



PREVALENCE OF DIABETES MELLITUS COMPLICATION IN THE STATE OF ODISHA:A CURSORY REVIEW

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Abstract:

Diabetes is a severe public health concern, and its prevalence is rising around the world. Now days, Diabetes Mellitus (DM) is a common metabolic disorder in India. Prevalence of this disorder is directly or indirectly related to life style of the individual. In terms of health indicators, Odisha, India, it has consistently trailed behind the rest of the country. Thus, it demands additional attention at the Centre and the State levels. Despite the fact that multiple surveys have been carried out in various settings, there is a lack of consolidated evidence of comparable data from the state of Odisha, both with regard to the burden of DM and many other health conditions. This review article is summarized the prevalence of diabetes mellitus complication and offers a few suggestions. Conditions and consequences of Diabetic Mellitus are likely to give a clear picture of door -to-door survey is made along with census enumeration as a result appropriate medical facility can be extended.

Keywords: Prevalence, Blood glucose, Human health, Diabetes mellitus, Hyperglycemia

Introduction

Odisha is one of the backward states. It has 30 districts with multi ethnic communities including scheduled caste, scheduled tribes and other socially and economically backward classes. Around 44 % of its land comes under scheduled area sheltering 62 scheduled tribes and forest dwellers Majority of people still unaware of their health monitoring and management. The Odisha Vikash Conclave 2018 lamented for a few key concerns like inadequate interdepartmental coordination for risk reduction, dearth of competent human resources and funding for training and capacity building, insufficient allocation of resources for mitigating activities across sectors, limited involvement of civil societies in state coordination mechanism, inadequate institutional mechanism at local levels, limited data and information on disaster risk reduction and other related sectors, absence of opportunity for systematic involvement

of academic institutions, and holistic approach to the vulnerable section of people and the like. This includes the one of the two most vital pillars of development i.e.; the health care system.

Diabetes mellitus (DM) having a high morbidity and mortality rate is an important public healthcare issue globally. Diabetes is a serious public health issue, and its incidence is increasing globally (Supakar et al., 2022). Hyperglycaemia, a metabolic abnormality encompassing altered insulin secretion, action and / or both, is a hallmark of DM. Just 5–10% of people with diabetes have Type-1 diabetes mellitus (T1DM) confirms the loss of cells. When the disease progresses, absolute insulin insufficiency results (Moosaie et al., 2023). Different factors, such as genetics and some viruses, may cause Type -1 diabetes. It is an incurable disease. In case it is known as juvenile diabetes or insulin-dependent diabetes, it is very much prone to assume chronic condition and the patients are likely to suffer throughout his/ her life. Many practitioners and researchers have opined that managing amount of sugar control in the blood using insulin, consuming therapeutic national diet and directed lifestyle may prevent complications.

More than 500 million people worldwide are estimated to have diabetes mellitus (DM), which results in a loss of 80 million years due to the resulting impairment (Zabetian et al., 2014; Lin et al., 2020). Long-term blood glucose increases can have negative consequences on health and increase the risk of diabetic complications. It may manifest in form of retinopathy, neuropathy, and diabetic nephropathy. With an estimated 450 million cases globally, diabetes incidence has risen to the point where it is now one of the most prevalent chronic illnesses in adults, with T-2DM accounting for approximately 90% of diabetes cases (Chatterjee et al., 2017). According to recent estimations, there are currently over 70 million Indian individuals who suffer from diabetes mellitus (Unnikrishnan et al., 2016; IDF, 2021).

A few serious research investigations have revealed unabated links between diabetes mellitus and a number of malignancies, functional failures and cognitive impairment, liver disease, affective disorders, and sleep disturbances. They have also revealed new information about the problems of diabetes mellitus associated to infections. Although reviews of prevalence of diabetes mellitus have briefly mentioned increasing problems, thorough evaluation has yet to be carefully undertaken and analyzed with evidence supporting the connection between these complications and diabetes mellitus (Tomic et al., 2022).

Diabetes mellitus and infections

The relationship between diabetes mellitus and infection has not been adequately studied in epidemiological studies, despite the fact that infection has long been recognized as a consequence of diabetes mellitus (de Medeiros et al., 2022).

Breathing infections

Even before the corona virus disease 2019 (COVID-19) pandemic began, hospitalizations for respiratory infections were becoming more common among people with diabetes mellitus. It was attributed that mask disallowed sufficient air into body. Asthma is also popularly said to be psychosomatic and manifest acuteness when patient remains under stress. It becomes severe with patients suffering from diabetes mellitus. However, it has been

observed that such patients live longer and are more likely to require hospitalization for illnesses like respiratory infections, which typically affect older people (Pearson et al., 2022).

Surgical site infection

Diabetes mellitus also has an essential consequence called post-operative infection. In a meta-analysis of studies that took into account confounding variables, it was discovered that diabetes mellitus was related with an OR of 1.77 (95% CI 1.13-2.78) for surgical site infection (Martin et al., 2016).

Type 2 Diabetes and sleep issues

People with Diabetes Mellitus frequently experience obstructive sleep apnea (OSA). Around 60 percent of persons with Diabetes Mellitus have been reported to have OSA, as reported through an analysis of 41 research output (Khalil et al., 2020).

Prevalence:

Although numerous surveys have been conducted in different contexts, there is a dearth of accumulated evidence of analogous data from the state of Odisha. Community survey for identifying the patients suffering from diabetes mellitus is rare. Door to Door survey has not been done. Therefore, in Odisha under-reporting and under-diagnosis of DM persists, resulting in a divergence between prevalence estimates and self-reported and newly diagnosed DM burden as well as between studies conducted in hospitals and in the community (Supakar et al., 2022).

Studies reveal that 13.9% prevalence of diabetes mellitus is lower than reported cases from India (Raghuraman et al., 2014). Similar is the case for a few developing nations (Hongguang et al., 2015; Viney et al., 2015). In contrast to the findings of a few south Indian researchers, a study on tribal people found to have lower frequency of diabetes mellitus i.e.; (5%). This is possibly because Indian tribal people have historically tuned to natural habitat and therefore have lower rates of diabetes than the general population. This also demonstrates how the tribal community in Odisha is changing in terms of lifestyle due to the state's increasing urbanization (Gupta and Mishra, 2007). Some migrate to urban centers in search of living as biodiversity in their own habitat has drastically declined. This is attributed to the loss of forest and soil degradation. To escape from the threat of survival they became forced migrants and exposed to health hazards.

Supakar et al. (2022) discovered that a significant prevalence of Diabetes Mellitus in the state of Odisha. He opined that its frequency was much lower in self-reported surveys and community-based research, indicating that, in addition, hypertension in the state of Odisha is significantly under diagnosed and emphasizing the need for a comprehensive community-based screening program among adults in the state. Lenka et al. (2022) reported that 29.7% of people in the population have Gestational diabetes mellitus (GDM). It is a pregnancy-related medical issue. Gestational Diabetes Mellitus harms both the mother and the developing fetus. As a result, screening and early identification are strongly advised. A careful monitoring of blood glucose levels has been found to drastically lower

the rate of morbidity and mortality in fetuses and their mothers .Ramachandran et al. (2010) noted that due to population expansion, age, urbanization, a rise in obesity, and physical inactivity, diabetes prevalence is increasing across the human habitat. In contrast to the West, where older people are most at risk, the young to middle-aged adults are disproportionately impacted by diabetes in Asian nations. Manjareeka et al. (2016) revealed that in newly diagnosed pulmonary TB patients of tribal ethnic groups, the prevalence of fasting blood sugar was found to be greater, highlighting the need for intensive bidirectional screening. In the changing scenario more in-depth research is advised to have a profile about the risk of diabetes even among the economically poor section of population

2. Conclusion:

From this review it is concluded that the prevalence of diabetes is at the alarming stage in the Orissa state. There is a dearth of integrated evidence of comparable data from the state of Odisha, both with regard to the burden of DM and many other health disorders, despite the fact that numerous surveys have been conducted in different settings. The digitalized data management system is at nascent stage. Conditions and consequences of diabetic mellitus are likely to give a clear picture of door -to-door survey is made along with census enumeration as a result appropriate medical facility can be extended.

References:

- Chatterjee, S., Khunti, K., and Davies, M. J. (2017). Type 2 diabetes. *The lancet*, 389(10085), 2239-2251.
- de Medeiros, S. F., Yamamoto, M. M. W., de Medeiros, M. A. S., Yamamoto, A. K. L. W., and Barbosa, B. B. (2022). Polycystic ovary syndrome and risks for COVID-19 infection: a comprehensive review: PCOS and COVID-19 relationship. *Reviews in Endocrine and Metabolic Disorders*, 23(2), 251-264.
- Gupta, R. and Misra, A. (2007). Type 2 diabetes in India: regional disparities. *The British Journal of Diabetes & Vascular Disease*, 7(1), 12-16.
- Hongguang, C., Min, L., Shiwen, J., Fanghui, G., Shaoping, H., Tiejie, G., and Zhiguo, Z. (2015). Impact of diabetes on clinical presentation and treatment outcome of pulmonary tuberculosis in Beijing. *Epidemiology & Infection*, 143(1), 150-156.
- IDF Diabetes Atlas 2021 | IDF Diabetes Atlas [Internet]. [cited 2022 May 12]. Available from: <https://diabetesatlas.org/atlas/tenthedition/>. [Last accessed on 2022 Feb 20].
- Khalil, M., Power, N., Graham, E., Deschênes, S. S., and Schmitz, N. (2020). The association between sleep and diabetes outcomes—A systematic review. *Diabetes research and clinical practice*, 161, 108035.
- Lenka, B., Rath, K., Nayak, N., Behera, A., and Singh, R. (2022). Prevalence Of Gestational Diabetes Mellitus And Associated Risk Factors Among Antenatal Mother Attending At A Tertiary Care Hospital Bhubaneswar, Odisha. *European Journal of Molecular & Clinical Medicine*, 9(07), 9291-9298.

- Lin, X., Xu, Y., Pan, X., Xu, J., Ding, Y., Sun, X., Song, X., Ren, Y., and Shan, P. F. (2020). Global, regional, and national burden and trend of diabetes in 195 countries and territories: an analysis from 1990 to 2025. *Scientific reports*, 10(1), 14790.
- Manjareeka, M., Palo, S. K., Swain, S., Pati, S., and Pati, S. (2016). Diabetes mellitus among newly diagnosed tuberculosis patients in tribal Odisha: An exploratory study. *Journal of clinical and diagnostic research: JCDR*, 10(10), LC06.
- Martin, E. T., Kaye, K. S., Knott, C., Nguyen, H., Santarossa, M., Evans, R., and Jaber, L. (2016). Diabetes and risk of surgical site infection: a systematic review and meta-analysis. *infection control & hospital epidemiology*, 37(1), 88-99.
- Moosaie, F., Mohammadi, S., Saghadzadeh, A., Dehghani Firouzabadi, F., and Rezaei, N. (2023). Brain-derived neurotrophic factor in diabetes mellitus: A systematic review and meta-analysis. *PloS one*, 18(2).
- Pearson-Stuttard, J., Cheng, Y. J., Bennett, J., Vamos, E. P., Zhou, B., Valabhji, J., and Gregg, E. W. (2022). Trends in leading causes of hospitalisation of adults with diabetes in England from 2003 to 2018: an epidemiological analysis of linked primary care records. *The lancet Diabetes & endocrinology*, 10(1), 46-57.
- Raghuraman, S., Vasudevan, K. P., Govindarajan, S., Chinnakali, P., and Panigrahi, K. C. (2014). Prevalence of diabetes mellitus among tuberculosis patients in urban Puducherry. *North American journal of medical sciences*, 6(1), 30.
- Ramachandran, A., Das, A. K., Joshi, S. R., Yajnik, C. S., Shah, S., and Kumar, K. P. (2010). Current status of diabetes in India and need for novel therapeutic agents. *J Assoc Physicians India*, 58, 7-9.
- Supakar, S., Nayak, S., Behera, L., Kshatri, J., and Pradhan, P. C. (2022). Prevalence of diabetes in Odisha, India: A systematic review and meta-analysis. *Journal of Diabetology*, 13(3), 227.
- Tomic, D., Shaw, J. E., and Magliano, D. J. (2022). The burden and risks of emerging complications of diabetes mellitus. *Nature Reviews Endocrinology*, 18(9), 525-539.
- Unnikrishnan, R., Anjana, R. M., and Mohan, V. (2016). Diabetes mellitus and its complications in India. *Nature reviews. Endocrinology*, 12(6), 357–370.
- Viney, K., Cavanaugh, J., Kienene, T., Harley, D., Kelly, P. M., Sleight, A., and Mase, S. (2015). Tuberculosis and diabetes mellitus in the Republic of Kiribati: a case-control study. *Tropical Medicine & International Health*, 20(5), 650-657.
- Zabetian, A., Sanchez, I. M., Narayan, K. M., Hwang, C. K., and Ali, M. K. (2014). Global rural diabetes prevalence: a systematic review and meta-analysis covering 1990-2012. *Diabetes research and clinical practice*, 104(2), 206–213.