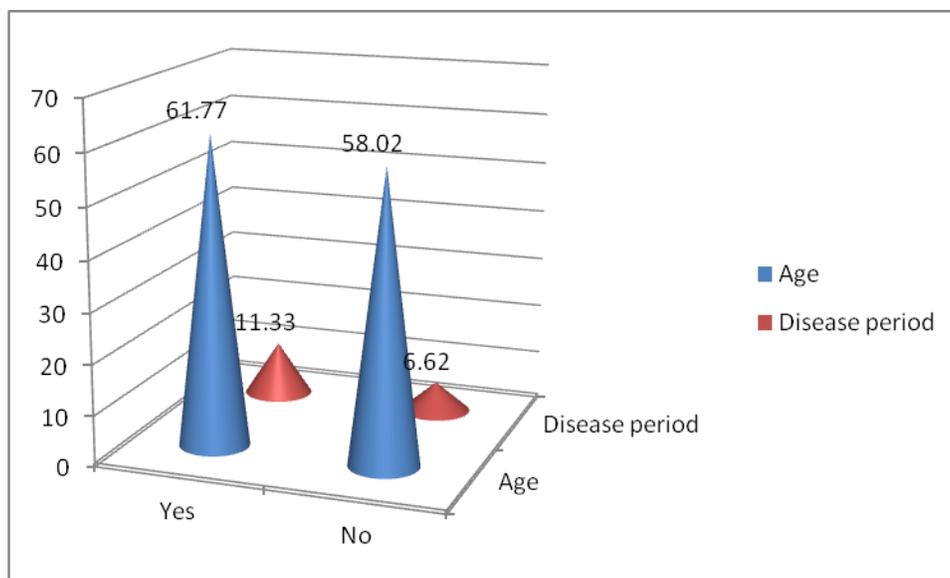


Figure 2 : Complications with relation to age and disease

Table-V: Source of patient's information about their diseases and their behavioral characteristics.		
	n	%
<b>Information sources*</b>		
Primary health care	97	19.5
Railway hospital	362	73.1
Another	42	8.4
<b>Hypoglycemic symptoms</b>		
Known	293	59.2
Unknown	202	40.8
<b>What should be done in case of hypoglycemia?</b>		
Yes	262	53.2
No	233	47.1
<b>Were they meticulous about their controls?</b>		
Yes	381	77
No	114	23
<b>Were they able to check plasma glucose by themselves?</b>		
Yes	72	14.5
No	423	85.5
<b>Were they getting enough family support?</b>		
Yes	397	80.2
No	98	19.8
<b>Were they careful about education regarding diseases?</b>		
Yes	288	58.2
No	207	41.8

<b>Table-VI: Multiple logistic regression analysis for complication in diabetic patients.</b>			
	<b>OR</b>	<b>95 % CI</b>	<b>p value</b>
<b>Age</b>	1.02	1.00-1.05	0.03
<b>(1-year increment) Hypoglycemia</b>	1.59	0.97-2.60	0.06
<b>Family history</b>	1.92	1.19-3.08	0.007
<b>Time since diagnosis</b>			
<b>5-9</b>	2.06	1.07-3.99	0.02
<b>9-14</b>	2.81	1.44-5.47	0.002
<b>15-19</b>	2.67	1.14-6.22	0.02
<b>20+</b>	9.16	3.09-21.51	0

### DISCUSSION:

The result of our study revealed that a different number of male and female were affected in different countries. Female were mostly affected in Pakistan with a percentage of 77.2% having age group of 60-69 years. 38.6% claimed that their disease had been diagnosed only five years ago [5]. The result of study in England showed a great number of males as compared to females having age of 58 years with duration of 8.6 years [6]. A study conducted in china reported a large number of females with a percentage of 67.3% diagnosed only 5 years ago. Diabetes affects the normal balance life of the patient because of its complications [7]. Knowledge about the disease in the early stages is of great importance for the patient which helps in his training about the disease. It is a fact that diabetes management demands patient's education about the disease. Patients who have knowledge of the disease can easily plan their diet and exercise. Use of medication, blood glucose level and weight can only be controlled through a sound knowledge about the disease [8]. Few other things observed in the study were that patients having hypertension and fatness were in majority. Smokers were 24% and were mostly overweight which was alarming [9]. A 110mg/dl was set as a standard glucose plasma level to check the patients' blood glucose level. 86.9% were having glucose level more than the standard level. 4 patients were never given any type of treatment whereas 42% have not gone through cholesterol and lipid level tests [10]. Better management of diabetes demand few things to be kept in control. Patients need to avoid of smoking, check their blood pressure on regular basis and try to keep it in control. Patients need to be serious about their body weight and try to maintain it. These instructions should be followed strictly to avoid any miss management in diabetes [11].

During the study it was observed that most of the patients were not aware about HBAIC. It was never done before which means that this problem needs to be handled carefully. The required level of HBAIC is 7% which is acceptable, but unfortunately patients were not knowing about its upper and lower level [12]. Even their files don't have any HBAIC test result, which was alarming for them. The data about HBAIC value of last 2 months was collected from patient's record which was the last blood glucose assessment. Few suggestions should not only be given to patients but to physicians as well who were handling the early stage patients [13]. The patients were not wholly unaware of all things. Despite not knowing about HBAIC a 52.8% patients were still aware of the precautions and instructions related to diabetes. They were regularly following the instructions. Patients were aware about hypoglycaemia symptoms and its remedial action in case of appearance of symptoms [14]. An extraordinary support was also provided to the patients by the family members to help them out in making their diet plan and to cook a meal according to their requirements. Patients were also help out in carrying their check-up and medication. A study was carried out in three different countries about the diabetic patients. It was found that some patients even not able to check their blood glucose level [15]. During a study in Singapore 89.5% were found to going through regular checkup. 42.1% were aware of maintaining the glucose level but they were still not serious about it. During study at USA only 30% were aware of the hypoglycaemia symptoms and 8% were having information about HBIAC Level. During a study in Glasgow it was found that knowledge of the diabetes is based on the length of the disease. As the disease prolongs information about the disease enhances [16].

Good diabetic management is a key to minimize the risk of complication and increase in disease. Good knowledge about the disease can also be helpful in diabetic control. In case of complications, males and females were equally a victim that's why both need knowledge of how to minimize the risk of complications [17]. Age is a key factor which raises the risk of Complication 1.02 times with a single increase in age. As the disease prolongs the risk of complication also increases by 9 times. Complication can be minimizing by regular check –ups which also keeps the blood glucose level within limits. Other factors like Family, cultural and economic factors have a key role in diabetes control. These factors can either facilitate or create hindrance in diabetic control.

### CONCLUSION:

After concluding the study, it was found that a small number of patients were able to check their blood sugar level at home. Most of them were ignorant of HBAIC LEVEL and its importance in maintaining a blood glucose level for three months. Their follow-up files were not having any details of HBIAC. It was astonishing to know that many were even not aware about what HBAIC implies. Finally, it was concluded that a comprehensive education programme should be arranged to educate the patients about the important practices required for diabetic patients so that to minimize the risk of complications.

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