Original Article

KNOWLEDGE AND PRACTICES REGARDING SELF-CARE MANAGEMENT AMONG DIABETICS VISITING MEDICAL OUTPATIENT DEPARTMENT OF FATIMA MEMORIAL HOSPITAL, LAHORE

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ABSTRACT

Background: Diabetes Mellitus is one of the major chronic diseases which has become a public health problem worldwide. The complications of diabetes can be reduced by proper self-care knowledge and practices among diabetics. The objectives of this study are to assess the knowledge and self-care practices among patients having diabetes type 2 and its relationship with sociodemographic factors in of medical outpatient department of Fatima Memorial Hospital, Lahore.

Material and methods: This was a cross-sectional survey**.** The study was conducted in the Medical Outpatient Department of Fatima Memorial Hospital, Lahore from 12th February 2019 to 26th September 2019.

By using non-probability purposive sampling, 220 patients having type 2 diabetes fulfilling the inclusion criteria were selected. A pre-tested questionnaire was filled after taking written consent from them and data were analyzed in SPSS version 20.

Results: Out of 220 respondents, 55.7% have belonged to the age group 40-54 having 64% females. The overall knowledge about self-care among diabetics was good in 44%, satisfactory in 49%, and poor in 7% of the respondents. Whereas the overall practices among the diabetics were good at 24.5%, satisfactory at 60%, and poor at 15.4%. There was a significant association between self-care knowledge and self-care practices (p-value=0.032) and only income has shown a statistically significant association with the overall knowledge (P-value: 0.000). Regarding knowledge about physical activity, 87.7% were aware of its importance and about 95.9% had the knowledge that anti-diabetic medicines are to be taken regularly. However, only 27% participated in thirty minutes of physical activity and 85.5% took the anti-diabetes medicine over the past seven days before the interview

Conclusion: About half of the respondents have satisfactory self-care knowledge and one-fourth have poor self-care practices. Among the sociodemographic factors, only income has a statistically significant association with self-care knowledge.

Key Words: Knowledge, Self-care, Diabetes mellitus

INTRODUCTION

Diabetes Mellitus is one of the major chronic diseases which has become a public health problem worldwide. Globally about 425 million people (8.8% of adults) between 20-79 years are estimated to have diabetes and out of which about 79% are citizens of low and middle-income population. By the year 2045, it is estimated that 629 million people of 20-79 years will suffer from diabetes if this trend continues. The major upsurge will occur in countries where economies are moving from low-income to middle-income levels.[1]

The increase in diabetes prevalence is going to be more in developing countries and the reasons for this will be high population rate, increase in the number of elderly, inappropriate diets, obesity, and unhealthy lifestyles. The age group to be affected in these countries by the year 2025 will be 45-64 years in contrast to the developed countries where mainly people aged 65years or more will have diabetes.[2] Though diabetes is widespread globally but a major threat for Eastern Mediterranean countries where out of ten, six countries have the highest prevalence rate throughout the world.[3] In Pakistan, it has been reported that the prevalence rate of diabetes is 16.8% as 35.3 million adults are having diabetes.[4]

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The inception of diabetes and its related complications can be prevented or delayed by certain lifestyle behaviors facilitated by favorable environments. Diabetes inflicts a substantial economic effect on the health care systems of countries and above all, for diabetics and their families as a result of premature deaths and lower quality of life due to various complications of diabetes.[1] Continuous self-care education and support are important to prevent acute and long-term complications of diabetes.[5]

Self-care activities in people with diabetes comprise having an appropriate diet, being physically active, self-monitoring of blood glucose, and regular intake of medicines.[6] Day-to-day self-care measures are very vital for attaining diabetes-related good health results and several studies have reported a significant association between glycemic control and self-care activities.[7] There are standard self-care measures that can help in preventing and/or delaying the complications related to diabetes type 2 which includes regular self-monitoring of the blood sugar level, healthy diet, proper physical exercise, regular intake of antidiabetic medicines, and appropriate foot care. However, diabetics of developing countries have very little knowledge about self-care.[8] A consistent and strong compliance of the patients is needed for the effective management of diabetes. In developing countries like Pakistan where there is a high prevalence of diabetes, measures should be taken to improve self-care education and management among diabetics to delay and reduce the complications of diabetes.

MATERIAL AND METHODS

A cross-sectional study was conducted in the Medical Outpatient Department (OPD) of Fatima Memorial Hospital, Lahore. The inclusion criteria were known cases of type 2 diabetes of both genders for at least one year and had no complications to diabetes. The sample size was calculated by using the standard formula based on prevalence which is 17% with a 95% confidence level with a 5% margin of error, the minimum number of samples was 216.7 which was rounded off to 220 respondents. The respondents were selected by non-probability purposive sampling technique and were interviewed by using pretested structured questionnaire after taking written consent from them and approval by the Institutional Review Board (IRB No. FMII-07-2020-IRB-770). The study was conducted from 12th February 2019 to 26th September 2019. The dependent variables were self-care knowledge and practices whereas independent variables were age, sex, educational status, marital status, income, occupation, duration of diabetes, and family history. Information regarding self-care knowledge and practices among the diabetics was collected by using a validated Diabetes Self Care Knowledge -30 item questionnaire (DSCK-30) and a revised version of the validated Summary Diabetes Self Care Activities questionnaire (SDSCA) respectively. Data was entered and analyzed by using SPSS version 20. Simple frequency distribution tables were created for dependent and independent variables. To find out a significant association between sociodemographic factors and knowledge/practices regarding self-care management, a Chi-square test/Fisher's exact test (wherever applicable) was applied. Statistical significance was set at a p-value of less than 0.05. Twelve questions were asked regarding self-care knowledge and fourteen questions regarding self-care practices. Each correct answer was given one mark. Following grading was used.

Good knowledge/ practices: If the diabetics answered 70 % or more knowledge /practice items correctly individually.

Satisfactory knowledge/ practices: If the participants answered 50-70% of knowledge/practice items correctly individually

Poor knowledge/ Practices: If the diabetics answered less than 50% of knowledge /practice items correctly.

RESULTS

The mean age of the respondents was 50.60±8.357 years. Out of 220 respondents,

64% were females and 40% were males with a mean duration of diabetes 7.40 ±5.96 years. Almost 41 (18.6%) were illiterate, the qualification of 48 (21.8%) was matriculation and 40 (18.2%) were graduates and only 13 (5.9%) were masters and above. The majority of the patients had household income ranged from Rs.10000-60000 per month.

Regarding knowledge about self-care among diabetics, about 193 (87.7%) were of the view that physical activity for 20-30 minutes three days per week is essential and 158(71.8%%) knew that cigarette smoking could worsen diabetes. However, 203(92.3%) and 211(95.9%) respondents had the knowledge about the importance of extra care of feet and regular intake of anti-diabetic medicines respectively (Table-1). About half of the respondents (49%) had satisfactory self-care knowledge about diabetes (Table-3) Regarding diet respondents who followed a healthy eating plan for all days in the week were 71 (32.3%). People who did not participate in any physical activity for at least 30 minutes per day were 65 (30%). People who tested their blood sugar for seven days in the last week were 41 (18.6%). People who took medication for seven days in the last week were 188 (85.5%). People who checked feet for seven days in the last week were 107 (48.6%). (Table-2). The practices of 133 (60.5%) respondents were satisfactory (Table-3).

There was a significant statistical association between self-care knowledge and practices among the diabetics (Fisher's exact test=10.091 and p-value=0.032) (Table-3). The effect of age of respondents had no significant statistical association (Fisher's exact test=6.087 and p-value=0.372 and Fisher's exact test=5.890 and p-value=2.61) with the self-care knowledge and practices respectively. The income per month of the family has a statistically significant association with the overall knowledge of the respondents (Fisher's exact test: 19.631 and p-value=0.000) but no significant statistical association with the overall practice of the respondents (Chi-square test=2.871 and p-value=0.238). Effect of education on self-care knowledge and practices had no significant statistical association (Fisher's exact test=5.237 and p-value=0.257 and Fisher's exact test=6.08 and p-value=0.1940 respectively) as shown in Table-3.

Table-1: Knowledge regarding self-care among the respondents

Sr. No.	Questions related to knowledge	Response options *	Frequency & Percentage of correct answers
1.	Fasting blood sugar can be used to monitor 2-3 months blood sugar control	Yes **No**	101 (45.9%)
2.	Only doctors should make plans on how a person with diabetes can achieve his/her target goals	Yes **No**	67 (30.53%)
3.	Self-monitoring of blood glucose allows doctor and other health care team to gather data for clinical decision making	**Yes** No	197 (89.5%)
4.	Having Physical activity for 20-30minutes 3 days per week is essential	**Yes** No	193 (87.7%)
5.	Regular exercise does not reduce the need for insulin	Yes **No**	121 (55%)
6.	Maintaining a healthy weight is not imp. For management of diabetes	Yes **No**	135 (61.4%)
7.	A person with diabetes should only ask for help when he/she feels sick from his/her doctor	Yes **No**	66 (30%)
8.	Cigarette smoking can worsen the diabetes disease	**Yes** No	158 (71.8%)
9.	Appropriate advice on Self Blood Glucose monitoring and diet should be given to the diabetics	**Yes** No	211 (95.9%)
10.	A person with diabetes should take extra care of his/her feet	**Yes** No	203 (92.3%)
11.	Diet and exercise are not as important as medication in control of diabetes	Yes **No**	128 (58.2%)
12	Anti-diabetic medicines are to be taken regularly	**Yes** No	211 (95.9%)

***Correct answers shown in bold letters**

Table-2: Self-care practices among the respondents

Diet	Days							
	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Following a healthy eating plan on all days of the week	33 (15%)	12 (5.5%)	17 (7.7%)	23 (10.5%)	26 (11.8%)	22 (10%)	16 (7.3%)	71 (32.3%)
On average, over the past, how may days per week have you followed eating plan	52 (23.6%)	10 (4.5%)	18 (8.2%)	24 (10.9%)	23 (10.5%)	30 (13.6%)	15 (6.8%)	48 (21.8%)
Incorporating fruit/vegetables in the diet on the all days of the week	3 (1%)	4 (6%)	21 (10%)	43 (20%)	37 (17%)	34 (16%)	15 (7%)	53 (24%)
Consumption of high fat diet on all days of the week	8 (3.6%)	7 (3.2%)	6 (2.7%)	12 (5.5%)	38 (17.3%)	56 (25.5%)	53 (24.1%)	40 (18.2%)
Exercise:								
For the last SEVEN DAYS, how many days did you participate in physical activity for at least 30 minutes? (Total minutes of continuous activity, including walking)	65 (30%)	16 (7%)	24 (11%)	16 (7.3%)	14 (6%)	13 (6%)	13 (6%)	59 (27%)
Specific exercise session apart from the routine physical activity on a daily basis	147 (67)	18 (8)	14 (6%)	8 (4)	6 (3%)	5 (2%)	2 (1%)	20 (9%)
Blood sugar testing:								
For the last SEVEN DAYS how many times did you test your blood sugar?	24 (10.9%)	38 (17.3)	39 (17.7%)	43 (19.5%)	19 (8.6%)	12 (5.5%)	4 (1.8%)	41 (18.6%)
On how many of the last seven days did you test your blood sugar the number of times recommended by your health care provider	43 (19.5%)	31 (14.1%)	25 (11.4%)	34 (15.5%)	18 (8.2%)	10 (4.5%)	8 (3.6%)	51 (23.2%)
Medication								
On how many days of the last seven days, did you take your recommended diabetes medication		2 (0.9%)	5 (2.3%)	6 (2.7%)	4 (1.8%	10 (4.5%)	5 (2.3%)	188 (85.5%)
Foot care:								
On how many of the last seven days did you check your feet	40 (18.2%)	9 (4.1)	12 (5.5%)	13 (5.9%	14 (6.4%0	12 (5.5%0	13 (5.9%)	107 (48.6%)
On how many of the last seven days did you inspect the inside of your shoes	77 (35%)	9 (4.1%)	19 (8.6%)	9 (4.1%)	9 (4.1%)	8 (3.6%)	11 (5%)	78 (35.5%)
On how many of the last seven days did you wash your feet	6 (2.7%)	3 (1.4%)	8 (3.6%)	9 (4.1%)	6 (2.7%)	15 (6.8%)	13 (5.9%)	160 (72.7%)
On how many of the last seven days did you soak your feet	30 (13.6%)	7 (3.2%)	6 (2.7%)	6 (2.7%)	7 (3.2)	12 (5.5%)	23 (10.5)	129 (58.6%)
On how many of the last seven days did you dry between your toes after washing	84 (38.2%)	9 (4.1%)	21 (9.5%)	8 (3.6%)	8 (3.6%)	7 (3.2%)	13 (5.9%)	70 (31.8%)

Table-3: Overall knowledge and practices regarding self-care and its relationship with socioeconomic factors among the respondents

Overall knowledge regarding self-care				**Overall practices regarding self-care**		
	Good	Satisfactory	Poor	Good	Satisfactory	Poor
	97 (44%)	108 (49%)	15 (7%)	55 (25%)	133 (60.5%)	32 (14.5%)
Impact of self-care knowledge on the self-care practices in diabetics						
Self-care knowledge among the diabetics				**Self-care practices among the diabetics**		
				Good	Satisfactory	Poor
Good (71% and above)				19	54	24
Satisfactory (50-70%)				13	72	23
Poor (Less than 50%)				0	7	8
Fisher's exact test=10.091 & p-value=0.032						
Association of self-care knowledge and practices with socioeconomic factors and diabetic profile						
Self-care knowledge				**Self-care practices**		
Age in years	**Good**	**Satisfactory**	**Poor**	**Good**	**Satisfactory**	**Poor**
40-54	54	63	10	21	74	32
55-69	37	31	3	10	46	15
70-84	2	30	0	1	3	1
Fisher's exact test=6.087 & p-value=0.372				**Fisher's exact test=5.890 & p-value=2.61**		
Self-care knowledge				**Self-care practices**		
Gender	**Good**	**Satisfactory**	**Poor**	**Good**	**Satisfactory**	**Poor**
Males	33	39	7	10	48	21
Females	69	64	8	22	85	34
Chi-square test: 0.906 and p-value=0.636				**Chi-square value=0.427 and p-value=0.808**		
Self-care knowledge				**Self-care practices**		
Educational status	**Good**	**Satisfactory**	**Poor**	**Good**	**Satisfactory**	**Poor**
Illiterate-middle	33	53	6	9	55	28
Matric-FSc/FA	53	33	22	13	43	35
Graduation& above	6	6	3	28	19	8
Fisher's Exact test: 5.237 and p-value=0.257				**Chi-square test=6.08 and p-value=0.194**		
Self-care knowledge				**Self-care practices**		
Income of family (Rs.)	**Good**	**Satisfactory**	**Poor**	**Good**	**Satisfactory**	**Poor**
10000-60000	58	89	15	24	93	45
More than Rs.60000	39	19	0	8	40	10
Fisher's Exact test: 19.631 and p-value=0.000				**Chi-square test=2.871 & p-value= 0.238**		
Self-care knowledge				**Self-care practices**		
Family history of diabetes	**Good**	**Satisfactory**	**Poor**	**Good**	**Satisfactory**	**Poor**
Yes	65	73	10	20	92	36
No	32	35	5	12	41	19
Fisher's exact test=0.067 and p-value=0.995				**Chi-square test=0.0632 and p-value=0.0729**		
Self-care knowledge				**Self-care practices**		
Duration of diabetes	**Good**	**Satisfactory**	**Poor**	**Good**	**Satisfactory**	**Poor**
1-10 years	76	85	13	23	105	46
11-20 years	18	20	01	6	25	8
21-30 years	3	3	1	3	3	1
Fisher's exact test 2.236 and p-value=0.659				**Fisher's exact test =4.451 and p-value=0.314**		

DISCUSSION

The purpose of this study was to find out the self-care knowledge and practices among the type 2 diabetics so that results obtained from this study can help in identification of areas for improvement of self-care programs in the public and private sector hospitals/clinics so that morbidity and complications related to diabetes can be reduced.

In this study, 55.7% of patients suffering from diabetes type 2(DM type 2) were 40-54 years old with a mean age of 50.60±8.357 years. This indicates that in Pakistan the onset of adult type 2 diabetes is in earlier age groups which may be due to increased prevalence of obesity, lack of physical activity, and unhealthy diet as reported by International Diabetes federation 2018.[9] About 64.1% were females in the present study which is comparable to study of India which reported 60% of females having diabetes thus indicating that females are more prone to type 2 diabetes.[10] The same fact was reported by the Diabetes prevalence survey in which 17.85% were females and16.22% were males.[4] Thus indicating that females are more prone to suffer from diabetes type 2 as compared to females.

The overall self-care knowledge, 44% had good knowledge whereas only 25% had good self-care practices which indicates that though they had knowledge they have not utilized this knowledge for changing it into practices. The reason may be that diabetes is a slowly progressive disease and its complications occur after a long period and that is why they do not take the disease seriously. A study from Islamabad reported that 33.7% of patients showed adequate knowledge about the disease,[11] however in contrast to the study conducted in Iraq which showed 82.5% had good knowledge about self-care.[12] Whereas, the study of India reported that 77% of diabetics had good knowledge and 63% had good self–care practices.[13] A study conducted in Iran using the SDSCA tool only 4.7% of diabetics had good and 63.6% had poor self-care activities.[14] However, the study conducted in Bangladesh reported that levels of practice of participants were found to be poor in 12%, moderate in 72%, and good in 16% of the subjects.[15] This variation in numerous studies is due to the use of different validated and self-developed questionnaires, level of education of the participants, and standard of educational programs.

In the present study, two-thirds of DM type 2 patients had good knowledge regarding antidiabetic drugs to be taken regularly and the benefits of physical activity, harmful effects of cigarette smoking, and importance of extra care of feet. Whereas the study conducted in Jordan, only 42.5% of the respondents had knowledge about the benefits of exercise and 57.4% had knowledge about the importance of foot care and 49.30% had the knowledge about taking antidiabetics medicine regularly.[16] This discrepancy with the current study could be that Jordan's study had been conducted in rural areas where probably the physicians were not well trained in imparting self-care education and because of illiteracy and poverty. However, another study reported that 87.5% population knew that physical activity like exercise, walking, and swimming was essential for proper control of blood sugar levels which is consistent with the present study.[17] Similarly Islamabad study stated that 70% of the respondent had knowledge about cigarette smoking as a risk factor and 75% knew that exercise could help in blood sugar control.[18] A study by Rawanda reported that around 2/3rd of patients knew about the role of exercise in diabetes and 68.8% had the knowledge about the checking of shoes before being worn.[19]

In the current study, 71% followed the dietary plan, 59% practiced exercise, 85.5% were taking the medication regularly and 72.5% washed their feet regularly. Whereas, in a study of Addissababa, most respondents did not follow properly the advice regarding diet and physical activity which is contrary to this study but most patients took their

medications regularly.[8] However in another study, the majority of the subjects had a good level of self-practices regarding regular checking of blood glucose level, proper diet plan, taking regular medication, and proper foot care.[13]

Most of the researches has been conducted to evaluate the self-care knowledge and practices among diabetics but very few studies have been done in Pakistan about the evaluation of health care providers about Diabetes Self-Care Management (DSCM). In a qualitative study conducted in Karachi, it was reported that for starting a successful program of DSCM it is essential to have proper knowledge and expectations of people with diabetes.[20] Another study of Pakistan stated that the awareness level of physicians and patients was low on diabetes self–care management.[21] Thus self-management practices and their assessment is essential for diabetics.

There is a significant association between the self-care knowledge and practices among the diabetics (p-value=0.032) reported in this study. Whereas a similar type of study reported that knowledge was significantly associated with practice (p-value=0.001).[18] Same results are stated in another study showing a positive relationship (r=0.09) between the level of knowledge and practices.[13] Contrary to this, however, another study reported no significant correlation between the diabetic self-care knowledge and activities ((r=0.190, p=0.187) thus specifying that self-care practices do not relate to the level of knowledge.[22] In a study conducted in Peshawar, 45% of the patients had ever been educated about diabetes care and the main source of information was a doctor (78%). Of those who had received diabetes education, 65% received only 5minutes from the doctor while only 4 received more than 15 minutes.[18] A single-blinded randomized controlled trial in China reported that there was remarkable progress in the self-care activities of diabetics who received health education programs as compared to the control groups ($p<0.01$).[23] In the current study no association of knowledge and practices was reported with the sociodemographic profile. However, there is a significant association of knowledge with monthly income (p-value=0.000). The study conducted in Nigeria also indicated a significant association between occupation and knowledge (p-value=0.000).[24] Patients having higher monthly incomes are expected to have frequent visits to their physicians, regular checkups of blood sugar levels, and able to purchase their drugs. Whereas, a study conducted regarding Jordan, self-care knowledge had reported association with age, education, and antidiabetic medicines.[16] However, this study did not report the relationship between gender and self-care knowledge which is comparable to our study.[16] Similar results are mentioned in another study showing significant association with the education of the respondents. Respondents older than 50 years, those who were educated, and those earning 5000 Riyals had practiced self-care activities with p-value less than 0.05.[25] However, a study of Karachi observed that higher education of diabetic patients is a definite predictor regarding self-care practices which is in contradiction to our study but is consistent with patients' gender, age, type of job and duration of diabetes were found to be insignificant predictors for patients' self-care activities.[26]

CONCLUSION

Regarding the knowledge and practices of patients suffering from type 2 diabetes, 44% of respondents has good self-care knowledge but only 25% follow good self-care practices. There is a significant association between knowledge and self-care practices among diabetics. Only the monthly income of the respondents has a significant association with the self-care knowledge.

LIMITATIONS OF THE STUDY

It is not a population-based study so its results cannot be generalized and also the practices of the diabetics are not observed.

RECOMMENDATIONS

- The government should prepare guidelines for Diabetes Self-care Management and it is to be implemented in all private and government sector hospitals/ clinics
- Health care providers should be properly trained and should motivate diabetics to understand the importance of self-care in diabetes.
- Mass media must be involved to spread public awareness about the importance of self-care.

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SH: All the four criteria of ICMJE for the authorship has been fulfilled

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