

Research Article

Survey of prevalence of diabetes mellitus and associated factors in out patient's clinic Nishtar Hospital Multan.Ayesha Siddiqua¹, Abdul Majeed¹, Muhammad Hanif¹, Sana Sharif¹, Sahima Alia¹¹Faculty of Pharmacy Bahauddin Zakariya University Multan, 6000 Pakistan**Abstract**

Aim of this study was to determine the awareness amongst Diabetic patients, its risk factors and complications. This was a cross-sectional survey conducted at the outpatient, Diabetic clinic Nishtar hospital, Multan in April of 2014. A structured and close ended questionnaire was administered and 300 patients of different age groups were interviewed about their knowledge regarding awareness of Diabetes Mellitus, complications and risk factors. Of the three hundred patients subjected to the survey, 18% individuals were aware of risk factors while 22% were aware of the complications associated with the disease. This awareness is significantly less in female as compared to male. Prevalence of risk factors and complication is greater in female particularly because of physical inactivity. Majority of patients had inadequate knowledge about Diabetes Mellitus and its associated risk factors. Public awareness and knowledge about disease can be raised by planning and implementing outreach programmes and mass media. Moreover, exercise benefits should be demonstrated in public.

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Keywords: Diabetes Mellitus, Diabetic complications, Risk factors, Exercise**Introduction:**

Lifestyle changing, increased obesity and reduced physical activities are governing a chronic disease, Diabetes Mellitus (DM) (Shaw *et al.*, 2010). Most of the patients with diabetes mellitus are not aware of the complications related to the disease. Diabetes and associated complications is a major serious problem worldwide (Ramachandran *et al.*, 2010). The rate of the people with Diabetes Mellitus is progressively increasing. Most of the patients suffering with DM are not aware of the complications associated with the disease. DM is increasing globally because of unawareness of the patients with the disease associated risk factors, less physical activity, unhealthy diets (Fezeu *et al.*, 2010). Diabetes is the amongst five leading causes of death in many countries (Varghese *et al.*, 2015). Healthy lifestyle, physical

activity and weight reduction can be helpful interventions in the prevention of Diabetes Mellitus. Pharmacological intervention can also be adopted to prevent the disease (Fezeu *et al.*, 2010). Thus increasing the awareness of the disease associated complications among the individuals can also be a major factor in reducing the present epidemic of the Diabetes in many countries of the world (Fezeu *et al.*, 2010).

According to The International Diabetes Federation data in 2003, 194 million people had diabetes in whole world and that by 2025, 333 million people will suffer from this disease. The prevalence of diabetes is high in Pakistan (Yoon *et al.*, 2006).

The aim of this study was to collect data for prevalence of diabetes in Southern Punjab and other related factors and parameters. The data was collected in the period of April to June 2014 from Nishtar Hospital Multan. Nishtar Hospital Multan is one of the biggest hospitals not only in Pakistan but also in Asia, serving maximum population of Southern Punjab. It has 1800 beds, 24

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departments, 30 wards, a diabetic unit a burn unit, out patients and emergency department and 15 operation theaters.

METHOD:

Study Design:

The method used for this prospective study was based on questionnaire designed to collect information such as age, age at onset of diabetes, weight, BMI, family history, diabetes type, micro vascular and macro vascular complications, and awareness regarding risk factors and complications. This survey was completed in three months from the April 2014 to June 2014. Patients having blood pressure >150/90 mmHg were considered hypertensive. Type of diabetes was evaluated on the basis of medication prescribed (insulin, hypoglycemic agents or combination of both).

Inclusion and Exclusion Criteria:

Patients having age up to 80 years were included in this study. Patients of both genders were included. Patients having micro vascular complications (retinopathy, neuropathy and diabetic foot) were included. Patients having HTN as macro vascular complication were included only.

Data Collection:

300 diabetic patients from Out Patient Diabetic Clinic were interviewed. The data was collected by five trained pharmacists in collaboration with prescribers who met participants when they visited the hospital. All questions were asked in local languages. Layman terminology of sugar was used. Their demographic and socio-economic data was collected. The drug therapy being prescribed to them and steps taken for their management was observed. The data about how much awareness does patients have about their

disease and complication was collected as shown in Table 1.

Informed Consent:

Patients who were willing to fill questionnaires were explained the purpose of the survey and their informed consent was obtained. For patients whose ages were less than 18, informed consent was obtained from their guardians(Sharif *et al.*, 2016).

Table 1: Descriptive summary of study participants (N=300)

PARAMETERS	RANGE	Total	%
GENDER	Male	90	30
	Female	210	70
AGE	Below 40	84	28
	Above 40	216	72
AGE AT ONSET	Below 40	201	67
	Above 40	99	33
WEIGHT	Non-obese	99	33
	Over weight	171	57
	Obese	30	10
TYPE OF DM	Type 1	93	31
	Type 2	207	69
PHYSICAL ACTIVITY	Exercise	141	47
	Do not	159	53
SOCIOECONOMIC STATUS	Affordable	129	43
	Hospital medication	171	57
MICROVASCULAR COMPLICATION	Neuropathy	102	34
	Retinopathy	90	30
	Diabetic foot	42	14
MACROVASCULAR COMPLICATIONS	DM without HTN	129	43
	DM+ HTN	171	57
OTHER DISEASES	DM + GIT	30	10
	DM + TB	3	1
	Monitor regularly	168	56
GLUCOSE MONITORING	No monitoring	132	44
	Mono therapy	90	30
	-Insulin	72	24
MEDICATIONS	-glucose lowering agents	24	8
	Combination	210	70

AWARENESS LEVEL	therapy		
	Complications	66	22
	Risk factors	54	18

Data Analysis:

Data was summarized using descriptive statistics

RESULTS:

The results demonstrate that high number of cases 210 (70%) were found in female population of Southern Punjab as compared to male 90 (30%) population. The present data was analyzed for the age wise distribution showed that high number of cases 72% were recorded at age above 40 years and 28% were below age 40. Out of 300 patients of diabetes mellitus, 201 (67%) showed onset of disease in age below 40 years and 99 (33%) showed onset of disease above 40 years. We classified participants into three categories (non-obese, overweight and obese) on the basis of body weight. 99 patients (33%) were non-obese, 171 (57%) were overweight and 30 (10%) were obese. 93 cases (37%) of diabetes mellitus out of 300 were of type 1 DM and 207 (69%) were of type 2 DM. Out of 300 patients 141 (47%) were physically active in their lives but 159 (53%) were physically inactive. The data for socioeconomic status depicted that treatment was affordable for 129 patients (43%) and 171 patients (57%) were using hospital medications. 30 patients (10%) were with gastrointestinal disorders and 3 (1%) were with tuberculosis as other associated disorders. 90 patients (30%) were on mono therapy of treatment and 210 (90%) were on combined therapy. 66 patients (22%) were aware about the complications of diabetes mellitus and 54 patients (18%) were aware about its risk factors.

DISCUSSION:

Diabetes prevalence is different in accordance with gender related differences. As the present

study demonstrates that the diabetes prevalence is more in women 70% than in men 30% Present study correlates with other previous studies conducted in many countries of Sub-Saharan Africa and Zuni India (Shaw *et al.*, 2010) (Yoon *et al.*, 2006). In many countries women are more likely to be obese or overweight as compared to men and thus women are at higher risk of prevalence of diabetes mellitus. But this study results may differ with other studies done in many other countries (Shaw *et al.*, 2010). The people with age >40 years are at higher risk of developing diabetes than people with age <40 years. Weight is another risk factor for the development of diabetes mellitus. Weight gain is positively associated with risk of developing diabetes mellitus. Study demonstrates that the diabetes development is more in over weight individuals which are 57% and prevalence of diabetes is more in these patients as compared to non-obese and obese individuals which are 33% and 10% respectively. For the first time large percentage of the patients were diagnosed in diabetes survey in Hiroshima, 45% of the women and 40% of the men were overweight (Adlersberg, 1958). Obesity parameter is more prevalent in females as compared to males. This confirms that diabetes especially type 2 is more prevalent in over-weight and obsessed patients. Type 2 diabetes mellitus (T2DM) is more common as compared to type 1 Diabetes Mellitus. In this study, criteria used for differentiation between type 1 and type 2 are based upon medication. Patients taking insulin just are included as type 1 patients, whereas those receiving glucose lowering agents as well as insulin are included as type 2. According to data obtained, type 2 is more prevalent as compared to type 1 as it reveals that rate of diabetes type 2 is

69% and of type 1 is 31% (Turner *et al.*, 1999). Physical exercise has been considered as one of the most important factor in the treatment of diabetes mellitus along with proper diet and medication since from the past 100 years ago". Most of the sufferings with diabetes in developing countries have no interest in practicing exercise. It may be due to the lack of public awareness towards exercise. On the basis of obtained data, most of diabetic patient do not exercise at all, which depicts their poor awareness about exercise. Most patients says that they already have very tough routine, so they think that they have no need of exercise and rely completely upon medications. 47% patients do exercise while 53% are not aware of exercise benefits in controlling diabetes (Fezeu *et al.*, 2010, Boulé *et al.*, 2001). Most of patients visiting outpatient Diabetic clinic in Nishtar belong from middle and poor class. Hence most of patients depend on hospital medication. According to collected data 43% diabetic patients can afford the treatment and rest all (57%) depend upon hospital free medications. Results from studies demonstrate that the diabetes complications can be prevented by controlling risk factors i.e. Hyperglycemia, hypertension and hyperlipidemia (Çaliskan *et al.*, 2006). Patients suffering from both micro as well as macro complications were included in the study. According to a developed questionnaire patients were asked about complications in lay man terminology. Their awareness about Diabetes related complications was very poor. Micro vascular complications that are more prevalent include neuropathy, retinopathy, and diabetic foot. 34% suffering with neuropathy, 30% with retinopathy, and 14% with diabetic foot were observed. In macro vascular complication only patients suffering from hypertension along with

Diabetes were included in study. Patients were classified as normal, pre hypertensive, Stage 1 and Stage 2 hypertensive on the basis of JNC 57% patients were also suffering with hypertension along with diabetes and rest of patients (43%) were only diabetic patients (Control and Group, 1993). Results indicate that prevalence of complications is at its peak. Despite of this awareness about complications related to diabetes mellitus in patients are very low. Most of the diabetic patients are not aware of the diabetes they are suffering from. The conducted study demonstrates that awareness level was too less in the diabetic patients about the complications of disease and risk factors associated with disease. Awareness level with diabetic complications was 22% and risk factors awareness level was 12%. The American Association of Clinical Endocrinologists states that in both acute and chronic diabetes main reason of complications is lack of understanding with regard to regulation of blood glucose or the patients refusing to control the blood glucose levels. Most of patients do not monitor their blood glucose regularly, 56% check their glucose regularly whereas 44% never checked their glucose. This is due to lack of awareness among people and negligence of health care professionals thereby leading to poor management of Diabetes Mellitus in our people.

CONCLUSION:

The recent study demonstrates that patient's awareness about the treatment, risk factors mainly obesity, physical activity and complications of diabetes are too limited, mainly with regard to preventive aspects. Drugs use is maximum while exercise practice is very poor. For the purpose of maintaining good glycemic control its prevention and minimization of complications is essential. Awareness level is different in men and women.

There is a great need to educate patients with the knowledge which is necessary to help them in obtaining the maximum benefits from diabetes treatment. This can be achieved by increasing diabetes educators' availability in primary care settings on a regular basis. This may improve the level of diabetes knowledge for both patients and providers.

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