Assessment of the Knowledge of Type-II Diabetics About their Disease and the Impact of their Socio-demographic Characteristics on this Knowledge

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Abstract

Objective: Study was designed to assess the knowledge of type – II diabetics in Faisalabad district about their disease, its complications and their management, and to assess the impact of their socio-demographic characteristics on this knowledge – and – to enhance the knowledge regarding management of disease to improve the quality of life.

Study Design: Study was conducted through cross – sectional approach, employing non-probability convenience sampling technique. To assess the knowledge, scoring system was developed.

Place and Duration of Study: The study was carried out at Diabetic Clinic (OPD), Allied Hospital Faisalabad from 18th July to 15th August, 2009. As such, study area was essentially an urban entity.

Subjects and Methods: All diabetics attending OPD of Allied Hospital were the subjects – and – a diabetic of age 40 years and above was sampling unit. Out of 175 willing diabetics selected and interviewed, 151 were finally included for analysis. A structured questionnaire in Urdu vernacular was designed, wherein socio-demographic characteristics of respondents & questions on their knowledge about diabetes, its complications and their management were included. Study sample was distributed according to age, sex, socio-economic status (family's monthly income and educational level) and sources and extent of knowledge of respondents. Data was cleaned and entered on Epi-Info-6 for analysis. Chi-square test and, where required, Fisher's exact test was employed to assess the significance of results. P-value <0.05 was considered significant.

Results: Majority of respondents were having quite good level of knowledge about diabetes mellitus, its complications and their management. Knowledge was found to increase with income. Though education rate also improves knowledge, but impact of education on knowledge was not found statistically significant. Relationship of knowledge with sex was also not significant in the instant study. Chunk of respondents got knowledge from health care providers.

Conclusion: On its detection, diabetes must be adequately treated. Its proper pharmacological and non-pharmacological management is the key to prevent complications, hence to improve quality of life. Diabetics are under obligation to take their own care with medical guidance. For that matter, they require ample knowledge of disease, its complications and their management – and – for such knowledge proper diabe-

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Introduction

Globally, diabetes is one of the most common non-communicable diseases. It affects more than 120 million people worldwide and it is estimated that it will affect 220 million by the year 2020.[1-3] The incidence of diabetes is doubling every 15 years.[4] It is estimated that prevalence of diabetes will rise to 5.5% in 2025 as compared to 4% in the year 1995.[2] The total direct costs for diabetes management have doubled from 1998 to 2005.[3] As a major non-communicable disease, diabetes mellitus alone claims the average of around 8% of total budgets in developed countries. This has implications for countries like Pakistan and other third world countries.[1,4,5] Diabetes is usually irreversible and, although the patients can have a normal lifestyle, its late complications result in reduced life expectancy and major health costs.[1]

In Pakistan, diabetes mellitus has turned into an epidemic problem and it should be judged from the fact that there is 5 – 10% prevalence of diabetes mellitus and seven million people are diabetic in age group of 25 years and above. Another six million are suffering from impaired glucose tolerance.[6] Table 1 depicts the rank of countries with prevalence of diabetes there-

in in 1995 and projections in 2015. According to this ranking, in 1995, Pakistan had an estimated 04 million diabetics and was 08th in the world as regards its prevalence – and – for 2015, if current demographic projections hold, Pakistan would jump up to having the 04th highest prevalence of 15 million diabetics.[7]

Type-1 diabetes continues to be a rare disorder in Pakistan. The peak incidence is between the ages of 10 and 12 in both genders, with the early peak at the age of 1 – 2 years, rather than at ages 5 – 7, as is the case in Western Europe. The highest rate is in females aged 12 years. Patients with diabetes should never forget the importance of diet and exercise. The control of diabetes starts with healthy lifestyle regardless of what medications are being used.[8,9] Type II diabetes in the population occurs at a relatively young age, 15 – 18 percent of people are under 40, as compared to the western world where it usually occurs above the age of 40.[7] According to WHO, there will be an alarming increase in the population with type II diabetes mellitus, both in developed and developing countries over the next two decades. In the developed world, the estimated increase is approximately 46%, from 55 million in 2000 to 83 million in 2030, whereas, among developing nations, the estimated increase is approximately 150%, from 30 million in 2000, to 80 million in 2030.[10]

Diabetes mellitus is a self – manageable disease. If the patient is unable to self manage his or her DM on a day to day basis, the outcome is poor, regardless of

Table 1: Rank order of countries with high prevalence of diabetes mellitus in 1995 and 2015.

Rank order	1995		2015	
	Country	No. (in millions)	Country	No. (in millions)
1.	India	19	India	57
2.	China	16	China	38
3.	U.S.A	14	U.S.A	22
4.	Russian	9	Pakistan	15
5.	Japan	6	Indonesia	12
6.	Brazil	5	Russian	12
7.	Indonesia	5	Mexico	12
8.	Pakistan	4	Brazil	11
9.	Mexico	4	Egypt	9
10.	Ukraine	4	Japan	9

how advance the treatment technology is as Glasgow et al recently noted "DM at heart is a behavioural issue".[11] In a study conducted in India to understand the knowledge, attitude and practices (KAP) regarding diabetes mellitus (DM) among the diabetic patients attending a Diabetic Education Centre, it was found that majority of the patients had correct knowledge regarding diabetic diet and 3/4th of them had subjected themselves to blood sugar checking at good intervals and almost all were under regular contact with their physicians.[12]

Methodology

It was a **descriptive cross-sectional study**, wherefore **non-probability convenience sampling technique was used.** This study was conducted at Diabetic Clinic (OPD), Allied Hospital Faisalabad, which is 1150 beds teaching health institution affiliated with Punjab Medical College, Faisalabad. All diabetic patients attending OPD of this hospital were the subjects and a diabetic patient of age ≥ 40 years was sampling unit. **175** willing diabetic were selected and interviewed, but only **151** were included for final analysis. Rest **(24)** were excluded due to tipsy turvey and irrelevant information furnished by them. For this study, a structured questionnaire was designed, in which **socio-demographic characteristics** of respondents were included in the first part, while in its second part, 20 questions to assess the knowledge of respondents about diabetes, its complications and their management were included using **scoring system**. After seeking permission from the Head of institution, questionnaire was pre-tested, translated into Urdu, then filled in by the researchers themselves. After filling each questionnaire, counselling of respondents was done, their misconceptions were removed and correct knowledge was imparted to them. Data was collected from 18.07.2009 to 15.08.2009 and was analyzed through a data entry programme, designed using Epi – Info – 6. Study sample was distributed according to **age**, **sex**, **socio-economic groups** (family's monthly income and level of education) – and – **sources and extent of knowledge of respondents.**

As spelt out above, **a scoring system** to assess the knowledge of respondents was developed, wherein the maximum score for **20** questions was **100**. To each question, weightage was assigned according to its nature and importance. The **knowledge** of respondents obtaining score ≥ 41 was considered **satisfactory** – whereas – that of respondents obtaining score ≤ 40 as **unsatisfactory**. The respondents having satisfactory knowledge were trifurcated on the basis of score obtained as **good** (41 – 60), **very good** (61 – 80) and **excellent** (≥ 81). Cross tabulation between **sex and knowledge**, **income and knowledge** – and – **education and knowledge** was carried out. Chi-square test and where required Fisher's exact test was employed to test the statistical significance of results. **P-value < 0.05 was considered significant**.

Results and Discussion

Analysis of Socio-Demographic Profile of Respondents

Over one month study period, out of **151** sampled diabetics, **87 (58%)** were below 60 year of age, **55 (36%)** were between 60 & 79 and **09 (06%)** were above 80 years (**Table 2**). Males were **79 (52%)** and females **72 (48%)** (**Table 3**). **89 (59%)** respondents were in monthly income group ≤ Rs.10,000/- – and – **62 (41%)** were with income >Rs.10000 per month (**Table 4**). **62 (41%)** respondents were illiterate, **42 (28%)** had school level education and **47 (31%)** college level education to their credit **(Table 5)**.

Assessment of Knowledge of Respondents

Analysis of knowledge component showed **26 (17%)** respondents with score ≤ 40 **(unsatisfactory knowledge)** and **125 (83%)** with score ≥41 **(satisfactory knowledge) (Table 6)**. Out of **125** respondents with satisfactory knowledge, **66 (53%)** were having **good** knowledge, **45 (36%) very good** and **14 (11%) excellent (Table 7)**.

Discussion on Results

1. Since the study was conducted on the patients with type – 2 diabetes, the mean age, therefore, was **57.02 + 12.04-68**. As illustrated in **Table 2,** out of sample size of **151, 87 (58%)** respondents were in age group 40-59 years, **55 (36%)** in age group 60 – 79 years and **09 (06%)** in age group 80-99 years. It reflects that as the age advances, there occurs a steep fall in the number of diabetics who ostensibly die *either* to the complications of diabetes *or* otherwise.

Table 2: Frequency Distribution of Respondents According to Age.

Age Group (years)	Frequency	Percentage
40 – 59	87	58
60 – 79	55	36
80 – 99	09	06
Total	151	100

2. **Table 3** shows that prevalence of diabetes was more amongst males **(52%)** as compared to females **(48%)**.

Table 3: Frequency Distribution of Respondents According to Sex.

Sex	Frequency	Percentage
Male	79	52
Female	72	48
Total	151	100

3. As presented in **Table 4**, **89 (59%)** respondents with monthly income ≤ Rs.10,000/- were from lower economic status – and – as is evident from the contents of **Table 5, 61 (41%)** diabetics were illiterate and **42 (28%)** had school level education. Since all these diabetics were included from a **single government run health facility** located in urban area and **sample size was also small**, therefore, the possibility of **bias** due to these confounding factors cannot be ruled out.

4. Socio-economic status is said to determine the knowledge about diabetes, its complications and

Table 4: Frequency Distribution of Respondents According to their Monthly Family Income.

Income (Rs.)	Frequency	Percentage
< 5000	65	43
5000 – ≤ 10000	24	16
> 10000	62	41
Total	151	100

their management. In this study, as illustrated in **Tables 4 and 5,** the monthly family income of **59%** respondents, was ≤ Rs.10000/- – and – illiteracy (41%) and school level education (28%), when put together, account for **69%**. These, therefore, may be the most important obstacles in acquiring knowledge about diabetes and managing it and its complications.

Table 5: Frequency Distribution of Respondents According to their Education Level.

Educational Level	Frequency	Percentage
Illiterate	61	41
School Level (≤Matric)	42	28
College Level (upto Master)	48	31
Total	151	100

5. **Tables 6, 7, 8, 9 and 10** depict the knowledge of respondents about diabetes, its complications and their management, worked out by using scoring system developed for the purpose.

6. The relationship between sex and knowledge about diabetes, its complications and their

Table 6: Frequency Distribution of Respondents According to their Knowledge: Satisfactory and Unsatisfactory.

Knowledge	Frequency	Percentage
Satisfactory	125	83
Unsatisfactory	26	17
Total	151	100

Table 7: Categories of Respondents Having Satisfactory Knowledge.

Categories (score – wise)	Frequency	Percentage
Good (41 – 60)	66	53
Very Good (61 – 80)	45	36
Excellent (≥ 81)	14	11
Total	125	100

Table 8: Effect of Sex on Knowledge.

Knowledge	Sex		
	Male	Female	Total
Satisfactory	66 (44%)	59 (39%)	125 (83%)
Unsatisfactory	13 (09%)	13 (09%)	26 (17%)
Total	79 (52%)	72 (48%)	151 (100%)

Table 9:
Effect of Income on Knowledge.

Knowledge	Income (Rs)			
	< 5000	5000 – ≤10000	> 10000	Total
Satisfactory	49 (32%)	19 (13%)	57 (38%)	125 (83%)
Unsatisfactory	16 (11%)	05 (03%)	05 (03%)	26 (17%)
Total	65 (43%)	24 (16%)	62 (42%)	151 (100%)

Table 10: Effect of Educational Level on Knowledge.

Knowledge	Educational Level			Total
	Illiterate	School Level (≤ Matric)	College Level (< Master)	
Satisfactory	42 (28%)	37 (25%)	46 (30%)	125 (83%)
Unsatisfactory	19 (13%)	05 (03%)	02 (01%)	26 (17%)
Total	61 (41%)	42 (28%)	48 (31%)	151 (100%)

Table 11: Frequency Distribution of Patients According to Their Sources of Information.

Sources of Information	Frequency	Percentage
Booklets	12	08
Doctor/Hospitals	123	81
Family problem	02	01
Internet	01	01
Newspapers	04	03
Pamphlets	03	02
T.V.	06	04
Total	151	100

management was found statistically insignificant (P-Value = 0.0621) **(Table 8)**. But stressing gender equity and women empowerment can enhance the education / literacy rate, hence knowledge of female.

7   Nevertheless, as regards the impact of monthly family income on the knowledge about diabetes, its complications and their management in this study, it has been found statistically significant (P-value = 0.0434). Patients with high income group (> Rs. 10000) were having more knowledge as compared to those in lower strata. It means higher economic status improves the capacity to pay to healthcare providers and sources and extent of knowledge due to the availability of modern technology **(Table 9)**.

8. Although education also improves such knowledge, but in this study, as shown in **Table 10**, the impact of education on knowledge was not found statistically significant (P-Value > 0.05). In a study conducted in India, it has been held that education of diabetics in vulnerable communities can become a cost effective public health strategy. Level of education is the most important factor for diabetics' education. In the study, the most important cause of low diabetes education was low level of education. Only 10% were graduate and 37%

were completely illiterate.[13]

9. Results at **Table 11** show that out of **151** respondents, **12 (08%)** obtained information from booklets, **123 (81%)** from doctors/hospitals, **02 (01%)** through family problem, **01 (01%)** from internet, **4 (03%)** from newspapers, **03(02%)** from pamphlets and **06 (04%)** from television. It means healthcare providers are the important source of information regarding diabetes, its complications and their management in **81%** cases.

Conclusion

This hospital based study was conducted primarily to learn about the knowledge of diabetics attending a single governmental run hospital in Faisalabad, but during the course of study, some information about their attitude and practices was also obtained. Results have revealed that majority of them had quite good knowledge regarding their disease, its complications and their management. It was also learnt that they also test their blood sugar and urine sugar and visit their consultants regularly to screen out as to whether there is any complication. There was direct relationship between income and knowledge. Though literacy/ education rate also improves it, but it was not found statistically significant. Source of information was mostly from healthcare providers. Following recommendations seem to be plausible in this context:

*   Diabetics must take major responsibility for their own care with medical guidance. They must adhere to pharmacological and non-pharmacological modes of management of disease and its complications – and – be aware of symptoms of hypoglycaemia.

*   They should be able to maintain normal body weight through adoption of healthy nutritional habits and physical exercise. They should take adequate proteins and dietary fiber – and – give up sweet foods, sedentary life style, over nutrition and treat over – weight / obesity.

*   They should examine their urine as well as blood glucose level and learn the administration of insulin – and – must get periodic investigation of blood for sugar and urine for proteins and ketones done from a nearby reliable laboratory.

*   There is dire need of diabetes education laying more emphasis upon proactive approach amongst older and younger patients in order to prevent complications of diabetes occurring at early stage

of disease – and – to employ reactive approach in case the complications have developed. Healthcare providers and auxiliary staff should impart health education and adopt motivation strategy to give a comprehensive knowledge to diabetics to lead a quality life. Health Education Programmes for diabetics should be arranged in all health facilities by the doctors and allied staff fortnightly. Specialists and endocrinologists should also be invited there to educate the patients as well as medical and paramedical staff. Organizing specialized diabetes clinics in large towns and cities like Faisalabad is need of hour.

*   There should be appropriate use of electronic and print media for of diabetics' education including panel discussion about diabetes, involving experts as well as diabetics.

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