

Evaluation of Prevalence and Epidemiological Profile of Type II Diabetes Mellitus: A Cross-Sectional Study at a Tertiary Care Centre

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ABSTRACT

Background: Diabetes mellitus (DM) is a metabolic disorder of chronic hyperglycemia characterized by disturbances to carbohydrate, protein, and fat metabolism resulting from absolute or relative insulin deficiency with dysfunction in organ systems. Hence; under the light of above mentioned data, present study was conducted to assess the prevalence and epidemiological profile of DM.

Materials & Methods: A total of 500 subjects were analyzed. Complete demographic profile of all the patients was analyzed. Complete biochemical and hematological profile of all the patients was also obtained. Random blood sugar levels of all the patients were analyzed. All the results were recorded in Microsoft excel sheet and were assessed by SPSS software.

Results: 110 subjects were found to be diabetic. Prevalence of diabetic among the present population was found to be 22 percent. Among these 110 diabetic subjects, 60 were males. 75 subjects were more than 40 years of age while the remaining 35 subjects were less than 40 years of age. 72 diabetic subjects were having rural residence while the

remaining 38 diabetic subjects were having urban residence.

Conclusion: A significant proportion of population in the present study is affected with diabetes there by requiring imperative attention.

Key words: Diabetes, Epidemiology, Prevalence.

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Article History:

Received: 21-07-2018, Revised: 18-08-2018, Accepted: 29-09-2018

Access this article online	
Website: www.ijmrp.com	Quick Response code
DOI: 10.21276/ijmrp.2018.4.5.077	

INTRODUCTION

In India, on an average, there are 69.1 million people with Diabetes Mellitus (DM) and is estimated to have the second highest number of cases of DM in the world after China in 2015. The prevalence of DM in India ranges from 5–17%, with higher levels found in the southern part of the country and in urban areas.¹⁻³ Diabetes mellitus (DM) is a metabolic disorder of chronic hyperglycemia characterized by disturbances to carbohydrate, protein, and fat metabolism resulting from absolute or relative insulin deficiency with dysfunction in organ systems.⁴⁻⁶

The Indian Council of Medical Research-India Diabetes (ICMR-INDIAB) Study, which was carried out in three states (Tamil Nadu, Maharashtra, and Jharkhand) and one union territory (Chandigarh), reported a varied prevalence of diabetes: 10.4% in Tamil Nadu, 8.4% in Maharashtra, 5.3% in Jharkhand, and 13.6% in Chandigarh.⁷⁻⁹ Hence; under the light of above mentioned data, present study was conducted to assess the prevalence and epidemiological profile of DM.

MATERIALS & METHODS

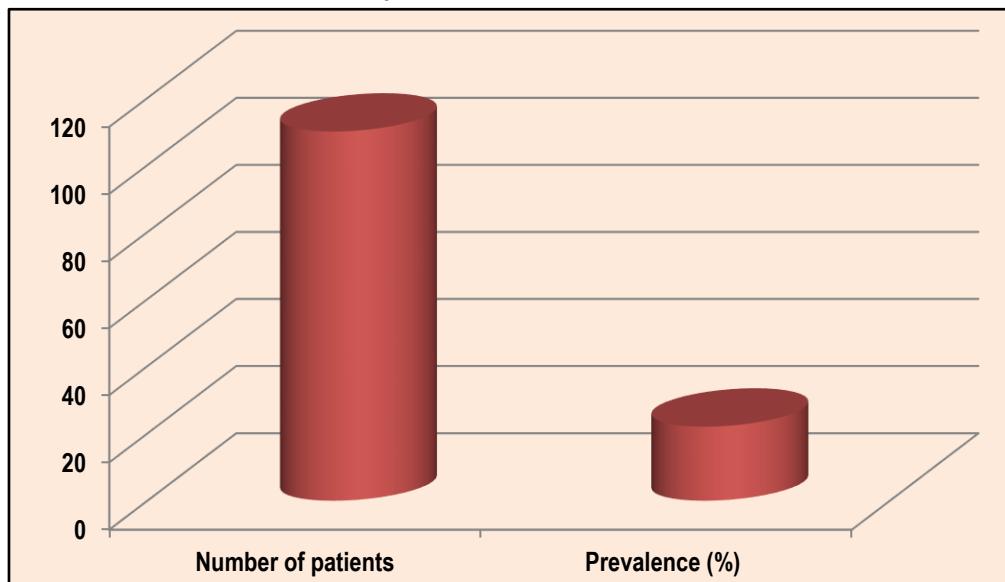
The present study was conducted in the Department of Community Medicine, Rajshree Medical Research Institute & Hospital, Bareilly, Uttar Pradesh (India) and it included assessment of epidemiological profile of DM.

In the present survey, a total of 500 subjects were analyzed. Complete demographic profile of all the patients was analyzed. Complete biochemical and hematological profile of all the patients was also obtained.

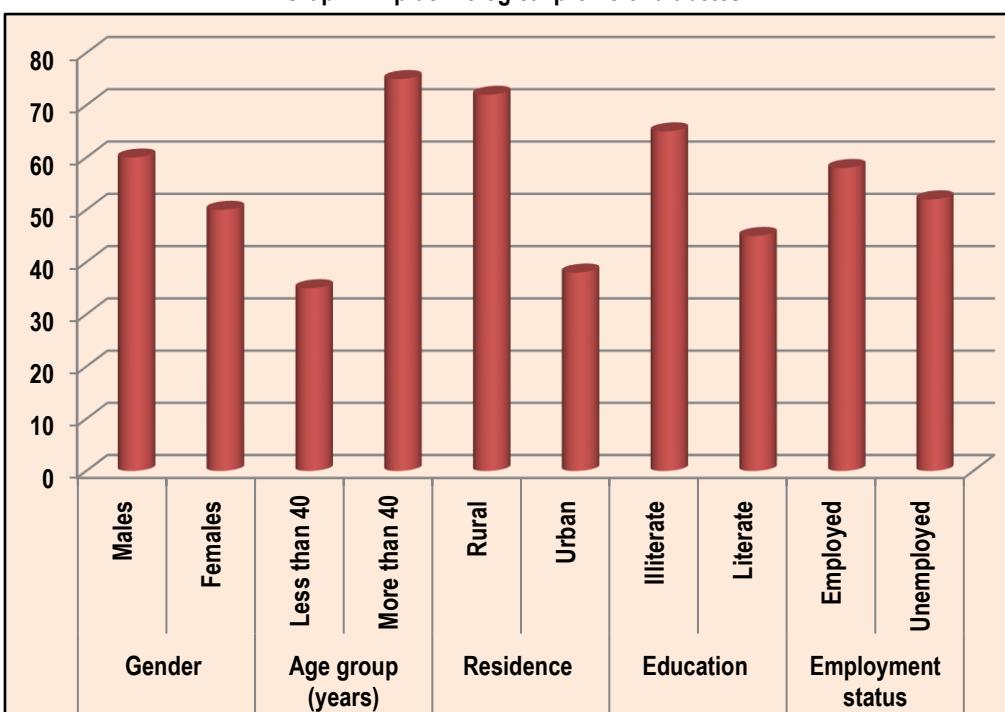
Random blood sugar levels of all the patients were analyzed. Patients were categorized as diabetic based on the criteria described previously in the literature.

Ethical approval was obtained from the institutional ethical committee for the present study.

All the results were recorded in Microsoft excel sheet and were assessed by SPSS software. Chi-square test was used for assessment of level of significance.

Graph 1: Prevalence of diabetes**Table 1: Epidemiological profile of diabetes**

Parameter	Number of patients	P- value
Gender		
Males	60	0.52
Females	50	
Age group (years)		
Less than 40	35	0.02*
More than 40	75	
Residence		
Rural	72	0.00*
Urban	38	
Education		
Illiterate	65	0.01*
Literate	45	
Employment status		
Employed	58	0.82
Unemployed	52	

Graph 2: Epidemiological profile of diabetes

RESULTS

In the present study, a total of 500 subjects were analyzed. 110 subjects were found to be diabetic. Prevalence of diabetic among the present population was found to be 22 percent. Among these 110 diabetic subjects, 60 were males, while the remaining 50 were females. 75 subjects were more than 40 years of age while the remaining 35 subjects were less than 40 years of age. 72 diabetic subjects were having rural residence while the remaining 38 diabetic subjects were having urban residence. 65 diabetic subjects in the present study were illiterate while the remaining was literate. 58 diabetic subjects were employed in the present study while the remaining was unemployed.

DISCUSSION

The prevalence of diabetes has increased worldwide, especially in the Asia Pacific region and China. The aetiology of diabetes in India is multifactorial and includes genetic factors coupled with environmental influences such as obesity associated with rising living standards, steady urban migration, and lifestyle changes. Yet despite the incidence of diabetes within India, there are no nationwide and few multi-centric studies conducted on the prevalence of diabetes and its complications.⁸⁻¹⁰ In the present study, a total of 500 subjects were analyzed. 110 subjects were found to be diabetic. Prevalence of diabetic among the present population was found to be 22 percent. The greatest relative rise is predicted in the developing countries of the Middle Eastern Crescent, Subsaharan Africa and the Indian subcontinent. By the year 2030, over 85 percent of the world's diabetic patients will be in developing countries. In India alone, the prevalence of diabetes is expected to increase from 31.7 million in 2000 to 79.4 million in 2030.^{11,12} In the present study, among these 110 diabetic subjects, 60 were males, while the remaining 50 were females. 75 subjects were more than 40 years of age while the remaining 35 subjects were less than 40 years of age. Gender distribution from community studies in India show conflicting results. While some studies from north India show female predisposition, others from southern India have reported higher prevalence in males. Still others have found no gender difference in prevalence. In a north Indian registry, twice as many as under-30 male diabetics are reported as compared to female diabetics. The conversion to diabetes is enhanced by the low thresholds for the risk factors, such as age, body mass index and upper body adiposity. Indians have a genetic phenotype characterized by low body mass index, but with high upper body adiposity, high body fat percentage and high level of insulin resistance. With a high genetic predisposition and the high susceptibility to the environmental insults, the Indian population faces a high risk for diabetes and its associated complications.^{13,14} In the present study, 72 diabetic subjects were having rural residence while the remaining 38 diabetic subjects were having urban residence. 65 diabetic subjects in the present study were illiterate while the remaining was literate. 58 diabetic subjects were employed in the present study while the remaining was unemployed. Bharati DR et al determined the prevalence and the risk factors of type 2 diabetes mellitus among the adult population of Puducherry, South India. This was a population-based cross-sectional study carried out during 1st May 2007–30th November 2007 in the rural and urban field practice area of Mahatma Gandhi Medical College and Research Institute, Puducherry. Simple random sampling technique was used for the

selection of 1370 adult 20 years of age and above. Overall, 8.47% study subjects were diagnosed as diabetic. The univariate analysis and multivariate logistic regression analysis showed that the important correlates of diabetes mellitus were age, blood cholesterol, and family history of diabetes. The findings were found to be statistically significant. In their study, they observed that adults having increased age, hypercholesterolemia, and family history of diabetes mellitus are more likely to develop diabetes mellitus.¹⁴ Tripathy JP assessed the prevalence of diabetes and pre-diabetes in the North Indian state of Punjab as part of a large household NCD Risk Factor Survey. A household NCD STEPS survey was done in the state of Punjab, India in a multistage stratified sample of 5127 individuals. All the subjects were administered the WHO STEPS questionnaire, anthropometric and blood pressure measurements. Every alternate respondent in the sample ($n = 2499$) was assayed for blood parameters. Overall prevalence of DM among the study participants was found out to be 8.3% (95% CI 7.3–9.4%) whereas prevalence of prediabetes was 6.3% (5.4–7.3%). Age group (45–69 years), marital status, hypertension, obesity and family history of DM were found to be the risk factors significantly associated with DM. Out of all persons with DM, only 18% were known case of DM or on treatment, among whom only about one-third had controlled blood glucose status. The study reported high prevalence of diabetes, especially of undiagnosed cases amongst the adult population, most of whom have uncontrolled blood sugar levels.¹⁵

CONCLUSION

Under the light of above obtained results, it can be concluded that a significant proportion of population in the present study is affected with diabetes thereby requiring imperative attention. However; further studies are recommended.

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Source of Support: Nil. **Conflict of Interest:** None Declared.

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Cite this article as: Atul Bisht. Evaluation of Prevalence and Epidemiological Profile of Type II Diabetes Mellitus: A Cross-Sectional Study at a Tertiary Care Centre. Int J Med Res Prof. 2018 Sept; 4(5):332-35. DOI:10.21276/ijmrp.2018.4.5.077