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Awareness regarding diabetes mellitus among individuals attending a hospital, Bhaktapur

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Abstract

Background: Diabetes mellitus is the most prevalent metabolic condition and one of the major health and socioeconomic problems worldwide. Awareness of risk factors and prevention of diabetes plays a major role for prevention of diabetes mellitus in general population.

Objectives: To assess level of awareness regarding diabetes mellitus risk factors and preventive measures among individuals who attended General Practice outpatient department at Kathmandu Medical College Teaching Hospital, Duwakot, Bhaktapur.

Methodology: This is a descriptive study conducted in Department of General Practice and Emergency of Kathmandu Medical College Teaching Hospital. The study included 370 patients attending General Practice outpatient department from November 2018 to April 2019. The data collected was entered in the Statistical Package for the Social Sciences software and analysed for results. Ethical clearance was taken from Institutional Review Committee of Kathmandu Medical College.

Results: The study included 370 participants; the mean age was 40.83±12.21 years. More than half of the participants (56.5%) were females and 43.5% were males. The most commonly mentioned risk factor was lack of physical activity and obesity. Almost 80% participants correctly stated that physical activity could help prevent diabetes mellitus. There was no statistical significance between awareness and educational level of participants.

Conclusion: This study showed that proper awareness programs need to be carried out in rural and urban communities to prevent diabetes and its complications. In this study, patient awareness about risk factors and preventive measures was not appreciable. Association of awareness with age, sex and education level was not statistically significant.

Key words: Awareness; Diabetes mellitus; Knowledge.

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INTRODUCTION

Diabetes mellitus (DM) is a metabolic condition resulting in hyperglycemia and hyperglycemia related complications. It is due to defect in insulin secretion that affects the Beta cells function located in the pancreas, resulting in an increased level of glucose in blood[1]. It is a major chronic health problem throughout the world and increases the risk of microvascular, macrovascular complications and early death in general population[2]. It is now recognized as a major chronic health problem throughout the world affecting a large number of people in a wide range of ethnic and economic levels in both developed and developing countries.

Prevalence of diabetes is rising all over the world and Nepal due to urbanization, increased obesity, physical inactivity and sedentary lifestyles[3]. It is expected that the prevalence of diabetes will increase dramatically by 2030 worldwide, and the increase in rate will be more in South East Asia countries[4]. Prevalence of diabetes in south east Asia is 8.33% and National prevalence of Nepal is 4.58%[5]. Diabetes causes significant morbidity and mortality from effects on cardiac function, damage visual impairment and blindness[6-9]. Evidence suggests that diabetes is potentially preventable if modifiable risk factors like

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physical inactivity, unhealthy diet, overweight, high blood pressure, smoking and alcohol use are identified early and avoided[10-12]. Management of diabetes include both prevention and treatment. There is clear evidence that increasing physical activity, balancing body weight, eating healthy or diabetic diet and using medications are possible options to prevent or delay diabetes. Hence, an important step to stop the increasing rate of diabetes mellitus is to raise public awareness of the disease[4].

The high incidence of diabetes mellitus in Nepal was found to be due to lack of public awareness and poor medical service in the country[13]. The risk of developing type 2 diabetes is determined by some modifiable factors related to rapid urban growth, changing lifestyle (obesity, sedentary lifestyle, diet, smoking, physical and emotional stress) and non-modifiable factors (family history of diabetes, age, race/ethnicity)[14]. Awareness of modifiable risk factors for diabetes and preventive measures is the first step in prevention and will enable the public to make an informed decision of adopting a healthy lifestyle[15-18]. This study is therefore, conducted to assess the knowledge of diabetes mellitus risk factors and preventive measures which will help for further public awareness and implementation of health education programs. Therefore, with changing life style, it is justifiable to carry out such study in Nepalese population.

METHODOLOGY

Study design and setting

This is a descriptive study to learn about the awareness of risk factors and preventive measures of diabetes mellitus, conducted in General Practice outpatient department of Kathmandu Medical College Teaching Hospital, Duwakot, Bhaktapur.

Study participants

The study participants of the study were patients of age 20-60 years, who visited the General Practice outpatient department. Patients having history of diabetes mellitus were excluded. National Population Census 2011 showed the population of Duwakot to be 10461. Sample size of 370 was calculated using confidence interval of 5% in 10461 population.

$$\text{Sample size, ss} = \frac{z^2 \times P \times (1-P)}{c^2}$$

where ss= Sample Size, p=Percentage of picking choice (Taken as 0.5), c=Confidence interval (expressed in decimal), z=1.96 taking standard deviation of confidence level (5%)

Study tools

A semi-structured questionnaire was adapted from surveys done in Nepal by Gautam et al[19]. Questionnaire included patient profile parameters like age, gender, education and 16 questions. Eight questions to assess risk factors and eight questions to assess preventive measures were used. Each correct answer was given a score 1 and 0 was given for a wrong answer.

Data collection

Data was collected by interviewing patients who resided in Duwakot and met the inclusion criteria by using a semi-structured questionnaire. A written consent was taken from all participants before taking data after explaining about the research. Questionnaire was filled by the researchers by face to face interview in the General Practice outpatient department (OPD). Purposive sampling technique was used and data was collected for six months from November 2018 to April 2019.

Data analysis

The obtained data was entered and analysed using Statistical Package for the Social Sciences (SPSS) version 16. All statistical tests were performed using 0.05 as the level of significance. Age group was categorised as less than 40 years and more than 40 years. Education level was categorised as illiterate, primary (up to class five), secondary (from class five to class 12), Bachelors, Masters and above. Frequency distribution table was prepared to interpret the data. Independent t-test and one way ANOVA (analysis of variance) test were used for analysing the association between variables.

RESULTS

This study comprised of a total of 370 patients who visited the General Practice outpatient department over a period of six months. The mean age was 40.83±12.21 years, and percentage of females and males were 56.5%and 43.5% respectively. Majority of participants (41.2%) had secondary education level.

Assessing the knowledge about risk factors of diabetes mellitus (Table 1), most of the participants were aware that lack of physical exercise, obesity, family history and hypertension (72.7 %, 68.7%, 68.1%, 58.6% respectively) are risk factors.

Regarding the knowledge about prevention (Table 2), majority of participants (71.9%, 68.4%, 68.4%, 61.9% respectively) knew that diabetes mellitus could be prevented by (physical activity, low carbohydrate diet,

weight reduction, managing blood pressure), while more than half (53.5%) did not know that quitting smoking is one of the preventive measures.

Table 3 and 4 showed relationship between age, sex, and educational level with awareness of risk factors and preventive measures which showed no statistical significance.

Table 1: Knowledge of risk factors of diabetes mellitus

Knowledge of Risk Factors of Diabetes Mellitus	Correct response	
	Number	Percentage (%)
Family history	252	68.1
Increasing age	233	63
Lack of physical exercise	269	72.7
Obesity	254	68.7
Smoking	160	43.3
Mental stress	192	51.9
Hypertension	217	58.6
High cholesterol	212	57.3

Table 2: Knowledge regarding preventive measures of diabetes mellitus

Knowledge regarding preventive measures of Diabetes Mellitus	Correct response	
	Number	Percentage (%)
Physical activity	266	71.9
Weight reduction	253	68.4
Stress reduction	220	59.5
Low carb diet	253	68.4
Quitting alcohol	199	53.8
Quitting smoking	172	46.5
Managing high blood pressure	229	61.9
Lowering cholesterol	198	53.5

Table 3: Knowledge of risk factors of diabetes mellitus in relation to age, sex and education

Variables	Knowledge of diabetes mellitus risk factors (Mean ± SD)	p-value
Sex		
Male	4.67±2.12	0.23
Female	4.95±2.34	
Age(years)		
<40	4.99 ± 2.13	0.18 *
>40	4.68 ± 2.35	
Education		
Illiterate	4.35±2.75	0.23^
Primary	4.79±2.20	
Secondary	4.96±1.98	
Bachelors	5.17±2.10	
Masters and above	5.00±2.58	

* Independent t test ; ^ One way ANOVA

Table 4: Knowledge of preventive measures of DM in relation to age, sex and education

Variables	Knowledge of DM preventive measures (Mean ± SD)	p-value
Sex		
Male	4.95±2.56	0.42
Female	4.73±2.64	
Age(years)		
<40	4.94 ± 2.48	0.40*
>40	4.72 ± 2.72	
Education		
Illiterate	4.23±2.83	0.20^
Primary	4.79±2.56	
Secondary	5.02±2.44	
Bachelors	5.05±2.63	
Masters and above	5.31±2.84	

DISCUSSION

Awareness of the risk factors of diabetes mellitus can assist in its early prevention and reduce its incidence. Level of awareness depends on socioeconomic gradient, culture and ethnic variation. Understanding of these variables is highly important in designing strategies for the prevention of diabetes. The findings of the present study were quite similar to the findings of study conducted by Wee et al in Singapore[15]on knowledge of risk factors of diabetes in different population groups. Majority of the participants agreed that lack of physical exercise, obesity and family history are risk factors, which was similar to the study done in Saudi Arabia[16]. In our study, 68.7% reported obesity as a risk factor, compared to a study in Chennai done by Mohan D et al[17], where only 12 % of subjects knew that obesity and lack of physical activity were risk factors. Our study population dealt with educated population which may have led to higher percentage of knowledge.

Weight reduction and physical activity were frequently mentioned measures relating to prevention of DM. Contradicting observation was reported in a study by Foma et al[18], where only minority of them thought that weight loss and exercise were important measures in preventing DM.

In the present study, relationship between educational level, awareness of DM risk factors and preventive measures reveal no statistical significance in contrary to a study done in Bangladesh by Shirin et al[19] where level of education showed significant effect on knowledge of participants. However, participants who were illiterate had low level of awareness though statistically not significant. This reflected that formal education alone cannot change the knowledge of risk factors and prevention. Therefore, continuous medical education program for general population is required. Creating awareness about DM through the internet, magazines and books could be helpful. Recent studies like Diabetes Prevention Program, the Finnish Diabetes Prevention study[20], clearly demonstrated that diabetes is a preventable disease, yet lack of knowledge in the educated population still showed that more effort is required for transmitting this important health message to the general population.

This study however, represents only a small tip of iceberg, showing a small scenario of Duwakot. Similar studies done on a large representative sample will be a true reflection of the situation of Nepal. This is a single tertiary hospital-based study and hence the result may not be a true reflection of all population. Closed ended questions can sometimes be guessed by respondents which can result in biasness.

CONCLUSION

In this study, patient awareness about risk factors and preventive measures was not appreciable. Association of awareness with age, sex and education level was not statistically significant. This suggests the need of awareness programs for patients, both literate and illiterate to improve their knowledge regarding diabetes for better health promotion.

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