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Type 2 diabetes mellitus (T2DM) is a major health concern globally and is projected to affect 1.31 billion people by 2050 (Ong et al., 2023). A combination of risk factors contributes to type 2 diabetes development. Understanding the factors that contribute to T2DM prevalence is essential for effective disease prevention and management (Wilmot & Idris, 2014). Multiple studies have investigated T2DM risk factors, including genetic, lifestyle, environmental, and socio-economic factors (Gkrinia & Belančić, 2025). However, the existing literature spans diverse research areas and methodologies, complicating the identification of broader knowledge gaps. The aim of this study is to analyse the existing literature on T2DM risk factors and identify research gaps for future research studies. In this narrative review, I examined the literature on T2DM risk factors and synthesised the selected studies according to commonly reported risk factors, methodological approaches, and areas where evidence remains limited. I included studies that used epidemiological, statistical, and mathematical modelling approaches. This review identified obesity, physical inactivity, age, family history, hypertension, and genetic susceptibility as the major risk factors for T2DM. The included studies used a different methodological approach, including cohort studies, longitudinal studies, risk prediction models, and mathematical modelling techniques. I found that most studies primarily focused on identifying risk factors and developing predictive models.

This review highlights the important gaps in the current literature, particularly regarding the application of comprehensive mathematical modelling frameworks and population-level interventions. In this presentation, I will present these gaps and their implications for future research aimed at improving the prediction and prevention of type 2 diabetes.

Keywords

Narrative review, Type 2 diabetes mellitus, Risk factors, Research gaps, Mathematical modelling, Population-level intervention

References

- Gkrinia, E. M. M., & Belančić, A. (2025). A narrative review on the risk factors and healthcare disparities of type 2 diabetes. *Diabetology*, 6(4), 25. <https://doi.org/10.3390/diabetology6040025>
- Ong, K. L., Stafford, L. K., McLaughlin, S. A., Boyko, E. J., Vollset, S. E., Smith, A. E., Dalton, B. E., Duprey, J., Cruz, J. A., Hagins, H., Lindstedt, P. A., Aali, A., Abate, Y. H., Abate, M. D., Abbasian, M., Abbasi-Kangevari, Z., Abbasi-Kangevari, M., ElHafeez, S. A., Abd-Rabu, R., . . . Vos, T. (2023). Global, regional, and national burden of diabetes from 1990 to 2021, with projections of prevalence to 2050: a systematic analysis for the Global Burden of Disease Study 2021. *The Lancet*, 402(10397), 203–234. [https://doi.org/10.1016/s0140-6736\(23\)01301-6](https://doi.org/10.1016/s0140-6736(23)01301-6)
- Wilmot, E., & Idris, I. (2014). Early onset type 2 diabetes: risk factors, clinical impact and management. *Therapeutic Advances in Chronic Disease*, 5(6), 234–244. <https://doi.org/10.1177/2040622314548679>