

## A Paradigm Shift in the Cost of Illness of Type 2 Diabetes Mellitus over a Decade in South India: A Prevalence Based Study

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**Abstract :** Introduction: Diabetes Mellitus (DM) is one of the most common non-communicable diseases which imposes a large economic burden on the global health-care system. Cost of illness studies in India have assessed the health care cost of DM, but have certain limitations due to lack of standardization of the methods used, improper documentation of data, lack of follow up, etc. The objective of the study was to estimate the cost of illness of uncomplicated versus complicated type 2 diabetes mellitus in Coastal Karnataka, India. The study also aimed to find out the trend of cost of illness of the disease over a decade. Methodology: A prevalence based bottom-up approach study was carried out in two tertiary care hospitals located in Coastal Karnataka after ethical approval. Direct Medical costs like annual laboratory costs, pharmacy cost, consultation charges, hospital bed charges, surgical /intervention costs of 238 diabetics and 340 diabetic patients respectively from two hospitals were obtained from the medical record sections. Patients were divided into six groups, uncomplicated diabetes, diabetic retinopathy(DR), nephropathy(DN), neuropathy(DNeu), diabetic foot(DF), and ischemic heart disease (IHD). Different costs incurred in 2008 and 2017 in these groups were compared, to study the trend of cost of illness. Kruskal Wallis test followed by Dunn's test were used to compare median costs between the groups and Spearman's correlation test was used for correlation studies. Results: Uncomplicated patients had significantly lower costs ( $p < 0.0001$ ) compared to other groups. Patients with IHD had highest Medical expenses ( $p < 0.0001$ ), followed by DN and DF ( $p < 0.0001$ ). Annual medical costs incurred were 1.8, 2.76, 2.77, 1.76, and 4.34 times higher in retinopathy, nephropathy, diabetic foot, neuropathy and IHD patients as compared to the cost incurred in managing uncomplicated diabetics. Other costs also showed a similar pattern of rising. A positive correlation was observed between the costs incurred and duration of diabetes, a negative correlation between the glycemic status and cost incurred. The cost incurred in the management of DM in 2017 was found to be elevated 1.4 - 2.7 times when compared to that in 2008. Conclusion: It is evident from the study that the economic burden due to diabetes mellitus is substantial. It poses a significant financial burden on the healthcare system, individual and society as a whole. There is a need for the strategies to achieve optimal glycemic control and operationalize regular and early screening methods for complications so as to reduce the burden of the disease.

**Keywords :** COI, diabetes mellitus, a bottom up approach, economics

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