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Research Article

A STUDY ON THE PREVALENCE OF TYPE 2 DIABETES IN OPD OF NATIONAL INSTITUTE OF UNANI MEDICINE BENGALURU, INDIA

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ABSTRACT

Introduction: India is a developing country with a population of about 1.3 billion. Non communicable diseases like hypertension, diabetes, cardiovascular disease contribute for around 60% of all fatalities in India. They are more common in urban areas as compared to rural areas. Diabetes is emerging as a global burden. Its global prevalence nearly doubled in only 30 years, showing a continuing upward trend.

Methodology: The research approach selected for the study was quantitative approach. The research design was an institution based, single centered, observational descriptive study, cross sectional in design and was carried out for a duration of 28 days (4 weeks) from 01.06.2024 to 29.06.2024. The study was conducted in the Outpatient Department (OPD) of Regimenal therapies, National Institute of Unani Medicine (NIUM) Bengaluru. All people above 21 years of age attending to OPD constituted study population. In present study, 524 subjects were included in the study. The WHO guidelines were used to diagnose diabetes. Data analysis was done using SPSS version 24.

Results: The study revealed that prevalence of T2DM was 19.07% in the population. In the present study, 53% of diagnosed T2DM patients were females and rest 47% were males. Majority of diagnosed diabetic patients (37%) belonged to the age group of above 60 years followed by 36% in the age group of 51-60.

Conclusion: Prevalence of T2DM is significantly increasing at a greater pace globally as well as in India. Diabetes prevention and management pose a significant challenge in India due to a number of issues and barriers, including a lack of a multisectoral approach, surveillance data, awareness of diabetes, its risk factors, and complications, access to health care settings, access to affordable medicines, and so on. Thus, effective health promotion and primary prevention at both the individual and public levels are critical to combating the diabetes epidemic and reducing diabetes-related comorbidities in India.

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INTRODUCTION

Non communicable disease refers to a group of conditions that causes long-term health consequences and often create a need for long-term treatment and care. They contribute to around 38 million (68%) of all the deaths globally and to about 5.87 million (60%) of all deaths in India.[1] These conditions include cancers, cardiovascular disease, diabetes and chronic lung illnesses. Diabetes is a complex and persistent metabolic disorder which is manifested by elevated blood glucose levels due to body's inability to produce insulin, a hormone that regulates blood sugar levels and allows glucose to enter cells for energy. It is considered as a global public health issue, mostly fueled by population growth, rising living standards, dietary changes, altered lifestyles, and aging. According to the World Health Organization (WHO), about half a billion individuals are living with the disorder globally. Diabetes has been increasing worldwide and is now 5th among the 10 leading causes of death globally.[2] Its global prevalence nearly doubled in only 30 years, showing a continuing upward trend.3 The anticipated global prevalence of diabetes in adults aged 20 to 79 was 10.5 percent (536.6 million) in 2021 and was expected to increase to 12.2 percent (783.2 million) in 2045. It appears to be rising more quickly in low- and middle-income nations and a 21.1% growth is anticipated by 2045.4 The prevalence of diabetes was similar in both sexes and was greater in those between the ages of 75 and 79 years. Surveys indicate that in 2021, the frequency was higher in high-income nations (11.1%) than that of low-income countries (5.5%), and the prevalence in urban regions (12.1%) was higher than that in

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rural regions (8.3%). In India, the 2019 estimates depicted that 77 million individuals had diabetes, which is expected to rise to over 134 million by 2045.5 According to the International Diabetes Federation (IDF), 8.8% of the adult population have diabetes, with men having slightly higher rates (9.6%) than women (9.0%).6 In India, the current prevalence of type 2 diabetes is 2.4% in the rural population and 11.6% in the urban population of India. It has been estimated that by the year 2025, India will have the largest number of diabetic subjects in the world.[7] There are two primary forms of diabetes, namely diabetes type 1 and diabetes type 2. Type 1 diabetes is autoimmune where, insulin producing beta cells of the pancreas are destroyed causing absolute deficiency of insulin, which ultimately results in hyperglycaemia. Almost 75% of type 1 cases are diagnosed in people under age of 18 years. Type 2 diabetes is the most prevalent form, which is associated with insulin resistance and impaired insulin secretion, due to which the beta cells of pancreas can no longer allow glucose to enter in the cell to produce energy. Studies have shown that the risks of developing type 2 diabetes are higher in people who have a family history, are inactive, and are overweight or obese.[8] Another form which is typically seen is pregnancy due to hormonal changes and increased insulin resistance is the gestational diabetes, which usually resolves after childbirth. The current study's objective is to calculate the prevalence of diabetes mellitus patients on OPD services.

MATERIALS AND METHODS

The present study was a single-center institution based observational descriptive study, cross-sectional in design conducted on patients with T2DM in the OPD of Regimenal therapies, National Institute of Unani Medicine Bengaluru for a period of one month from 1 June 2024 to 30 June 2024. During the present study, a total of 550 patients were reviewed in OPD, 524 patients were enrolled in the study according to the present study inclusion criteria and 26 patients did not met the inclusion criteria. Patients were diagnosed as per American Diabetic Association (ADA) guidelines (FBS ≥ 126mg/dl, PPBS ≥ 200mg/dl, HbA1c ≥ 6.5%).

Inclusion criteria

All patients of ≥ 21 years of age attending the OPD. All sexes

Exclusion criteria

Age < 21 years
Gestational diabetes
Type 1 DM
Steroid induced diabetes

Given that every new patient seeking consultation in the outpatient department was assigned at random by a computerized patient management system to all of the attending physicians for the day, we expected our subjects to be representative of the overall patient population presenting to the hospital. The survey containing items to assess sociodemographic profile like age, sex, identification data, education were collected by semi structured questionnaire. Analysis and measurement of blood glucose was done by using a standard and calibrated glucometer. Pre diagnosed cases, who were already on medication were also included in the study after taking proper history. Diabetic subjects were defined as per ADA guidelines as (FBS ≥ 126mg/dl, PPBS ≥ 200mg/dl, HbA1c ≥ 6.5%).[6] Patients were provided detailed explaination of the protocol and study goals. The prior ethical clearance for the study was obtained from the institutional ethics committee. Data analysis was done using SPSS version 24. The results were explained in simple proportions.

Figure A: showing study design.

RESULT

An observational, single centered, descriptive cross-sectional study was conducted among 550 patients attending the general OPD of regimenal therapies, National Institute of Unani medicine, Bengaluru from 01 June 2024 to 29 June 2024. Of the 550 patients that attended the OPD, only 524 patients met the inclusion criteria and constituted the study population. The remaining 26 patients were excluded. Type 2 DM was diagnosed in 100(19.07%) patients based on ADA guidelines, (FBS ≥ 126mg/dl, PPBS ≥ 200mg/dl, HbA1c ≥ 6.5%) as shown in Table 1. The following findings were observed: Figure B demonstrated that out of 524 patients who visited the hospital, 100(19.07%) patients had Type 2 DM or were those, taking anti-diabetic medications. Table 1 revealed socio demographic profile of the study population. Most of the participants diagnosed as diabetics belonged to >60 years of age 37(37.0%) followed by 51-60 years, 36 (36.0%), 41-50, 19 (19%) and 31-40, 8 (8%). The prevalence of Type 2 DM was found to be higher in women (53/100,53%) than men (47/100,47%) as shown in Figure C. As far as educational status is concerned, 32% patients having diabetes were illiterate; 23% had primary level of education; 20% had secondary level; 18% had senior secondary level and only 7% had an educational qualification of graduation and above. Regarding medical comorbidities, about 28% of diabetic patients had hypertension, 15% had thyroid disease, 6% had some diagnosed cardiac disease ,3% had some renal disease, 2% had some diagnosed liver disease and 46% had some other diseases as shown in Figure D. This study revealed an association of diabetes with hypertension, cardiac disease, renal disease, thyroid disease and other diseases including chronic pain, migraine, gastritis etc.(p value<0.05) as shown in Figure D below.

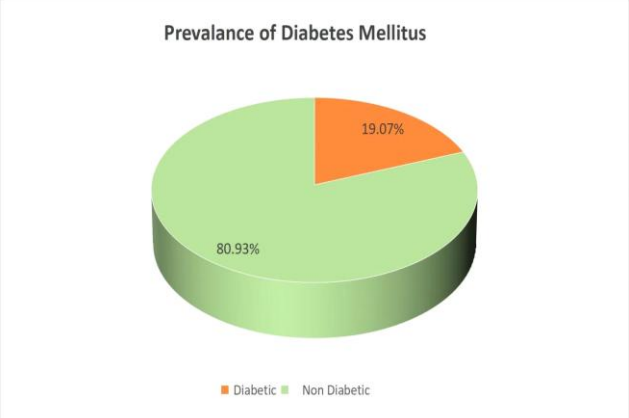

Figure B Pie diagram showing Prevalence of T2DM

TABLE 1: Distribution of the study population according to socio demographic variables (N=584), (n=100).

2	SEX	
Male	47	47%
Female	53	53%

TOTAL	**100**			**19.07%**
EDUCATIONAL				
3 STATUS				
Illiterate	32	32%		
Primary	23	23%		
Secondary	20	20%		
Senior secondary	18	18%		
Graduate	7	7%		
TOTAL	**100**			**19.07%**
MEDICAL CO				
4 MORBIDITIES				
Hypertension	28	28%		
Thyroid disease	15	15%		
Heart disease	6	6%		
Kidney Disease	3	3%		
Liver disease	2	2%		
Others (Arthritis,gout,				
chronic pain,migraine,				
gastritis etc.)	46	46%		**19.07%**
TOTAL	**100**		**524**	

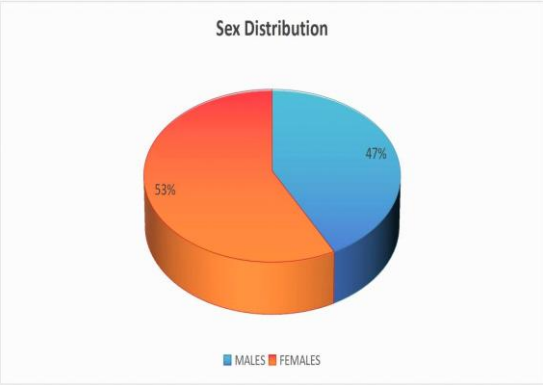

Figure C Pie diagram showing sex distribution of diagnosed T2DM patients of sample population.(n=100)

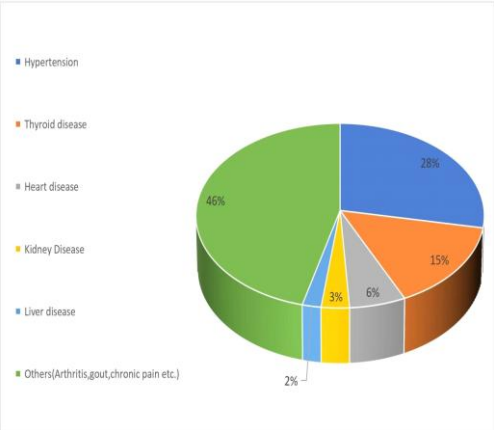

Figure D Pie diagram showing relative proportion of medical comorbidities in diagnosed hypertensive patients of sample population. (n=100)

DISCUSSION

Globally, the prevalence of non-communicable diseases is rising quickly. In comparison to communicable disease, non-communicable diseases have a greater impact on the population's health profile. Diabetes poses a significant economic burden on healthcare systems worldwide. It has been noted as a major factor in morbidity and mortality. In 2014, 8.5% of adults aged 18 years and older had diabetes. In 2019, diabetes was the direct cause of 1.5 million deaths and 48% of all deaths due to diabetes occurred before the age of 70 years. Another 4,60,000 kidney disease deaths were caused by diabetes, and raised blood glucose causes around 20% of cardiovascular deaths. The burden of diabetes is not equally distributed globally. Over 79% of adults with diabetes are from low- and middle-income nations, but now due to obesity and sedentary lifestyles, diabetes is becoming more prevalent in high- income nations also.[9]The current study findings confirmed that diabetes is common in adult Indian general population. The present study depicted that there is a persistent burden of diabetic patients with significant prevalence among hospitals. The overall prevalence of diabetic patients was found to be 19.07%, which can be compared with some previous studies conducted in India and abroad. Our study was planned as a feasibility study, the first of its kind in our institute, to determine community-based prevalence of the rising problem of type 2 diabetes. Our study findings were in contrast to the findings reported by other Indian studies, with respect to the high prevalence of type 2 diabetes mellitus.[10-13] In the present study, the criteria employed for screening (fasting plasma glucose) FPG >126 mg/dl, equivalent to the capillary value of 110 mg/dl, differed from the earlier reported data, which had employed FPG >140 mg/dl. Secondly> 30-year-old individuals were assessed in our study, while the others had mostly included > 20-year-old subjects, thereby, the overall prevalence reported for diabetes would be less, as the prevalence of diabetes in the 20–30 year age group is low. Our study findings were coherent with the study conducted by Rao, et al. A cross-sectional study on Type 2 diabetes in coastal Karnataka. The prevalence of diabetes was found to be 16%, which supports the present study[14]. Also data from the population-based representative Center for Cardio-metabolic Risk Reduction in South Asia (CARRS) Study reports that 6 out of 10 adults in South Asian cities have either diabetes or prediabetes. In Chennai, 22.8%, and in Delhi, 25.2% of the population was estimated to have diabetes which is adjacent to our findings.[15] The CURES study, conducted in urban South India has reported a prevalence of 15.5%, which is comparable to our study findings.[16] Male preponderance and age-wise increase in prevalence noted in our study have been reported previously on numerous studies[14,17]. Like other studies our study also had some limitations. These are: Institution based cross sectional study; Data from only one OPD was taken. Also, the prevalence of diabetes mellitus was high in this study that can be attributed to the fact that study population were patients who reached out to OPD for management of their morbidities while in other previous majority of studies, study population was community based.

CONCLUSION

Diabetes has become a leading threat to public health globally and the picture becomes grimmer for the low and middle-income countries like India, where the burden has risen significantly in recent decades and will continue to rise in the coming decades. This could have a great influence on morbidity and mortality associated with diabetes and, thus, on the overall healthcare expenditure in India. The present study provided some idea about prevalence of diabetes among patients of Bengaluru India. In this study the overall prevalence of diabetes among patients who reached out to OPD of NIUM Bengaluru for the management of their morbidities was higher (19.07%) than reported in general Indian population. . This study also showed positive association between diabetes and some medical comorbidities like hypertension, thyroid disease, heart disease, kidney disease and other diseases like migraine, chronic pain and gastritis .The prevention and management of diabetes and associated complications is a huge challenge in India due to several issues and barriers, including lack of multisectoral approach, surveillance data, awareness regarding diabetes, its risk factors and complications, access to health care settings, access to affordable medicines, etc. Thus, effective health promotion and primary prevention, at both, individual and population levels are the need of the hour to curb the diabetes epidemic and reduce diabetes- related complications in India.

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Declaration of Competing Interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and publication of this article.

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