A cross-sectional study to know knowledge, attitude and practices related to diabetes among diagnosed case of Type 2 diabetes.

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Abstract
Background: *Diabetes mellitus (DM) refers to a group of common metabolic disorders that share the phenotype of hyperglycemia. It is one of the major fast growing non-communicable diseases (NCD) and causes threats to global public health. The overwhelming burden of the disease threatens to stunt economic growth and undermine the benefits of improved standards of living and education. Proper education and awareness program developed according to the need of the society can improve the knowledge of general population and change their attitude. [3]Obtaining information about the level of awareness is the first step in formulating a preventive program for the disease. There is need to investigate KAP among general population to aid in future development of program and techniques for effective health education. KAP surveys are effective in providing baseline for evaluating intervention program. This study aims to assess the baseline levels of knowledge, attitude and practices of general population towards diabetes. [4]*
Methods: *This is cross-sectional study and was carried out to define level of knowledge, attitude and practices regarding Type 2 diabetes mellitus among patients attending OPD at the Jan Nayak Karpoori Thakur Medical College & Hospital, Madhepura . 280 type 2 diabetes patients attending OPD ,upon screening, knowledge, attitude and practices was collected through questionnaire administered individually. Data was entered and analyzed on excel sheet and Medcalc 19.7 .*
Results: *A total of 280 study participants were enrolled for the study. Among them, 162 of diabetes patients were male and 118 were female. 70.7% patients answered that diabetes leads to increase in Urination Frequency, 65.7% have the opinion that Appetite increases. 78.9% said that thirst increases in it.*
Conclusions: *The findings of the study revealed that most of the patients had average to low knowledge, fairly moderate to unsatisfactory attitude and unsatisfactory practices toward diabetes that emphasizes the need for increasing diabetes awareness activities.*
Keywords:*Knowledge,attitude,diabetes,practice.*

I.   Introduction

Diabetes mellitus (DM) refers to a group of common metabolic disorders that share the phenotype of hyperglycemia. Several distinct types of DM are caused by a complex interaction of genetics and environmental factors. Depending on the etiology of the DM, factors contributing to hyperglycemia include reduced insulin secretion, decreased glucose utilization, and increased glucose production. The metabolic deregulation associated with DM causes secondary path physiologic changes in multiple organ systems that impose a tremendous burden on the individual with diabetes and on the health care system. In the United States, DM is the leading cause of end-stage renal disease (ESRD), non-traumatic lower extremity amputations, and adult blindness. It also predisposes to cardiovascular diseases. [1] It is an epidemic of 21st century. The number of patients with diabetes had risen from 108 million in 1980 to 422 million in 2014. According to an official WHO estimate, it has been estimated that the total global population of Diabetes in the year 2000 was 171 million and this is expected to increase by over 100% and by the year 2030, it is estimated to be 366 million. India contributed in a large way to these estimates where in the year 2015 it was estimated by IDF (International Diabetes Federation, Atlas 2015) that India stood at 78.3 million patients and this too is expected to rise by over 100%.[2] The overwhelming burden of the disease threatens to stunt economic growth and undermine the benefits of improved standards of living and education. Proper education and awareness program developed according to the need of the society can improve the knowledge of general population and change their attitude.[3] Obtaining information about the level of awareness is the first step in formulating a preventive program for the disease.

There is need to investigate KAP among general population to aid in future development of program and techniques for effective health education. KAP surveys are effective in providing baseline for evaluating intervention programmes. This study aims to assess the baseline levels of knowledge, attitude and practices of general population towards diabetes. [4]

II.   Materials And Methods

This is cross-sectional study and was carried out to define level of knowledge, attitude and practices regarding Type 2 diabetes mellitus among patients attending OPD at the Jan Nayak Karpoori Thakur Medical College & Hospital, Madhepura . 280 type 2 diabetes patients attending during the study period of October 2020 to February 2020. Upon screening, patients were given an information sheet which explained the purpose of the study, participation was voluntary and they were able to refuse participation in or withdraw from the study. Only the patients who met the inclusion criteria and signed consent form were recruited to participate in this study. Data regarding patient's characteristics, knowledge, attitude and practices was collected through questionnaire administered individually. A suitably designed and validated KAP questionnaire was administered at baseline. [5] The reliability of the questionnaire was considered satisfactory after discussion with experts. The questionnaire was pretested and verified for errors. [6] The questionnaire contained queries about patient's general characteristics e.g., age, sex, their knowledge of diabetes and their self-care practices such as dietary habits, exercise pattern etc. Questionnaire consisted of 14 questions on general knowledge of diabetes, 7 questions on the **Level of Knowledge,** 4 questions for attitude and 6 questions for the practices regarding diabetes self-care and management. [7]

Data Entry and analysis: Data was entered and analyzed on excel sheet and Medcalc *19.7* .

III.   Results

Total 280 type 2 diabetes patients were studied. Among them 162 of diabetes patients were male and 118 were female. The mean age $\pm$ SD of the study population was 53.05$\pm$ 9.89 years with mean duration $\pm$ SD of diabetes 4.55 $\pm$ 1.4 years. More than a half of the patients (65%) reported family history of diabetes.

Knowledge of diabetes	Response	Percentage
Urination Frequency increases	198	70.7%
Appetite increases	184	65.7%
Thirst increases	221	78.9%
Feeling weakness	178	63.6%
Heart disease with time	120	42.9%
Kidney disease with time	116	41.4%
Foot problems like ulcers, wound etc.	106	37.9%
Numbness, burning sensation of foot	167	59.6%
Healthy diet helps to control	270	96.4%
Regular exercise helps to control	266	95%
Weight reduction helps to control among obese	76	27.1%
Oral Hypoglycemic Agent (OHA)/Tablet Control Diabetes	236	84.2%
Insulin control Diabetes	60	21.4%
Ayurvedic agent/Herbes ARE better than Allopathic OHA	54	19.2%

(**Table 1: Response to knowledge of diabetes**)

Table 1shows the details of the knowledge regarding diabetes .70.7% patients answered that diabetes leads to increase in Urination Frequency, 65.7% have the opinion that Appetite increases. 78.9% said that thirst increases in it. Maximum response i.e. 96.4% were in favor that diet helps to control diabetes.19.2% patients had responded that Ayurvedic agent/Herbs were better than Allopathic Oral Hypoglycemic agent. Level of knowledge (fig:1) shows that patients (25%) have good knowledge of diet management. Level of knowledge regarding complications of diabetes was poorest i.e. among 63.6% patients.
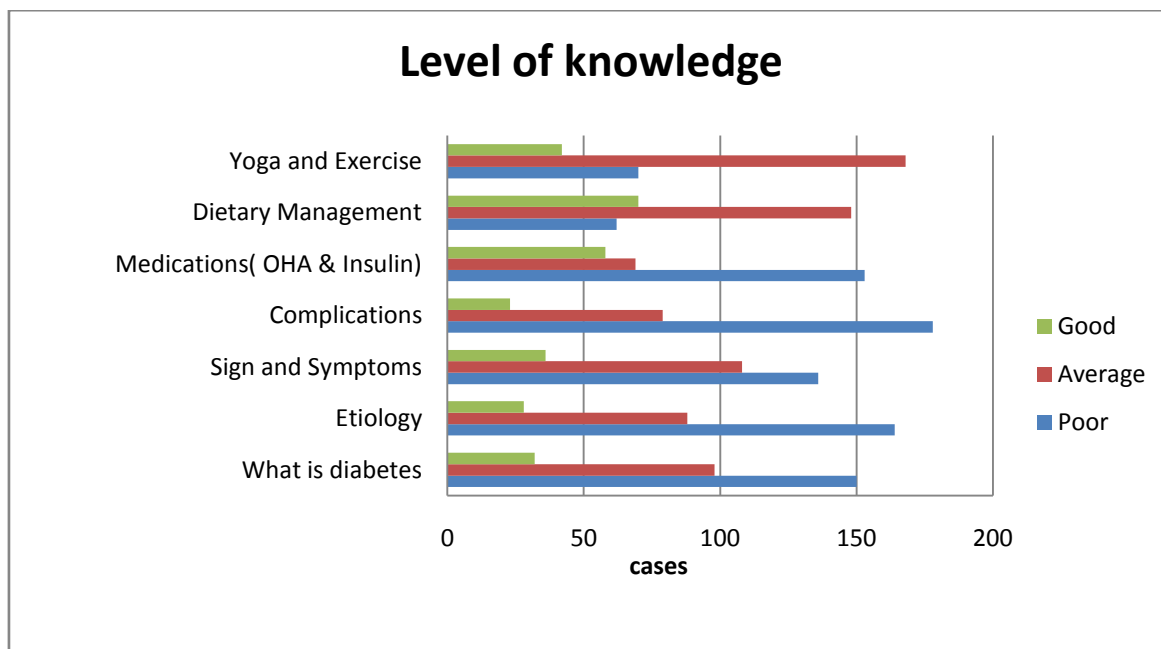
Fig;1 Level of knowledge

Response to attitude questions has been shown in Table-2. Regarding attitude of exercise, there were least response i.e.18.6%. And maximum 64.2% were aware of blood sugar levels falling below normal when they take drug.

Response to attitude questions.	answering correctly	Percentage
Do you exercise regularly…………..?	**52**	**18.6%**
Are you following a controlled and planned diet……?	**86**	**30.7%**
Do you miss taking the doses of your diabetic medication……?	**76**	**27.1%**
Are you aware of blood sugar levels falling below normal when you are taking drugs…….?	**180**	**64.2%**

Table 2. Response to attitude questions.

As far as the matter of practice is concerned maximum patients i.e. 28.6% had blood sugar level checked last six month ago and only 4% had recently checked it one week ago. Last urine examination was done also among maximum of 34.2% six month ago. Blood pressure measurement frequency were maximum of 36.4% patients were of two month ago category and least 7.1% among one year ago category. When did you have your last lipid profile checked ,in this category of practice 15.3% had checked it two months ago and only 1.4% checked it one week ago.ECG practice were maxim of 20.7% among one year ago category. 15.3% patients had their last lipid profile checked two months ago. (Table -3)

practice questions		Response	Percentage
When was your blood sugar level checked last?	One week ago	11	4%
	One month ago	54	19.2%
	Two months ago	71	25.3%
	Six months ago	80	28.6%
	One year ago	56	20%
When was your last urine examination done?	One week ago	12	4.3%
	One month ago	33	11.8%
	Two months ago	39	14%
	Six months ago	96	34.2%
	One year ago	50	17.8%
When was your blood pressure checked last?	One week ago	22	7.8%
	One month ago	86	30.7%
	Two months ago	102	36.4%
	Six months ago	43	15.3%
	One year ago	20	7.1%
When did you have your last lipid profile	One week ago	4	1.4%

checked?	One month ago	31	11.0%
	Two months ago	43	15.3%
	Six months ago	42	15%
	One year ago	35	12.5%
When was your last ECG done?	One week ago	2	0.7%
	One month ago	9	3.2%
	Two months ago	32	11.4%
	Six months ago	54	19.2%
	One year ago	58	20.7%
When was your eye examination last done?	One week ago	2	0.7%
	One month ago	17	6%
	Two months ago	21	7.5%
	Six months ago	30	10.7%
	One year ago	38	13.5%

Table - 3: Response to practice questions.

IV. Discussion

Most studies regarding epidemiology and prevalence of diabetes were conducted from south India [8-11] and very few studies from north India.[12] There is no study regarding KAP is available for Madhepura region and hence, this study is in attempt to gather the data regarding the same. We found that knowledge, attitude and practices (KAP) among Type 2 diabetes mellitus are lacking. There are good knowledge regarding dietary modification, use of oral hypoglycemic agents and exercise/yoga to control diabetes. Attitude of awareness of blood sugar levels falling below normal when they are taking drugs are also good. As far as the matter of practice is consigned in many parameters it is lacking but blood sugar estimation and urine examination practice is good.

Limitations of this study were that it was conducted only among the outpatients and hence may not be generalized to the overall diabetic population. Moreover, the study enrolled the patients only from one hospital in one region and hence cannot be generalized to the diabetic population of Bihar . 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.

V. Conclusion

The findings of the study revealed that most of the patients had average to low knowledge, fairly moderate to unsatisfactory attitude and unsatisfactory practices toward diabetes that emphasizes the need for increasing diabetes awareness activities. As level of education was significantly associated with the poor knowledge, poor attitude and practice, so need for better Information educational and communication activities centered on diabetes is the need of the hour and would be better to formulate through modular training of root level workers like ASHA and Anganwadi worker(AWW). Moreover health care providers should be trained to provide effective counseling to diabetic patients.

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