

**Original Article**

**Knowledge, Attitude and Practice about Diabetes  
among Diabetes Patients in Western Nepal**

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**ABSTRACT**

**Objectives:** To study the demographic details of diabetes patients and their knowledge, attitude and practices (KAP) regarding diabetes in Nepal.

**Methods:** The KAP of the diabetes patients visiting the Manipal Teaching hospital (MTH) during the period from 22<sup>nd</sup> August to 7<sup>th</sup> December 2006 were studied by using the KAP questionnaire developed by the researchers.

**Results:** Altogether 182 patients were enrolled in the study. There were 103 (56.59%) males and 79 (43.41%) females. The greatest number of patients were in the age group of 51-60 years. A total of 685 drugs were prescribed to these patients. Antidiabetics were the commonest class of drugs prescribed accounting for 314 (45.84%) of the total drugs. The overall mean ( $\pm$  SD) scores of the patients was  $7.78 \pm 3.8$ . Knowledge score was  $4.90 \pm 3.34$ ; attitude  $2.03 \pm 0.95$  and practice  $0.84 \pm 0.76$ , with maximum possible scores for knowledge, attitude and practice patient being 18, 4 and 3 respectively.

**Conclusion:** The KAP scores of the patients were low. This suggests the need for educational interventions to improve the knowledge, attitude and practices of the diabetes patients. (Rawal Med J 2008;33:8-11).

**Keywords:** Attitude, diabetes, knowledge, practice.

## **INTRODUCTION**

Diabetes Mellitus (DM) is a chronic metabolic disease<sup>1</sup> whose number in Nepal is estimated to reach 6,38,000 by the year 2025.<sup>2</sup> Diabetes can lead to increased morbidity and mortality.<sup>3</sup> There is improper guidance about the disease due to lack of understanding of patients characteristics i.e. personality and attitude of the patient.<sup>4</sup> There is lack of public awareness regarding DM in Nepal where, medical services are poor.<sup>5</sup> Several interventions have been carried out to improve the knowledge level of diabetes patients.<sup>6-8</sup> Obtaining information about the level of awareness about diabetes in a population is the first step in formulating a prevention program for diabetes.<sup>9</sup> A study from Pakistan highlighted the fact that a proper education and awareness program can change the attitude of the public regarding diabetes,<sup>4</sup> as a large gap between knowledge and attitude among the diabetes patients was found<sup>10</sup> and proper knowledge regarding various aspects of health education program can improve the knowledge of patients and change their attitude.<sup>1</sup> Another study showed that intensive diabetes education and care management can improve the patient outcomes, glycemic control and quality of life in patients with diabetes mellitus.<sup>11</sup> The present study was conducted to study demographic details of diabetes patients and to evaluate Knowledge, Attitude and Practice (KAP) of these patients.

## **PATIENTS AND METHODS**

This Cross-sectional study used a KAP questionnaire developed by Subish *et al*<sup>12</sup> (used after permission from Medimedia Inc, USA, the publishers). The study was carried out from 22<sup>nd</sup> August to 7<sup>th</sup> December 2006 in the Out-patient Pharmacy (OPP), Manipal Teaching Hospital, Pokhara, Nepal. All the diabetes patients who visited the OPP

during this period were enrolled in the study after getting their verbal consent.

The questionnaire had 25 questions (knowledge-18, attitude-4 and practice-3 questions) and each correct answer and was given a score of 'one' and each wrong answer was given a score of 'zero'. The structured patient profile form included parameters like age and gender, family history of diabetes, number of drugs prescribed, therapeutic category of the drugs prescribed, response to the knowledge, attitude and practice questionnaire and their mean  $\pm$  SD scores. The maximum possible scores for knowledge, attitude and practice patients are 18, 4 and 3 respectively. The data was analyzed by using SPSS-9 package and Microsoft excel spread sheet.

## RESULTS

Altogether 182 patients were enrolled in the study. Among these, males were 103 (56.59%) and females were 79 (43.41%). The greatest number of patients were in the age group of 51-60 years [69 (37.91%)] followed by 61-70 years [40 (21.98%)], 41-50 years [31 (17.03%)] and 31-40 years [13 (7.14%)]. Twenty five patients (13.74%) were above 70 years of age. The mean  $\pm$  SD age of the patients was  $56.9 \pm 12.55$  years. The response of the patients regarding the knowledge related questions are listed in Table 1.

**Table 1. Response to knowledge questions.**

<b>Questions</b>	<b>Number of patients answering correctly (%)</b>
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Diabetes is a condition in which the body contains...	69 (37.91)
The major cause of diabetes is.....	37 (20.33)
The symptom(s) of diabetes is/are.....	69 (37.91)
Diabetes, if not treated.....	68 (37.36)
The most accurate method of monitoring diabetes is...	106 (58.24)
In a diabetic patient, high blood pressure can increase or worsen....	51 (28.02)
A diabetic patient should measure his or her blood pressure.....	12 (6.59)
The lifestyle modification(s) required for diabetic patients is/are.....	47 (25.82)
A diabetic patient should have his or her eyes checked....	88 (48.35)
Regular urine tests will help in knowing.....	29 (15.93)
The important factors that help in controlling blood sugar are	72 (39.56)
A regular exercise regimen will help in.....	16 (8.79)
The well-balanced diet includes.....	39 (21.43)
For proper foot care, a diabetic patient.....	23 (12.64)
Treatment of diabetes comprises.....	8 (4.40)
Diabetes cannot be treated with.....	14 (7.69)
Upon control of diabetes, the medicines.....	78 (42.86)
How do you manage hypoglycemic symptoms.....?	66 (36.26)

One patient (0.55%) had both their father and mother suffering from diabetes. Two (1.1%) had their father alone while 3 (1.65%) had their mother alone suffering from diabetes. The family history of 163 (89.56%) patients was not available. A total of 685 drugs were

prescribed in the study population. Antidiabetics were the commonest class of drugs prescribed accounting for 314 (45.84%) of the total drugs followed by cardiovascular drugs [246 (35.91%)] and others [125 (18.25%)]. The response of the patients regarding the attitude related questions are listed in Table 2.

**Table 2. Response to attitude questions.**

<b>Questions</b>	<b>Number of patients answering correctly (%)</b>
Do you exercise regularly.....?	121 (66.48)
Are you following a controlled and planned diet.....?	156 (85.71)
Do you miss taking the doses of your diabetic medication.....?	123 (67.58)
Are you aware of blood sugar levels falling below normal when you are taking drugs.....?	39 (21.43)

The response of the patients regarding the practice related questions are listed in Table 3.

**Table 3. Response to practice questions.**

<b>Questions</b>	<b>Responses</b>	<b>Number of patients (%)</b>
When was your blood pressure checked last?	One week ago	51 (28.02%)
	One month ago	70 (38.46%)
	Two months ago	47 (25.82%)
	Six months ago	11 (6.04%)
	One year ago	03 (1.65%)
When did you have your last eye examination?	One month ago	42 (23.07%)
	Six months ago	47 (25.82%)
	One year ago	22 (12.08%)
	Two years ago	16 (8.79%)
	Not done at all	55 (30.22%)
When was your last urine exam done?	One month ago	49 (26.92%)
	Six months ago	37 (20.33%)
	One year ago	23 (12.64%)
	Not done at all	73 (40.11%)

The mean  $\pm$  SD scores of the study population regarding the knowledge, attitude and practice outcomes were evaluated and the details are mentioned in Table 4.

**Table 4. Mean scores of the patients.**

<b>Variables</b>	<b>Mean <math>\pm</math> SD score</b>
Knowledge	4.90 $\pm$ 3.34
Attitude	2.03 $\pm$ 0.95
Practice	0.84 $\pm$ 0.76
Overall	7.78 $\pm$ 3.8

## **DISCUSSION**

We found the KAP scores of the patients to be low. However, a study from Malaysia identified a good knowledge, attitude and practice score.<sup>13</sup> The difference in the findings among different studies may be due to the differences in the literacy of the study patients, the training received by them and availability of information on diabetes. In Nepal, generally these facilities are not available for the patients and hence might have contributed to a low level of KAP. It is well understood that diabetes management requires patient involvement for a better disease control.<sup>14-15</sup> Improving knowledge level of the patients regarding the drugs can be done by many ways including group education<sup>16</sup> as well as through patient counseling.<sup>17</sup> Patient counseling by the pharmacist can play a vital role in imparting education to the diabetes patients.<sup>12</sup> In our hospital, the pharmacists provide counseling to the diabetes patients at the medication counseling center in the local language (Nepali).<sup>18</sup>

Strategies to modify lifestyle which help in control of DM include providing diabetes leaflets as well as direct education programs. Knowledge of the patients regarding the importance of Self Monitoring of Blood Glucose and regular blood pressure (BP) check up is essential.

In this study, only 6.59% of the patients were aware of the importance of regular checking of BP. Since, diabetes can be managed well with adequate patient involvement, improving their KAP should be prioritized. In a country like Nepal, this is very important and the healthcare professionals should actively provide education to diabetes patients.

Limitations of this study were that it was conducted only among the outpatients and hence may not be generalizable to the overall diabetic population. Moreover, the study enrolled the patients only from one hospital in one development region and hence can not be generalized to the diabetic population of Nepal. In conclusion, this study revealed a low level of knowledge, attitude and practice among the diabetes patients. This suggests the need for awareness program for the patients so as to improve their knowledge regarding diabetes.

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### **REFERENCES**

1. Mehta RS, Karki P, Sharma SK. Risk factors, associated health problems, reasons for admission and knowledge profile of diabetes patients admitted in BPKIHS. Kath Univ Med J (KUMJ) 2006; 4 : 11-13

2. King H, Aubert RE, Herman WH. Global burden of diabetes, 1995-2025: Prevalence, numerical estimates, and projections. *Diabetes care* 1998;21:1414- 31.
3. Adibah H, Idris MN Osman ali. Perception and behaviour of diabetic patients on blood glucose maintenance. *Int. J. Diab. Dev. Countries* 1998; 18: 71-74.
4. Badrudin N, Basit A, Hydrie MZI, Hakeem R. Knowledge, Attitude and Practices of patient visiting a diabetes care unit. *Pak J Nutrition* 2002;1:99-102.
5. Karki P, Baral N, Lamsal M et al. Prevalence of NIDDM in urban areas of Eastern Nepal: A hospital based study. *S East Asia J Trop. Med. Public Health* 2000;31:163-166.
6. Wee HL, HO HK, Li SC. Public awareness of diabetes mellitus in Singapore. *Singapore Med J* 2002;43:128-134.
7. Tan AS, Young LS, Wan S, Wong ML. Patient education in the management of diabetes mellitus. *Singapore Med. J.* 1997;38:156-60.
8. Baradaran H, Knill-Jones RP, Wallia S, Rodgers A. A controlled trial of the effectiveness of a diabetes education programme in a multi-ethnic community in Glasgow. *BMC Public Health* 2006;6:134
9. Mohan D, Raj D, Shanthiram CS et al. Awareness and Knowledge of diabetes in Chennai-The Chennai urban rural epidemiology study [CURES-9]. *J Assoc Physicians India* 2005;53:283-285.

10. Sivagnanam G, Namasivayam K, Rajasekaran M, et al. A comparative study of the knowledge, beliefs and practice of diabetic patients cared for at a teaching hospital (free service) and those cared for by private practitioners (paid service). *Ann NY Acad Sci* 2002; 958:416-419.
11. McMurray SD, Johnson G, Davis S, Mc Dougall K. Diabetes education and care management significantly improve patient outcomes in the dialysis unit. *Am J Kidney Disease* 2002; 40:566-75.
12. Palaian S, Acharya LD, Rao PGM, Shankar PR, Nair NM, Nair NP. Knowledge, attitude and practice outcomes: Evaluating the impact of counseling in hospitalized diabetic patients in India. *P & T* 2006; 31:383-400.
13. Ambigapathy R, Ambigapathy S, Ling HM. A knowledge, attitude and practice (KAP) study of diabetes mellitus among patients attending Klinik Kesihatan Seri Manjung. *NCD Malaysia* 2003; 2:6-16.
14. Mc.Elanay IC, Andrews J. The importance of patient education and patient involvement in the treatment of diabetes. *Pharma J* 2000; 265.
15. Suppapitiporn S, Chindavijak B, Onsanit S. Effect of diabetes drug counseling by pharmacist, diabetic disease booklet and special medication containers on glycemic control of type 2 diabetes mellitus: a randomized controlled trial. *J Med Assoc Thai.* 2005 ;88 Suppl 4:S134-41

16. Weinger K. Group Interventions: Emerging applications for diabetes care. *Diabetes Spectrum* 2003;16:86-87.
  
17. Palaian S, Chhetri AK, Prabhu M, Rajan S, Shankar PR. Role of pharmacist in counseling diabetes patients. *Internet J Pharmacol* 2005;4:1-13.
  
18. Mishra P, Subish P, Upadhyay D K, Bista D, Alam K, Bhandari R B. Medication Counseling Center in a teaching hospital: experiences from Western Nepal. *JNMA J Nepal Med Assoc* 2005;44 (160):129-34.