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KNOWLEDGE ON ACUTE AND CHRONIC COMPLICATIONS OF DIABETES MELLITUS AMONG PATIENTS WITH DIABETES MELLITUS IN SELECTED METRO GROUP OF MULTISPECIALITY HOSPITALS AND HEART INSTITUTE, NOIDA: A DESCRIPTIVE STUDY

Fazl Ur Rahman*

PG Tutor at Faculty of Nursing & Midwifery, Metro College of Nursing, Gr. Noida, UP.

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***Corresponding Author: Fazl Ur Rahman**

PG Tutor at Faculty of Nursing & Midwifery, Metro College of Nursing, Gr. Noida, UP.

ABSTRACT

Massive populations of the mankind live with diagnosis of diabetes mellitus. At present India is considered as the "worlds" capital of Diabetes. Development of Diabetes is associated with increased mortality & high risk of developing retinal, vascular & neuropathic complications leading to disability & death. (Black. M. Joyce, Hawks JH). Diabetes Mellitus is a disease which is pervasive globally. Diabetes is inveterate malady which is guileful in onset and can be controlled by proper diet, drugs, foot care and exercise. Descriptive survey approach is used in this present study. Non probability convenience sampling technique was used to obtain a sample of 100 valetudinarians with diabetes mellitus. A structured knowledge questionnaire was primed to collect the data which consists of 34 questions. The content validity of the tool was established by 5 experts and reliability was established by using test-retest method, the reliability for knowledge questionnaire was r=0.78. The data were collected personally by the scrutinizer by questionnaire method and data were interpreted in terms of objectives using descriptive and inferential statistics. There was inadequate knowledge leading to develop complications of diabetes mellitus among diabetes mellitus clients. There was no significant association between selected demographic variables (age, sex, religion, education, work pattern, family history of diabetes mellitus, duration of having diabetes mellitus, treatment taken, dietary pattern and experience of having complications and knowledge at $p < 0.05$ level. The study concluded that further research is needed to gage diabetes mellitus clients regarding the complications of diabetes mellitus and more educational programs are needed to revamp their knowledge.

KEYWORDS: Diabetes Mellitus, Knowledge, Acute, Chronic, Complications.

INTRODUCTION

"The unrivaled speculation you've perennially forge is your own salubrity."-Fazl Ur Rahman

Energy is an important requisite for body function and growth. The food we eat extracts glucose from it, insulin secreted from pancreas helps to convert glucose into energy. When the pancreas does not produce enough insulin for the glucose to energy conversion, the blood glucose level continues to rise without control. This condition is termed as diabetes mellitus.

According to Diabetes Atlas published by the International Diabetes Federation (IDF), India was home to 62.4 million diabetics in the year 2011 and the incidence is on a continuous rise and this number is predicted to rise to almost 70 million people by 2025. The countries with the largest number of diabetic people will be in India, China and USA by 2030. It is estimated that every fifth person with diabetes will be an Indian. While the ICMR study reported that the prevalence was 2.1 per cent in urban and 1.5 per cent in rural areas. (A Ramachandran, AK Das, SR Joshi, CS Yajnik, S Shah, KM Prasanna Kuma).

Diabetes received its first name a Greek physician Aretaeus of Cappadocia, after the word Dia-bainein which means "to siphon". This was related to the patient passing excessive amount of urine. In ancient times, Indians would call diabetes "Sweet urine disease" because they tested for it by observing whether ants were attracted to the persons urine or not. In 1675 English physician Dr Thomas Willis describes the sugar test of

urine in people with Diabetes. In 1750 Cullen, a scientist adds 'Mellitus' Latin to mean "Honey-sweet" to the term diabetes". In 1870s a French Physician had discovered a link between diabetes and diet intake, function of insulin and its nature. Diabetes was recognized with complete details in the year 1959. Since 1991 November 14 of each year has marked World Diabetes Day. It was introduced by the International Diabetes Federation and the World Health Organization in response to the alarming rise of diabetes around the world.

Every year, World Diabetes Day is centered on a concern and essence related to diabetes. Topics circumscribed have subsumed diabetes and human rights, diabetes and lifestyle, diabetes and obesity, diabetes in the disadvantaged and the vulnerable, and diabetes in children and adolescents. For 2009–2013, the theme is Diabetes Education and Prevention. Diabetes mellitus is a serious health problem throughout the world. It is commonly known as 'High Sugars'**.** Diabetes mellitus is a multisystem disease related to abnormal insulin production, impaired insulin utilization or both. The three major types of diabetes are Type I diabetes mellitus, Type II diabetes mellitus and Gestational diabetes mellitus. Fourth type rare condition, is diabetes insipidus that results from an imbalance of water in the body. This causes extreme thirst, and frequent excessive urination. Type II diabetes is the quotidian amid all constituting 90% of the diabetic population. Unhealthy lifestyle factors such as overeating, physical inactivity and obesity can impair the body's ability to use insulin. This is called insulin resistance.

Type II diabetes mellitus builds up excess glucose in the blood, thereby causing serious complications. This includes micro vascular complications such as retinopathy, nephropathy, neuropathy and infections. Macro vascular complications are coronary artery disease, peripheral vascular disease and cerebrovascular events, other complications of type II diabetes mellitus include depression and erectile dysfunction. Clients with type II diabetes mellitus should be encouraged to adopt preventive interventions like maintaining normal body weight (BMI 18.5 to 24.9 kg/m2) engage in regular physical activities like walking (At least 30min per day), limit consumption of alcohol and consume a diet rich in carbohydrate, protein, low fat dairy products such as fruits, vegetables etc. Thus, there by risk of developing complications can be prevented and controlled. The management of diabetes is one of the most important concern in clinical practice. In the Indian context, increasing urbanization, industrialization and changing lifestyles seem to be contributing to increasing prevalence of diabetes Thus in order to provide the accurate information on diabetes, a comprehensive structured questionnaire has been formulated to provide the latest and the most relevant information on topics related to factors leading to develop complications of diabetes, which helps the clients in their day-to-day practice.

Objectives

1) To assess the level of knowledge regarding complications of diabetes mellitus
2) To associate the selected demographic variables with knowledge on complications of diabetes mellitus.

Pender's Health promotion Model was used as a theoretical framework to describe the interrelationship between variables such as individual characteristics, behaviour specific knowledge and behavioral outcomes like health promotion and prevention of complications.

METHODOLOGY

Approach: Quantitative research approach with descriptive design was used.

Setting: The setting is the location, where the study is conducted. The research setting was in Metro Multispecialty Hospitals & Heart Institute, Noida was selected for the study. The setting is selected because of availability of samples, feasibility of conducting study and ethical clearance.

Population: "The entire set of individuals having some common characteristics, sometime referred to as elements". The target population for the study is diabetes mellitus clients. The accessible population for the study is clients with diabetes mellitus at Metro Multispecialty Hospitals & Heart Institute Noida.

Sample and Sample Size

A sample is a small portion of a population selected for observation and analysis. The sample of the present study comprised of clients with diabetes mellitus at Metro Multispecialty Hospitals & Heart Institute Noida. A sample of 100 diabetes mellitus clients was drawn from the selected hospitals.

Sampling Technique

Sampling is the process of selecting a portion of the population to represent the entire population. Non probability convenience sampling technique was used to select 100 patients with diabetes mellitus for the present study.

Instrument for data collection

Data was collected using structured multiple-choice questionnaire based on the review of books and related journals.

The survey approach adopted in the study provided basis for data collection technique using a structured questionnaire. It is known that questionnaire can be administered to a large number of samples at a short time, maintaining anonymity. Collecting the data using a structured questionnaire is very viable and pragmatic. In this study structured questionnaire was used to collect the data regarding the knowledge on complications of diabetes mellitus.

The data collection tool in the study consisted of two parts

Part I - Demographic Variables

Part II - Structured Knowledge Questionnaire

Part-I demographic variables which included age, gender, educational status, work pattern, family history of diabetes mellitus, duration of diabetes mellitus in the individual, treatment, dietary pattern, presence of any complications etc.

Part-II Structured knowledge questionnaire developed to assess the knowledge on complications of diabetes mellitus. Total number of questions was 34 on various complications of diabetes mellitus (General Information about diabetes mellitus, acute complications and chronic complications). There were four alternate answers from which the participant had to choose one best alternative by encircling it. Knowledge was measured in terms of knowledge score. A score of '1' was allotted to each correct response.

Scoring and Interpretation

- Inadequate knowledge- <50%
- Moderately Adequate knowledge-51-75%
- Adequate knowledge- 76-100%

Ethical Considerations

An informed verbal consent was taken by the subject before data collection. All the subjects were ensured that confidentiality and anonymity was maintained throughout the study. Permission was obtained from Hospital Ethical Committee to carry out the study. Subjects were not under any obligation to give consent for participating in this study. All the questions and queries were discussed and sort out before actual data collection.

Statistical Methods: Data analysis included both descriptive and inferential statistics.

RESULTS

Distribution of demographic variables of participants.

Data analysis revealed that the age range of subjects was between 40-65 years. 43% of them were females, 36% were illiterate, 71% of the patients had diabetes for more than 3 years, majority 88% of the patients were treated only with oral hypoglycemic agents and 46% of them had experienced any one or more of diabetes related complications.

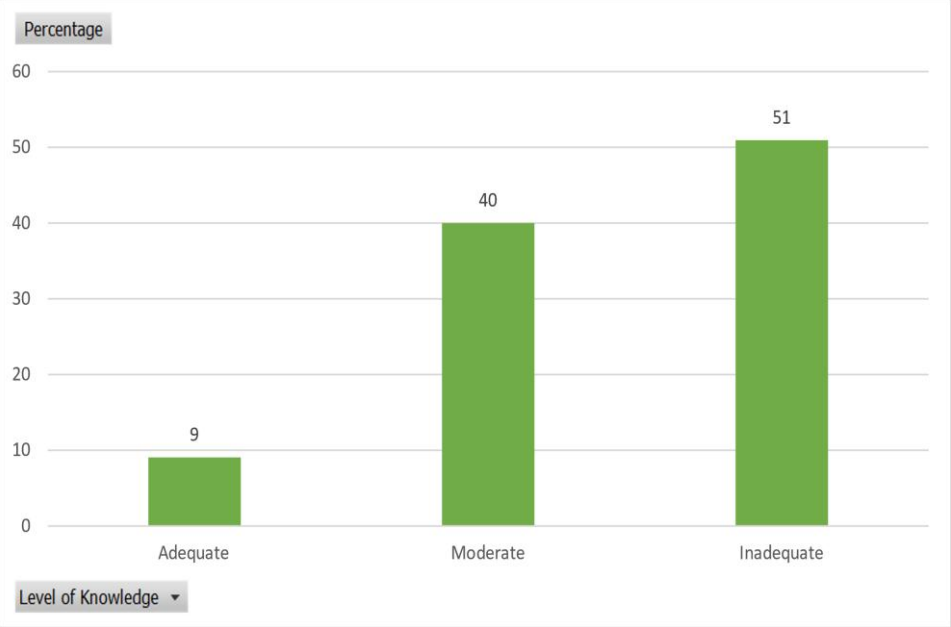
Knowledge on acute complications of diabetes mellitus

74 % of the patients had moderately adequate knowledge on hypoglycemia & only 9% had adequate knowledge on hyperglycemia and 72% had inadequate knowledge on Diabetic ketoacidosis. Only 3% of patients had adequate knowledge on acute complications of diabetes mellitus.

Knowledge on chronic complications of diabetes mellitus

89% of patients had adequate knowledge on macro vascular complications, 61% and 90% had inadequate knowledge about retinopathy & nephropathy. Only 10% knows about the Diabetic foot problems. Overall, 62% of them had moderately adequate knowledge on all chronic complications of diabetes mellitus. Findings revealed that 42% had moderately adequate knowledge about diabetes mellitus.

Figure 1: Categorization of overall knowledge on complications of diabetes mellitus.



Over all knowledge on complications of diabetes mellitus

Table 1: Range, Mean and Standard Deviation for overall knowledge on complications of diabetes mellitus among patients with diabetes mellitus.

Overall knowledge score on complications of diabetes mellitus	Range	Mean score	Standard Deviation
	27-78	45.11	11.06

Association of selected demographic variables with knowledge on complications of diabetes mellitus among patients with diabetes mellitus

There was no significant association between selected demographic variables (age, sex, religion, education, work pattern, family history of diabetes mellitus, duration of having diabetes mellitus, treatment taken, dietary pattern and experience of having complications and knowledge at $p < 0.05$ level.

DISCUSSION

India ranks among top three countries with diabetic population. According to the Lancet study, China, India and USA are among the top three countries with a high number of diabetic population. This high popularity and the correlated comorbidities and burdens lead to the necessity for health caregivers to authorize prevention and management programs for diabetes Knowledge studies on the targeted population are the keystone for these prevention and management plans. Though many studies already established knowledge in DM, to the best of our knowledge, this is a first study about the assessment knowledge and complications of DM among the Diabetic patients in the Metro Group of Multispeciality Hospitals and Heart institute in Noida. Findings of this study is similar to the number of studies conducted earlier on by researchers about Knowledge and its complications of diabetes amongst the known diabetic patients. Our principle objective in this study is to investigate the perception of normal patient on knowledge, self-care practice, and complications of diabetes among the Metro Group of Multispeciality Hospitals and Heart institute in Noida, showing high incidence of Diabetes Mellitus.

In overall view of the present study findings revealed less than 50% had Inadequate knowledge, 51-75% had moderately adequate knowledge and 76-100% had adequate knowledge. Data analysis revealed that the age range of subjects was between 40-65 years. 71% of patients had diabetes for more than 3 years, majority 88% of patients were treated only with oral hypoglycemic agents and 46% of them had experienced any one or more of diabetes related complications. Only 3% of patients had adequate knowledge on acute complications of diabetes mellitus and 62% of them had moderately adequate knowledge and all chronic complications of diabetes mellitus.

A descriptive study was conducted to assess the Knowledge of complications of diabetes mellitus among patients visiting the diabetes clinic at Sampa Government Hospital, Ghana. Results revealed out of a total of 630 participants, 325 (51.5 %) knew diabetic foot as the most common complication followed by hypertension 223(35.4 %), neuropathy 184 (29.2 %), hypoactive sexual arousal 160(25.4 %), arousal disorder 135 (21.5 %), eye diseases 112(17.7 %), heart disease 58(9.2 %), and renal disease 34(5.4 %). Comprehensive assessment of level of knowledge on the complications showed that majority 378(60.0 %) of T2D patients did not have knowledge on diabetes complications, 169 (26.9 %) had inadequate knowledge on diabetes complication while 82(13.1 %) had adequate knowledge.

CONCLUSION

The discussion was organized based on findings of the study. Henceforth, health care providers should help patients with diabetes mellitus to increases the knowledge and to identify the complications at the earliest and also to prevent them. By preventing or controlling the complications will help of awareness campaigns on diabetes mellitus, may lead to more productive life and ameliorate excellence of life.

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