Original Article

Knowledge, Attitude and Practice regarding Diabetes among Diabetes Patients at a Tertiary Teaching Hospital in Nepal

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Abstract

Introduction: Diabetes is a chronic metabolic disease which is prevalent all over the world. Its burden has immensely increased in the last two decades. The problem in young people is equally worrisome. Its number in Nepal is estimated to reach 6,38,000 by the year 2025. Many lifestyle and environmental factors have contributed to its rapid rise. It has several microvascular and macrovascular along with systemic complications. There is lack of public awareness on diabetes in our communities. This study aims to assess knowledge, attitude and practice about diabetes among diabetic patients.

Methods: This study was conducted in Tribhuvan University Teaching Hospital General Practice OPD. All the diabetic cases attending to OPD were taken for a sample size of 120. Diabetic cases were followed and informed written consent was taken from each patient. All statistical tests were performed using 0.05 as level of significance.

Results: Among 120 study patients, 59.16% were male and 40.83% were female. Majority of cases belonged to 41-60 years. More male (40.83%) were literate than female (10%). Knowledge regarding dryness of mouth, urinary frequency, kidney failure as complication, effect of high blood pressure, blood pressure measurement, foot care and exercise was 36.67%, 19.17%, 47.5%, 73.33%, 85%, 19.17% and 43.33% respectively. Practice of diet plan was found in 56.67%. Practice of blood pressure monitoring and eye checkup at an interval of one month was 30% and 20% respectively whereas 41.67% had never had their eye checkup. Compliance to antidiabetic medicines was found in 71.66%. Knowledge on exercise among age group (P=0.032), knowledge on effects of high blood pressure among male and female (P=0.009) as well as literacy among male and female (P=<0.001) were found statistically significant.

Conclusion: This study shows that patient's knowledge about foot care and practice of diet plan was not appreciable. Patient's attitude and practice about diabetes was also not significant. Diabetes health knowledge need to be improved for better health promotion.

Key words: Diabetes; diet; foot care; KAP

Introduction

Diabetes Mellitus (DM) is a chronic metabolic disease, whose number in Nepal is estimated to reach 6,38,000 by the year 2025.[1] Diabetes is a common chronic illness in almost all countries.[2] Throughout the last two decades, the incidence of diabetes has raised intensively in many parts of the world. In Asia, the rise in prevalence of type 2 diabetes is even more distressing with increased occurrence among young adults.[3] Lifestyle and environmental factors are the main causes of the extreme increase in the incidence of type 2 diabetes.[4] This rapidly-rising prevalence among developing countries is recognized to be the

effects of urbanization.[5,6] Diabetes may increase the risk of microvascular and macrovascular complications and early death in the general population and lead to a vast economic problem for society.[7,8] However, by the existence of high prevalence of diabetes, diabetes awareness and management are still major challenges in Nepal. Controlling modifiable risk factors such as high blood pressure (BP), tobacco use, alcohol use, physical inactivity, unhealthy diet and overweight or obesity can reduce the morbidity and mortality of diabetes. Since diabetes is a silent disease, many people are unaware until they develop one of its complications. Hence, it is crucial to have knowledge of diabetes mellitus at an early stage of life, facilitated by early detection.[9] There is lack of public awareness regarding diabetes in Nepal. Obtaining information about the level of awareness about diabetes in a population can be the initial step in formulating a prevention program for diabetes. The present study was conducted to evaluate Knowledge, Attitude and Practice (KAP) of diabetes patients.

Methods

Sample size was calculated by formula; n= $4pq\backslash d^2$ where, p = prevalence, q= 1-p and d =60% of prevalence. Therefore, the sample size calculated was 121 and a whole figure of 120 samples was taken for this study. All the diabetes cases attending general practice OPD which met the inclusion criteria of age above 16 years, diagnosed diabetes cases with or without complications and willing to participate in the study were taken. Diabetic cases were followed and informed written consent was taken from each patient. A pre-tested written KAP Performa was prepared and filled by each patient. Patients not willing to participate in the study or willing to leave the study were excluded from the study.

Analysis

The semi-structured questionnaire was used to collect data. The completeness of the filled questionnaire was ensured during data collection. The data was entered in Microsoft Excel 2010. The categorical answers were coded for data entry. The data was transferred to SPSS version 16 and was analyzed. The frequency distribution tables and diagrams were prepared to interpret the data. The association of knowledge of diabetes with other background variables were explored. All statistical tests were performed using 0.05 as level of significance. Two independent variables i.e. age and sex and other variables as dependent variables were taken. The correlation between the independent variables to every dependent variables were evaluated using chi-square test. In the independent variable, age was divided into three groups as 21-40, 41-60, and >60 namely younger age, middle age and older age groups respectively. Each three age groups were compared with every dependent variable. The chi-square relationship between dependent variable with independent variables were evaluated.

Results

In this study, there were 120 cases of diabetes, among them 59.16% (71) cases were male and 40.83% (49) cases were female. Even though the age for inclusion was 16 years, there were no patients that belonged to 16 to 20 years. Among the total study sample, most of the cases (58.83%) belonged to 41-60 age group.

The number of literate and illiterate patients was comparable. Majority of patients had knowledge on symptoms of diabetes. About half of the study sample knew kidney failure as a complication of diabetes. On contrary, similar number of patients were unknown about complications of diabetes. Among the study sample, 73.33% knew the effect of high BP. Additionally, 85% had knowledge on BP measurement. Contrarily, 43.33% were unknown about foot care (figure 1). Equally, same number of patients had inappropriate practice on diet plan. Among study patients, 56.67% did not know about exercise.

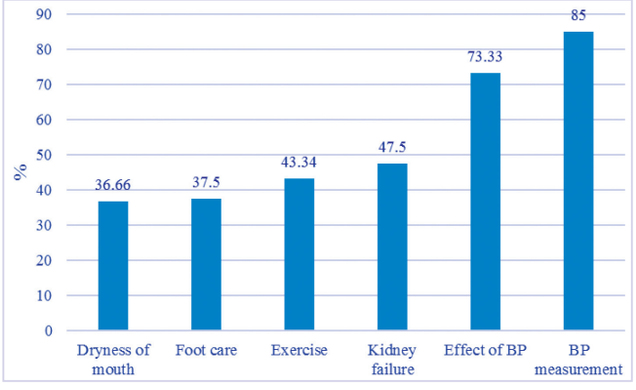

Figure 1. Knowledge about different variables (n=120)

Furthermore, 71.66% were found compliant with their prescribed anti-diabetic medicines. Likewise, 62.5% had their BP measured at an interval of one month or less. On contrary, 41.67% had never had their eye checkup (figure 2).

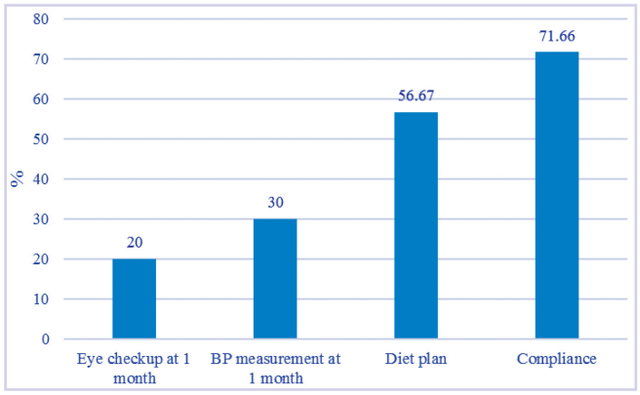

Figure 2. Practice about different variables (n=120)

Knowledge on exercise among age groups was found statistically significant (P=0.032). Middle age group i.e. 21-40 years had better knowledge than other two age groups regarding symptoms, complications, effect of BP and measurement of BP. They had better diet plan as well. The same group had higher literacy as well. On contrary, higher number of diabetics of middle age group than other two groups missed to take their medicines as well as did not have had their eye checkup. BP measurement interval till one month in middle age group was comparable to older age group whereas it was better than the younger age group (table 1). This shows middle age group diabetes patients had inappropriate practice in respect to their knowledge.

Table 1 Correlation between age group and different KAP variables (n=120)

Variables		Age group (%)			P-value
		21-40	41-60	>60	
Literacy	Literate	10.00	23.33	17.50	0.408
	Illiterate	5.83	27.50	15.83	
Symptoms	Dryness of mouth	5.83	19.17	11.67	0.586
	Increased urinary frequency	2.50	7.50	9.17	
	Others	7.50	24.17	12.50	
Complications	Kidney failure	8.33	23.33	15.83	0.822
	Unknown	7.50	24.17	15.00	
	Others	0.00	3.33	2.50	
Effect of high BP	Yes	10.00	35.83	27.50	0.063
	No	4.17	5.00	0.83	
	Unknown	1.67	10.00	5.00	
BP measurement	Yes	13.33	41.67	30.00	0.540
	No	2.50	9.17	3.33	
Foot care	Yes	6.67	15.00	15.83	0.356
	No	2.50	12.50	4.17	
	Unknown	6.67	23.33	13.33	
Exercise	Yes	5.00	18.33	20.00	0.032
	No	10.83	32.50	13.33	
Diet plan	Yes	8.33	27.50	20.83	0.656
	No	7.50	23.33	12.50	
Miss to take medicine	Yes	5.83	12.50	10.00	0.560
	No	10.00	38.33	23.33	
Interval of BP measurement	<1 month	5.83	13.33	13.33	0.336
	1 month	3.33	14.17	12.50	
	2 month	0.83	3.33	0.00	
	3 month	2.50	5.00	4.17	
	>3 month	3.33	11.67	2.50	
	>6 month	0.00	3.33	0.83	
Interval of eye check up	1 month	4.17	11.67	4.17	0.143
	2 month	0.83	0.00	0.83	
	3 month	0.00	2.50	6.67	
	>3 month	3.33	12.50	9.17	
	Not done	6.67	22.50	12.50	
	>6 month	0.83	1.67	0.00	

The literacy rate in male was higher than female (40.83% vs 10%; P<0.001). Similarly, knowledge on symptoms and complications of diabetes, effect of BP, BP measurement, foot care and exercise was better in male patients than females. So was dietary practice. Similarly, more male patients had BP checkups and were compliant to their medications than female patients. On contrary, more male diabetic patients than females had never had their eye checkup (table 2). Knowledge on effects of high blood pressure among male and female statistically significant (P=0.009) (table 2).

Table 2 Correlation between sex and different KAP variables (n=120)

Variables		Sex (%)		P-value
		Male	Female	
Literacy	Literate	40.83	10.00	<0.001
	Illiterate	18.33	30.83	
Symptoms	Dryness of mouth	18.33	18.33	0.250
	Increased urinary frequency	13.33	5.83	
	Others	27.50	16.67	
Complications	Kidney failure	30.83	16.67	0.290
	Unknown	24.17	22.50	
	Others	4.17	1.67	
Effect of high BP	Yes	43.33	30.00	0.009
	No	5.83	4.17	
	Unknown	10.00	1.67	
BP measurement	Yes	50.83	34.17	0.735
	No	8.33	6.67	
Foot care	Yes	21.67	15.83	0.894
	No	9.17	8.33	
	Unknown	26.67	16.67	
Exercise	Yes	26.67	16.67	0.644
	No	32.50	24.17	
Diet plan	Yes	34.17	22.50	0.774
	No	25.00	18.33	
Miss to take medicine	Yes	13.33	15.00	0.090
	No	45.83	25.83	
Interval of BP measurement	<1 month	20.00	12.50	0.282
	1 month	17.50	12.50	
	2 month	3.33	0.83	
	3 month	4.17	7.50	
	>3 month	12.50	5.00	
	>6 month	1.67	2.50	
Interval of eye check up	1 month	13.33	6.67	0.504
	2 month	0.83	0.83	
	3 month	4.17	5.00	
	>3 month	17.50	7.50	
	Not done	22.50	19.17	
	>6 month	0.83	1.67	

Discussion

The present study is a hospital based cross sectional study conducted in the diabetes clinic of tertiary care hospital focusing on evaluation of knowledge, attitude and practice among diabetes patients. In the present study majority of the respondents (50.83%) belonged to the age group of 41-60 years age group followed by 33.33% in older age group (>60 years). Elderly group are vulnerable population generally suffering from multiple ailments and may have compromised self-care activities. This observation is supported by the similar studies conducted by Shah et al. who encountered majority of the patients of age 55 years.[10] But Abdelziz et al. study revealed that, 62% of patients belonged 41 to 60 years.[11] In Saadia et al. study, most of the respondents (42.1 %) were aged 31-40 years, followed by those aged 20-30 years.[12] In Gautam et al. study majority (56.6 %) of the respondents represented the age group 41–60 years and 31.1 % were above 60 years.[13] In Dinesh et al. study in Manipal Teaching Hospital, Pokhara, Nepal the greatest number of patients belonged to the age group of 51-60 years.[14]

In the present study, it was observed that higher proportion of patients were male (59.16%) than female patients. This observation is consistent with similar studies conducted by Shah et al., Abdelziz et al., Marian et al. and Al-Naggar et al. in which 56.6%, 52.5%, 54.7% and 53.5% were male patients respectively. [10,11,15,16]

In the present study, the overall literacy was average (50.83%) but was low in female group (10%). This observation is consistent with similar studies conducted by Prafull et al. in which most of the patients (53%) had good formal education but they have not identified the difference in literacy between male and female.[17] But Abdelziz et al. noted a higher literacy than our study.[11] Furthermore, similar studies conducted by Kant el al. and Tanji et al. showed much higher literacy than our finding with their literacy rate being 78% and 72.28% respectively.[18,19] Likewise, El-Khawaga et al. showed illiteracy in nearly one third of their patients.[20] Contrarily, Gautam et al. found a lower literacy (18 %) than this study.[13] Furthermore, Marian et al. showed more than half of the subjects (52%) had tertiary education, while 9.5% and 6.5% had primary and no formal education respectively.[15] In a study, Saadia et al. found 71.9% responders were educated upto graduate level.[12]

In the present study, 40.33% male patients and 30% female patients has good knowledge about effect of high BP which was statistically significant with a chi-square value of 0.009. Similarly, 8.33% of our study patients of age 21-40 years, 27.5% of age 41-50 years and 20.83% of age >60 years had good practice of diabetic diet. In the sex distribution, 34.16% male patients and 22.5% female patients has good practice of diabetic diet plan. In a study conducted by Zahiri et al. found that 44.89% patients had moderate knowledge, 34.69% patients had good knowledge and 20.4% patients had poor knowledge on diabetes.[21] In Shah et al. study nearly 50% knew the complications of diabetes.[10] In Farzana et al. cross sectional study conducted in Bangladesh also showed approximately 16%, 66% and 18% of respondents with good, average and poor basic knowledge respectively and 10%, 78% and 12% of respondents with good, average and poor technical knowledge about diabetes.[22] In Marian et al. study more than half of the studied population (57%) had poor knowledge about the causes of diabetes mellitus. Only 7.5% had good scores, while 35.5% had fair score.[15] In Li et al. study relatively poor KAP score was obtained from 54.54% of the patients. In addition, 62.79%, 61.85% and 56.16% of the patients had poor K, A and P scores respectively. [23]

In Saadia et al. study majority of responder were aware about the causes, symptoms and complications of the disease. Respondent revealed poor score in attitude part of the questionnaire. Only 35% had positive attitude towards exercise. Only 68% of patients had their blood sugar checked within one month. Only 16% had eye examination done in last month. Only 17% of patients were able to answer 50% of practice questions correctly.[12] In Niroomand et al. study good knowledge, attitude and practice were 61.41%, 50.44% and 52.23%, respectively. Age, treatment methods, diabetes duration and existence of diabetic retinopathy had significant correlations with KAP level.[24] In El-Khawaga et al. study overall rate of adequate knowledge regarding diabetes was only 52.3% among participants. Insulin treated patients had lowest knowledge, attitude, and practice toward diabetes.[20] In Fatema et al. study females showed better attitude score compared to males. Overall KAP were found to be significantly higher ($p < 0.001$) in middle aged (31-50 years) participants in each group.[25]

In Mohammadi et al. study frequent urination was indicated as the most common symptom of diabetes by 81% patients. Regarding complications of diabetes, awareness of heart disease was stated to be the highest in 72% patients followed by eye disease (17%), kidney

diseases (6%) and foot problems (5%). Healthy diet was indicated to be the most important lifestyle factor that could help in prevention of diabetes. Knowledge of other lifestyle factors was not good. Awareness of hypoglycemia, the need for periodic eye examination and foot care in diabetics were found to be poor.[26]

In Kakade et al. study there was a statistically significant difference between knowledge ($p < 0.05$) but not attitude towards self-care activities between the glycemic controlled versus the uncontrolled diabetic patients.[27] In Prafull et al. study most of the patients showed a statistically significant knowledge related to symptoms of diabetes, symptoms of hypoglycemia, condition leading to hypoglycemia and life style modification.[17] In this study, dryness of mouth as symptom of diabetes was known to more patients than urinary frequency. Almost half of the sample had regarded kidney failure as a complication and effect of high BP and importance of BP measurement was known to 73.33% and 85% respectively. Compliance to antidiabetic medicines was seen in 71.66% study patients. Similarly, 43.33% had knowledge on exercise and 56.67% had good practice of diet plan. Contrarily, foot care knowledge and periodic BP and eye checkup practice was found poor in this study as well.

Conclusion

The study shows that patient's knowledge about foot care and practice of diet plan was not appreciable. Patient's attitude and practice about diabetes was also not significant. A low level of knowledge, attitude and practice among the diabetes patients was noted. This suggests the need for awareness programs for the patients to improve their knowledge regarding diabetes. Diabetes health educational materials for both literate and illiterate patients should be developed for better health promotion.

Conflict of Interests: None declared

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