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Knowledge, attitude and practice of type 2 diabetic patients of selected outreach clinic, Dharan, Nepal

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Abstract: *Background and Objectives:* The burden of type 2 Diabetes Mellitus continues to rise and constitutes a real threat especially in the developing world. A cross sectional study was carried out to determine knowledge, attitude and practices regarding lifestyle modifications on type 2 Diabetes Mellitus. *Methods:* Face to face interview was carried out using structured questionnaire among 89 of patients. The data was analyzed using SPSS16. *Results:* The study showed that majority of participants was female 51(57.30%), while male were 38(42.70%). Most participants were in the age group 56-65 years 29(32.58%), majority of participants were housewife 27(36.99%) with more female diabetic patients being obese. Respondents had good knowledge 55(61.80%) of the benefits of exercise, weight loss and healthy diet. Majority of respondents 55(61.80%) had good practices in relation to lifestyle modifications. Nevertheless, majority of them 45 (50.56%) had negative attitude toward lifestyle modifications. There was no significant association between the knowledge of patients and fasting blood glucose level (X^2=3.09, p=0.078). *Conclusions:* Despite good knowledge and practice of participants toward healthy lifestyle habits, the attitude regarding lifestyle modifications among type-2 diabetes mellitus patients attending outreach clinic was low. Nevertheless the positive attitude of participants should be encouraged and the implementation of a lifestyle intervention program will help to improve the positive attitude, knowledge and practices of type-2 diabetes mellitus patients for the better management of Diabetes Mellitus.

Keywords: Attitude, Dharan, Knowledge, Nepal, Practice, Type 2 Diabetes

Introduction

Diabetes mellitus is one of the most common chronic diseases in nearly all countries, and continues to increase in numbers and significance, as changing lifestyles lead to reduced physical activity, and increased obesity. It is result of defect of insulin secretion, insulin action, or both. Insulin deficiency in turn leads to chronic hyperglycemia with disturbances of carbohydrate, fat and protein metabolism [1].

Diabetes mellitus may be categorized into several types but the two major types are type 1(Insulin Dependent Diabetes Mellitus) and type 2 (Non-Insulin Dependent Diabetes Mellitus) [2]. Type 1 Diabetes Mellitus is present in patients who have little or no endogenous insulin secretary capacity and who therefore require insulin therapy for survival [3]. Type 2 Diabetes Mellitus is the commonest form of diabetes and is characterized by disorders of insulin secretion and insulin resistance and about 90% of people with diabetes around the world have type 2. [4].

Type 2 Diabetes Mellitus (DM) is a chronic metabolic disorder associated with high morbidity and mortality among patients [5]. Today, with a global prevalence of more than 138 million people, it is projected that the number of diabetic patients would continue to increase, making type 2 DM a pandemic [6].

Knowledge about diabetes mellitus, appropriate attitude and practices are vital to reduce the incidence and morbidity associated

with DM [7]. There is an increasing amount of evidence that the patient education is the most effective way to lessen the complications of diabetes and its management [8]. Education is likely to be effective if we know the characteristic of the patients in terms of knowledge, their attitude and practices about diabetes. However, very few studies have focused on this area and there is paucity of the knowledge, attitude and practices (KAP) data among diabetic patients. Therefore, our study aims to assess the knowledge, attitude and practices of diabetes care among the diabetic patients. The information gained could subsequently be helpful to design and initiate comprehensive education programs, for control of diabetes and its complications with self-care and community support as its major components.

Material and Methods

Study site and population: A cross-sectional descriptive study was conducted over a period of 6 months to assess the information on knowledge, attitude and practices of Type 2 Diabetic patients of selected outreach clinic of the city Dharan (Sunsari District of Eastern Nepal). The study population were Type 2 diabetic patients of Dharan of age 35 years and above, who are the usual residents of the Dharan at the time of study. The samples of respondent were selected by convenient sampling method.

A program "Early detection in management of chronic kidney disease, hypertension, Diabetes and Cardiovascular Disease (KHDC) is running in Dharan from 2003. Samples were collected from KHDC outreach clinic in Dharan-10, Wada Samiti Office, Dharan Diagnostic Centre and Manju Shree Polyclinic. All the T2 DM patients visiting the Centers during this period were enrolled in this study. Participants who did not consent to participate in the project or with intellectual impairment were excluded. The response rate was 100%.

Research method and Data collection technique: The KAP questionnaire was adapted from P & T Journal, Medimedia USA, Inc [9]. The questionnaire has been used in previous KAP studies among diabetics and has proven to be reliable. The self-administered questionnaire had a total of 25 questions (Knowledge-14, Attitude-5, and Practice-6) and questions related to socio demographic information, each correct answer was given a score of 'one' and the wrong answer was given a score of 'zero'. The questionnaire were prepared in English and later translated into local Nepali language. Pretesting was conducted in order to maintain the accuracy and clarity of questionnaire. Pretesting was done on 10 participants to assess the appropriateness and clarity of the questionnaire.

Data was collected using a structured questionnaire based on objectives of the study from May 18, 2015 to June 19, 2015. Interview was conducted with the Type 2 Diabetic patients. The information on socio-demographic, knowledge, attitude practice and fasting blood glucose level of type 2 diabetic patients was collected. The questionnaire was made simple and clear as possible. The collected data was checked for errors and emission on same day and same consistency of data was maintained and the interview was conducted in simple Nepali language.

Data Analysis: After collection of data, it was checked for the correctness and consistency. Editing, coding and classification were done so that data could be amenable to analysis. The processed data was then entered in SPSS16, MS Word2007 and MS Excel2007. Data interpretation was done with descriptive statistics, percentage and frequency was used to describe the demographic variables, level of knowledge, attitude of diabetic patients towards the disease and their practices and chi-square was used to find the association between knowledge and fasting blood glucose level.

Ethical consideration: Ethical approval was taken from Nepal Health Research Council (NHRC). Written permission was taken from the Department of nutrition, Central Campus of Technology to conduct the research. Verbal permission was taken from head of clinics. Written consent was obtained from each participant before data collection. The purpose of the study was informed to participants prior to the interview. Privacy and confidentiality of the respondents was maintained throughout and after the study period.

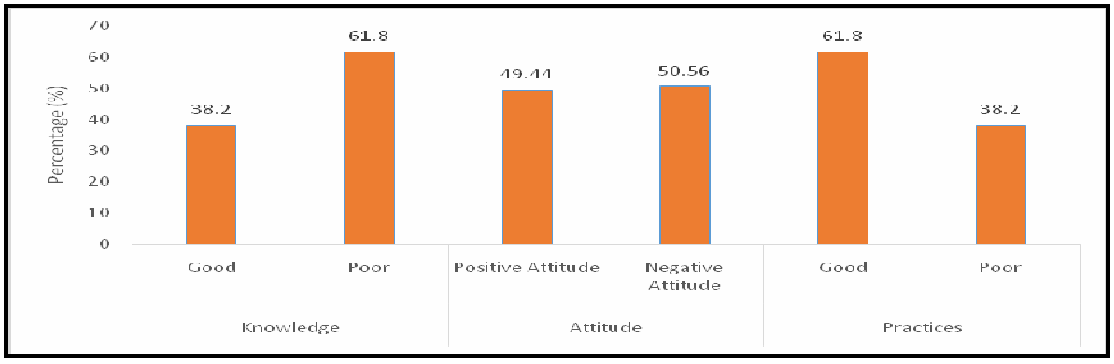
Results

Table-1: Distribution of Respondents according to their socio demographic characteristics (n=89)		
Socio demographic Information		**Percentage**
Age Group	35-45 Years	22.47%
	46-55 Years	28.09%
	56-65 Years	32.58%
	66-75 Years	15.73%
	78-85 Years	1.12%
Gender	Male	57.30%
	Female	42.70%
Marital Status	Married	97.75%
	Unmarried	2.25%
Occupation	Business	34.25%
	Service	13.70%
	House Wife	36.99%
	Labor	4.11%
	Farmer	10.96%

Table 1 shows 32.58%% of the participants were between 55-65 years of age and being closer to retirement or already retired, they may have different priorities or lack of self-interest. There may also be lack of motivation, social support or possibly poor compliance to medications due to financial difficulties. Older patients may need frequent follow-ups and closer monitoring along with motivation and counseling the importance of life-style modifications and self-management.

In the study, most of the patients were female i.e. 51(57.30%) and male were 38(42.70%) which shows that the most of the female were affected by type 2 diabetes in study area. This might be due the most of women being housewife and having the sedentary lifestyle which leads to obesity and further to diabetes mellitus. Most of the patients who were attending in the study were employed i.e. 71(79.78%) and 18(20.22%) were unemployed. Most of the patients attending the outreach clinic were housewife i.e. 27(36.99%), people involved in business were 25(34.25%), 10(13.70%) were service holder, 8(10.96%) were farmers and 3(4.11%) were labor. Since most of the patients were house wife and business man and both groups of patients have sedentary life style which was one of the main factors that leads to obesity and further to diabetes mellitus.

Fig-1: Distribution of Respondents according to their Knowledge, Attitude and Practices (n=89)



Out of 89 patients in the study, 55(61.80%) patients answered the knowledge related questions correctly and 34(38.20%) patients answered the knowledge related questions incorrectly. The patients attitude was assessed based on the answer given to the questions related to regular exercise, importance of balanced diet, regular intake of medication in which 44% of patients have good attitude where as 45% of patients have poor attitude which shows that the more than half of the patients were not conscious about the importance of regular exercise, balanced diabetic diet, follow up with doctor for proper management of normal blood glucose level. Our study participants have the good practice score i.e. 61.80% for the proper management of diabetes mellitus and less than half i.e. 38.20% have the poor practice score. This score represents that the patients are conscious about their disease condition and management.

Table-2: Distribution of Respondents according to the knowledge questions (n=89)		
Questions	**Number of Correct answer (n)**	**Percentage of correct answer (%)**
Diabetes is a condition	57	60.04
Cause of Diabetes	17	19.1
Symptoms of Diabetes	45	54.88
Diabetes if not treated leads to	10	12.05
Appropriate method to monitor diabetes	83	93.26
In diabetic patient high BP can Increase or worsen	42	47.19
A diabetic patient should measure his or her BP	66	74.16
Lifestyle modification (s) required for diabetic patients is/are	42	47.19
A diabetic patient should have his or her eyes checked	51	57.95
Regular urine test will help in knowing	24	29.27
The important factor that help in controlling blood sugar	56	63.64
For proper foot care, a diabetic patient	17	19.1
The well balanced diet includes	43	52.44
What should be done in case of hypoglycemic symptoms	72	80.9

Table-3: Distribution of attitude answered by respondents (n=89)		
Questions	**Answer (n)**	**Percentage (%)**
Do you exercise regularly……..?	64	71.91%
Are you following a controlled and planned diet……?	34	38.64%
Do you miss taking the doses of your diabetic medication……?	18	20.22%
Are you aware of blood sugar levels falling below normal when you are taking drugs…….?	49	55.06%
Do you think you should keep in touch with your physician?	82	92.13%

Fig-2: Distribution of Fasting Blood Sugar of participants (n=89)

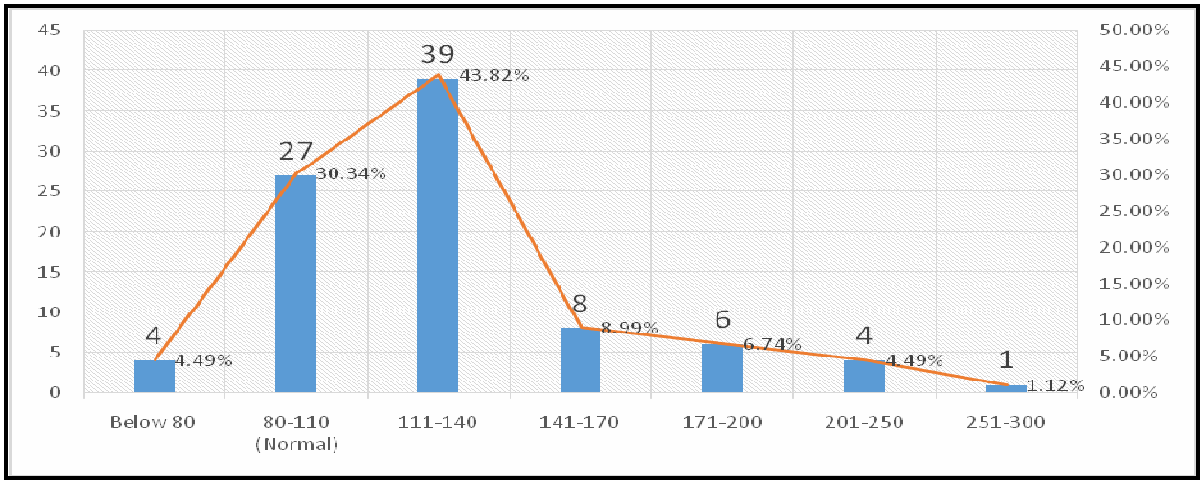


Table-4: Distribution of responses related to practices of the participants (n=89)			
Questions	**Responses**	**Number (n=89)**	**Percentage (%)**
Blood pressure checked last?	One week ago	42	47.19%
	One month ago	31	34.83%
	Two months ago	11	12.36%
	Six months ago	3	3.37%
	One year ago	2	2.25%
Last eye examination?	One month ago	16	17.98%
	Six months ago	28	31.46%
	One year ago	19	21.35%
	Two years ago		
	Not done at all	13	14.61%
Last urine examination?	One month ago.	22	24.72%
	Six month ago.	22	24.72%
	One year ago.	22	24.72%
	Two years ago.	10	11.24%
	Not done at all.	13	14.61%
Last visit to your physician?	One month ago.	62	69.66%
	Six month ago.	15	16.85%
	One year ago.	6	6.74%
	Not met at all.	2	2.25%
Blood sugars last checked?	One month ago.	67	75.28%
	Six month ago.	14	15.73%
	One year ago.	4	4.49%
	Two years ago.	2	2.25%
Lipids last checked?	Not done at all.	2	2.25%
	One month ago.	28	31.46%
	Six month ago.	24	26.97%
	One year ago.	10	11.24%
	Two years ago.	4	4.49%
	Not done at all.	23	25.84%

Among the 89 type 2 diabetic patients enrolled in the study only 27 (30.34%) of patients have normal fasting blood glucose level, 39(43.82%) patients have fasting blood glucose level 111-140 mg/dl so on 8 patients have 141-170 mg/dl, 6 have 171-200 mg/dl, 4 have 201-250mg/dl and one patients have more than 251 mg/dl fasting blood glucose level. This shows that even though patients have good knowledge about care of diabetes and also patients have good practice in medication but most of the patients didn't emphasize in lifestyle modification which is the result of high fasting blood glucose level.

Table-5: Cross Tabulation between Knowledge and Fasting Blood Glucose Level of the respondents (n=89)		
Fasting Blood Sugar Level	**Knowledge score**	
	Good knowledge	**Poor knowledge**
FBS >normal	32	26
FBS ≤Normal	23	8
(χ^2 = 3.09 P = 0.078)		

Knowledge and fasting blood glucose level were not statistically significant (P>0.05). There was the significant negative correlation between the knowledge of the patients and fasting blood glucose level which may due to the lack of proper utilization of their knowledge in their day to day life. This represents that only having good knowledge about care of diabetes through medication, nutritional management, exercises and stress management is not enough to keep the blood sugar level in normal unless it is brought in to the regular practice with positive attitude towards it. In this study only 34 (38.64%) patients are following a controlled and planned diet and 42 (47.19%) patients gave the right answers of lifestyle modification(s) required for diabetic patients which are the main factors that increase the blood glucose level in patients.

Discussion

Diabetes is an endemic disease in Nepal, and is bringing new challenges in connection with rapid urbanization and modernization [10]. A survey conducted in urban Nepal between 2001 and 2002 showed that 10.8% and 13.2% of males suffered from diabetes and pre-diabetes respectively, with the values for females being 6.9% and 10.2%, respectively [11]. According to WHO, diabetes affects more than 436,000 people in Nepal, and this number will rise to 1,328,000 by 2030 [12]. The data published in April 2011by WHO showed deaths due to diabetes mellitus reached 3,224 (2.17%) of the total deaths in Nepal. This may be due to changes in life style, urbanization and physical inactivity [13].

We found the knowledge and practice scores to be high whereas attitude score of the patients to be low. A recent study conducted among the diabetic patients of Western Nepal reported poor KAP scores [5] due to various plausible factors. Another recent study involving young (31-40) year's diabetic Saudi women also reported poor KAP scores [14]. The authors of previous reports concluded that implementation of adequate awareness programs may enhance the KAP which in turn would improve the control of DM.

However, a study from Malaysia identified a good knowledge, attitude and practice score [15]. 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 attitude. It is well understood that diabetes management requires patient involvement for a better disease control [16]. Improving knowledge level of the patients regarding the drugs can be done by many ways including group education as well as through patient counseling [17].

Possible reasons for the steady increase in the prevalence of DM in Asian countries may include poor lifestyle, rapid westernization, lack of knowledge and unsatisfactory attitude and practices towards DM among the general population and diabetic patients. Moreover, there also exists an apparent gap between knowledge and the attitude towards diabetes among diabetes patients [5]. People suffer from Type 2 DM in pandemic proportions worldwide. The effect of the disease, and its life-long impact, represents a significant burden for many healthcare settings, and a number of ill persons struggle to accomplish healthy outcomes (through the internationally recommended lifestyle modifications). Existing approaches of prevention and management of the disease failed to slowdown the pandemic and its prevalence, not to mention the complications associated with morbidity and mortality.

A recent study involving 524 diabetic and non-diabetic subjects in Turkey reported an un-satisfactory level of knowledge about the disease [18]. However, the attitude of patients towards diabetes is modifiable. Glycemic control and quality of life among diabetic patients can be improved with intensive diabetes education and proper implementation of awareness programs [19]. 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) checkup is essential. In this study, 74.16% 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 and make aware about the complications of diabetes in absence of proper care to control blood glucose level to normal.

Recommendations: Hospital and community based lifestyle intervention program to improve the knowledge and practices of life styles modifications. In such intervention there should be multidisciplinary team including clinician, dietician, social workers, psychologist and others. Motivational interviewing leading towards behavior change is also recommended. Public health program for awareness raising about nutrition management, lifestyle modification, exercises and stress free life are best measure to control DM.

Conclusions

The present study concluded that patients enrolled in study have good knowledge about care of diabetes but due to lack of positive attitude towards its implementation most of the patients have higher fasting blood glucose level than normal. Plausible factors could be poor self-management, lack of motivation, inadequate social support or lack of resources that are necessary for sustained life style modification or behavior change. Also there may not be a direct relation between KAP and the actual glycemic control of DM. Collaborative efforts between patients and health care professionals along with good social support are vital for patient empowerment which would enable them to have a better understanding and self-management of their illness.

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