

A Conceptual Epidemiological and Economic Model to Predict Obesity in Low- and Middle-Income Countries: A Meta-Synthesis

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Introduction

- Model-based epidemiologic and economic evaluations are widely accepted as decision-making tools. However, unlike in high income countries, there is little experience of healthcare policies based on evidence of obesity model in low- and middle-income countries (LMICs)
- Given the increasing prevalence of obesity, there is an urgent need for predictive models that can accurately estimate future trends, assess health impacts, and evaluate the economic consequences

Purpose

- The objective of this study was to develop a conceptual epidemiological and economic model to predict obesity in LMICs

Methods

- A Systematic review following Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines was carried out on MEDLINE, CINAHL and AMED, PubMed, and The Cochrane library and EconLit databases for publications in English from inception to August 28, 2024
- Economic evaluation studies where they described an economic model of adult patients with/without obesity in which obesity progression was evaluated were eligible
- Title and abstract, full text screening, and data extraction were conducted
- Thematic analysis was applied to identify key domains, and this was helpful to develop a conceptual model of obesity in LMICs

Results

- A total of 825 studies were identified, of which 31 met the inclusion criteria in the meta-synthesis
- The model type of the included studies was Markov model (n = 23), decision tree (n = 2), discrete event simulation (n = 4), and combination of Markov model and decision tree (n = 2)
- These studies were published between 1997 to 2024 and were developed based on cohort and patient data
- Six health states which include diabetes (n = 19), stroke (n = 14), cardiovascular (n = 14), normal weight (n = 10), overweight (n = 9), and obesity (n = 8) were thematically identified

Conclusions

- This is the first study to develop a conceptual epidemiological and economic model to predict obesity in LMICs
- The model will now be used in a future study to predict the prevalence, and the economic burden associated with obesity
- The findings can be used to inform healthcare decisions to facilitate resource allocation for prevention and management of the condition in LMICs

References

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