ejpmr, 2023,10(9), 505-508

SJIF Impact Factor 6.222

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Research Article

ISSN 2394-3211

EJPMR

ECONOMIC BURDEN OF DIABETES: A HOLISTIC APPROACH TO UNCOVER THE FULL FINANCIAL IMPACT

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Article Received on 11/07/2023 **Article Revised on 01/08/2023** **Article Accepted on 22/08/2023**

ABSTRACT

Background: Diabetes mellitus (DM) on public health worldwide, particularly in South Asia where its prevalence is rising. As diabetes progresses, it commonly gives rise to microvascular as well as macrovascular problems. The protracted nature of diabetes and its related complications contribute to the perception of DM as an expensive condition. **Objective:** To understand the full extent of the disease's financial impact research endeavours to identify and measure all costs associated with diabetes. **Result:** Our study reveals a higher incidence of T2DM among individuals aged 50 to 59, especially in male patients. The economic burden of diabetes management is substantial, as evidenced by the average monthly health expenditure ranging from Rs. 1201 to Rs. 1500 for individuals with T2DM. This includes expenses related to medication, physician consultations, laboratory tests, and other costs. **Conclusion:** Valuable insights into the economic implications of diabetes can guide healthcare professionals in developing targeted interventions and support programs to enhance diabetes management and improve the overall well-being of affected individuals.

KEYWORDS: Type 2 diabetes mellitus, Expenses, Treatment, Managing.

INTRODUCTION

Diabetes mellitus (DM) is a chronic condition with the potential to be life-threatening, posing a significant and increasing risk to public health worldwide. South Asia has seen a considerable rise in the prevalence of diabetes, especially among individuals living in poverty or below the poverty line. Limited access to healthcare, government assistance, and health insurance for the less privileged often leads to delayed diagnoses of diabetes, resulting in both immediate and long-term consequences.[1] Projections indicate a substantial increase in the number of adults with type 2 diabetes mellitus (T2DM) from 463.0 million to 700.2 million between 2019 and 2045.[2] The adverse health effects of diabetes encompass a broad range of microvascular and macrovascular consequences, making it one of the leading causes of morbidity and mortality.[3] As diabetes progresses, it commonly gives rise to microvascular issues such as retinopathy, nephropathy, and neuropathy, as well as macrovascular problems affecting the heart, brain, and peripheral blood vessels.[4]

Among the primary subtypes of diabetes, type 2 diabetes is the most prevalent, accounting for 70-90% of cases.[5] In efforts to quantify the burden of the disease, studies focus on the financial costs and impact on the quality of life.[6] The total cost of diabetes treatment is projected to increase significantly from 760.3 billion USD to 845.0 billion USD over the specified period.[2] Thus, it is essential to comprehend the financial implications of T2DM, necessitating the identification and quantification of costs and consequences.[4] Cost-of-illness analyses encompass both direct and indirect expenses associated with managing diabetes. Direct costs involve expenses related to medication, hospitalization, and the care of complications, while indirect costs pertain to productivity losses due to illness and premature death.[8]

The protracted nature of diabetes and its related complications contribute to the perception of DM as an expensive condition. To understand the full extent of the disease's financial impact research endeavours to identify and measure all costs associated with diabetes, including physical, intangible, and hidden aspects.[9]

In-depth evaluations have revealed that practical lifestyle treatments for preventing T2DM are not only effective but also affordable.[10] Recognizing the overall cost of diabetes is instrumental in shaping national and global health policies.[9]

MATERIALS AND METHODS

This research involved a prospective observational study that took place over a span of two months at a tertiary care hospital. The study focused on a group of 50 patients diagnosed with type 2 diabetes mellitus (T2DM) from the general medicine out-patient department. Data collection was conducted by carefully analysing the patients' outpatient cards and conducting interviews with both the patients and their caretakers. The gathered information was then entered into a specifically designed data entry form. To present the findings, the data were categorized based on frequency and percentages, and the results were visually represented using bar graphs and pie charts.

RESULT

Age-wise distribution

The age group of patients that were included from the study are from 30 years to 90 years. The majority of the patients were from the age group of 50 years to 59 years. The following figure 1., shows the age - wise distribution of patients:

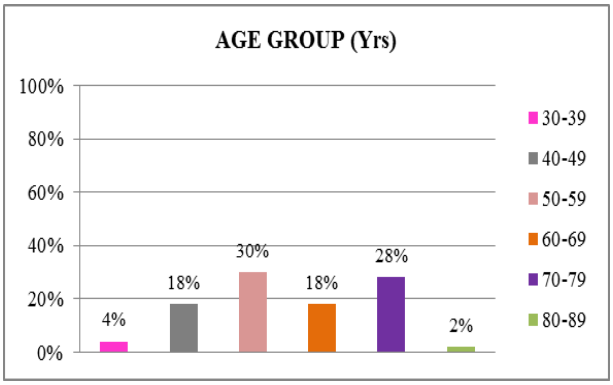

Figure 1: Age-Wise Distribution.

Gender-wise distribution

This study included 50 patients who were diagnosed with T2DM, among which 26 (52%) were male patients and 24 (48%) were female patients. The following figure 2., shows the gender - wise distribution of the patients:

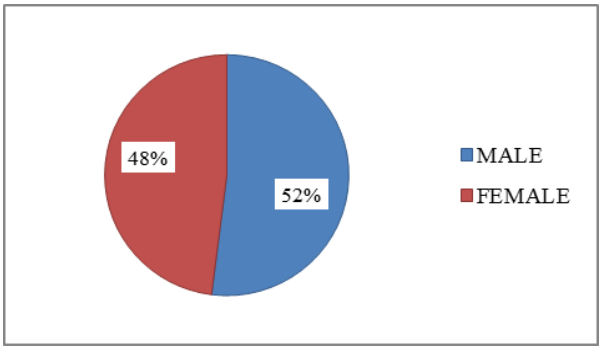

Figure 2: Gender-wise distribution.

Period of diabetes

The patients who were included in the study was a known case of Type 2 diabetes mellitus from newly diagnosed to 40 years. The following figure 3., shows the period of T2DM that the patient is suffering from.

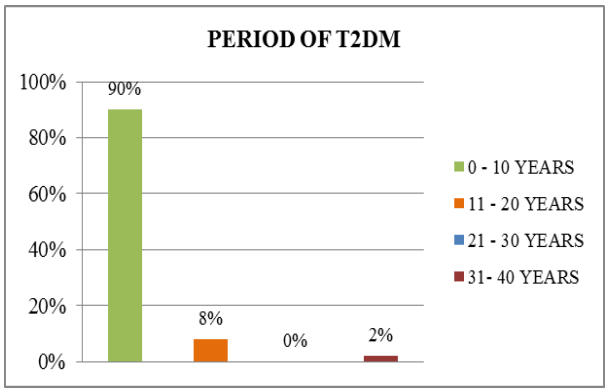

Figure 3: Period of T2DM.

Cost of medication per visit (per month)

The medication cost per visit ranges from Rs.100 to Rs.2000 and the majority of patients spend Rs.900 to Rs.1199 per visit for their medication. The following figure 4., shows the distribution of cost of medication per visit:

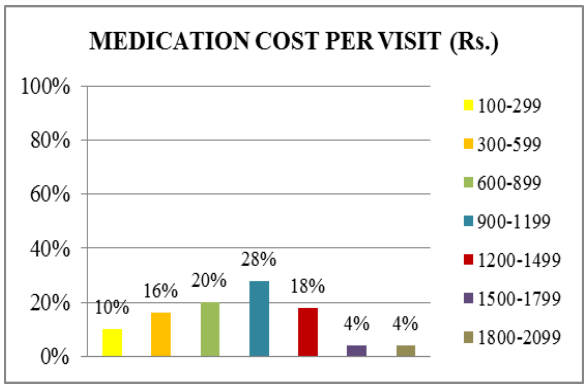

Figure 4: Cost of medication per visit (per month).

Other cost (per visit)

The cost other than medication includes physician cost per visit which is around Rs. 200 and laboratory cost which ranges between Rs. 80 to Rs. 120. The other expense lies between Rs. 280 to Rs. 400 and the majority of the patients spend Rs. 280 per visit. The following figure 5., shows the other cost per visit.

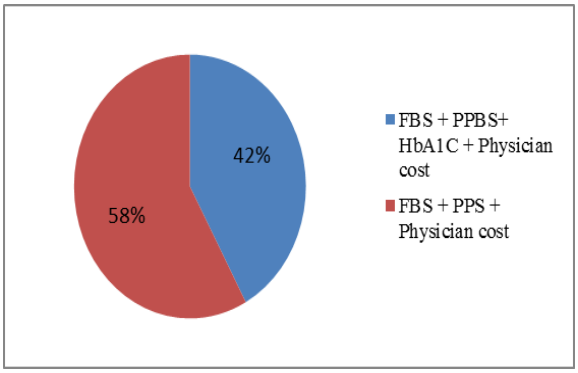

Figure 5: Other cost per visit.

Treatment cost per visit

The overall treatment cost of the patients per visit ie., per month ranges from Rs.200 to Rs.2200 which includes the physician cost per visit (Rs.200), medication cost per month and laboratory cost per visit (Rs.80).

The following figure 6., shows the overall cost of treatment per visit ie., per month:

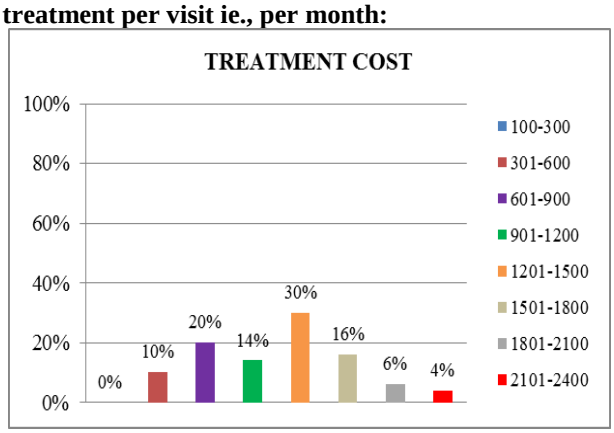

Figure 6: Treatment cost per visit.

DISCUSSION

Our study found that a majority of patients diagnosed with type 2 diabetes mellitus were in the age group of 50 to 59. Research conducted by ***Mehdi Javanbakht et al,*** also supports the notion of a high incidence of type 2 diabetes among individuals aged 50 to 59.[10] Type 2 diabetes is a complex and multifactorial condition, and individual risk factors and lifestyle choices play a significant role in determining an individual's likelihood of developing the disease. Some of the key factors contributing to the risk of type 2 diabetes include aging, leading a sedentary lifestyle, and unhealthy eating habits involving the consumption of processed foods, sugary beverages, and excessive calories. Additionally, obesity, genetics, changes in insulin sensitivity as people age, hormonal changes, and medical history are all factors that can influence the risk of developing type 2 diabetes. This research indicates a greater occurrence of type 2 diabetes mellitus in male patients. The study led by ***Dr. Yee Gary Ang et al.,***and colleagues also found that male patients are more commonly affected by type 2 diabetes mellitus compared to female patients.[2] The study conducted by ***Raghuram Nagarathna et al.,*** represents a comprehensive pan-India research focused on examining the cost-of-illness (COI) for diabetes over a one-year period. The data for this study was collected as part of a larger research project aimed at primary prevention of diabetes, covering 50 districts in 25 states and union territories across India. The researchers sought to understand the economic implications of diabetes by analysing the self-reported expenses related to managing the condition.[11] In our study, the average monthly health expenditure for individuals with type 2 diabetes was found to be Rs.1,357.65. This amount encompassed various costs associated with diabetes management, including expenditures on medications, physician consultations, laboratory tests, and other related expenses. This study calculated that the average monthly expenditure for diabetes patients fell within the range of Rs.1,201 to Rs.1,500.These results shed light on the financial challenges faced by individuals managing diabetes in India. Policymakers and healthcare professionals can use this valuable information to better understand the economic impact of diabetes and develop targeted interventions and support programs for those affected by the condition. The study provides essential insights for improving diabetes management and enhancing the overall well-being of individuals living with diabetes in the country.

This range represents the typical financial burden faced by individuals managing diabetes in India. These findings provide valuable insights into the economic impact of diabetes on individuals and their households. By understanding the average monthly expenditure, healthcare providers can gain a deeper understanding of the financial challenges faced by those living with diabetes. This knowledge can be instrumental in shaping healthcare policies and programs to better support diabetes management and improve the overall well-being of diabetes patients.

CONCLUSION

Creating focused interventions and support initiatives can enhance the management of diabetes and promote the well-being of those impacted. Gaining insight into the economic effects of diabetes aids in refining healthcare policies, ensuring more efficient and accessible care for patients throughout India. These findings lead to a deeper comprehension of diabetes management, its consequences for individuals and households, and foster endeavors to elevate the overall quality of life for those with diabetes.

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