

Potential interventions on childhood central obesity: Systematic Review and Meta-analysis

Setognal B. Aychiluhm¹, Allen G. Ross¹, Vivian Isaac², Kedir Y. Ahmed¹

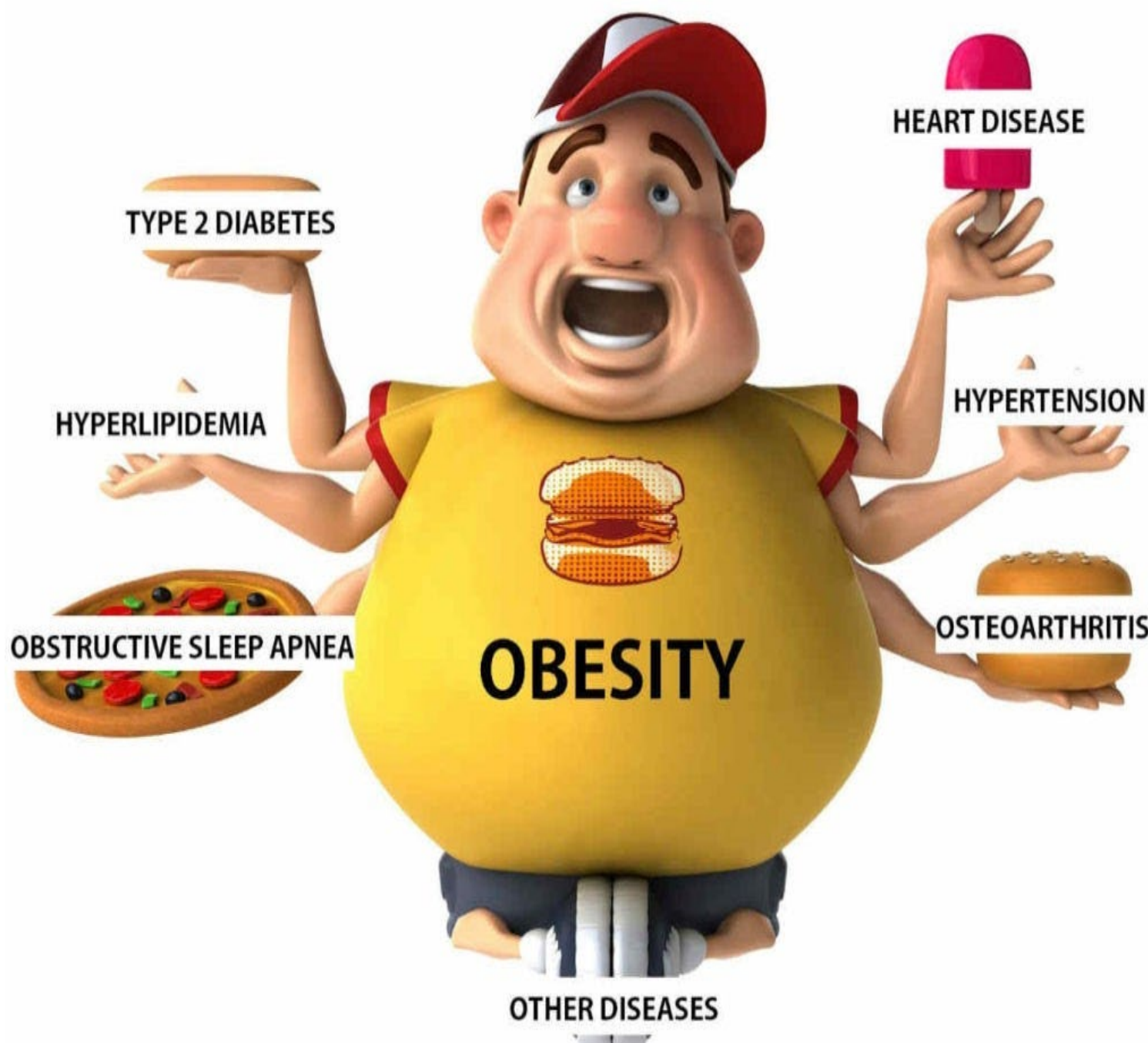
¹Rural Health Research Institute, Charles Sturt University, Orange, NSW 2800, Australia, ²School of Allied Health, Exercise & Sports Sciences, Faculty of Science & Health, Charles Sturt University, Albury, NSW 2640, Australia



Charles Sturt University

Background

The rapid global rise in childhood central obesity and its associated cardiometabolic complications in adulthood highlight the urgent need for targeted interventions to address this global health epidemic.



Objective

To conduct a systematic review and meta-analysis on the impacts of lifestyle, behavioural and pharmacological interventions on childhood central obesity.

Methods

Databases

MEDLINE/PubMed, Embase, PsycINFO, Academic Search Database, ProQuest, and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) from inception to September 25, 2024. Grey literature was also explored using Google Scholar and Open Dissertation.

Eligibility criteria

Inclusion criteria included: (i) randomized controlled trials (RCTs) targeting overweight or obese children aged 5–18 years at baseline; (ii) measured central obesity as a primary or secondary outcome.

Findings

This review included 34 RCTs, involving 9085 children aged 5-18 years.

The meta-analysis of two RCTs examining low-fat lunchboxes and a Mediterranean diet along with physical activity (lasting up to 150 minutes per week over 6-9 months) showed a significant effect on WC (standardized mean difference [SMD] = -0.38; 95% confidence interval [CI]: -0.58, -0.19).

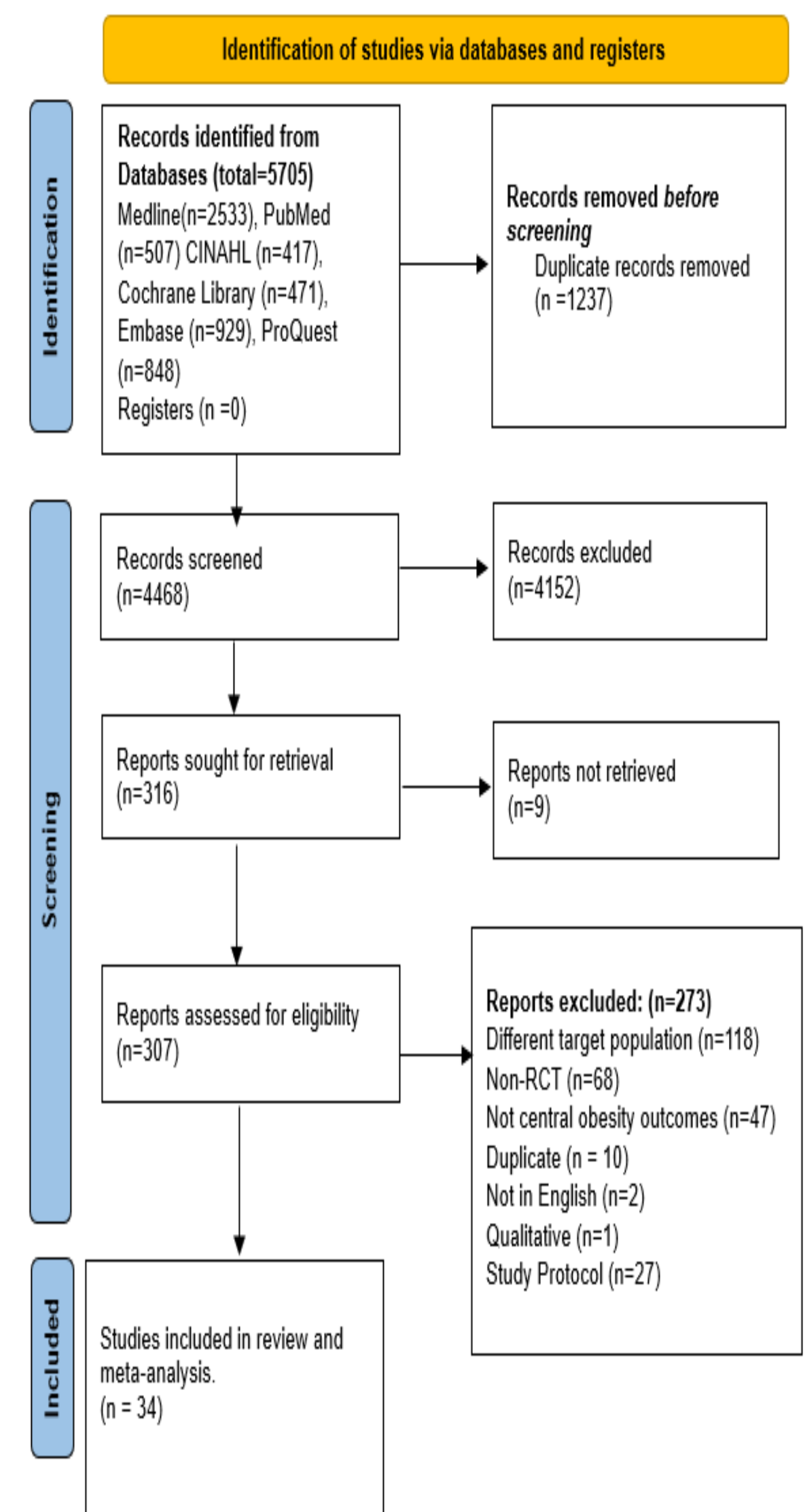
Five additional RCTs involved behavioural interventions focusing on dietary education to reduce unhealthy snacks, increase fruit and vegetable intake, promote daily physical activity, and limit screen time, supported by online resources also showed a significant impact on WC (SMD = -0.54; 95% CI: -1.06, -0.03). However, standalone interviewing methods did not show a significant impact on WC.

Conclusion

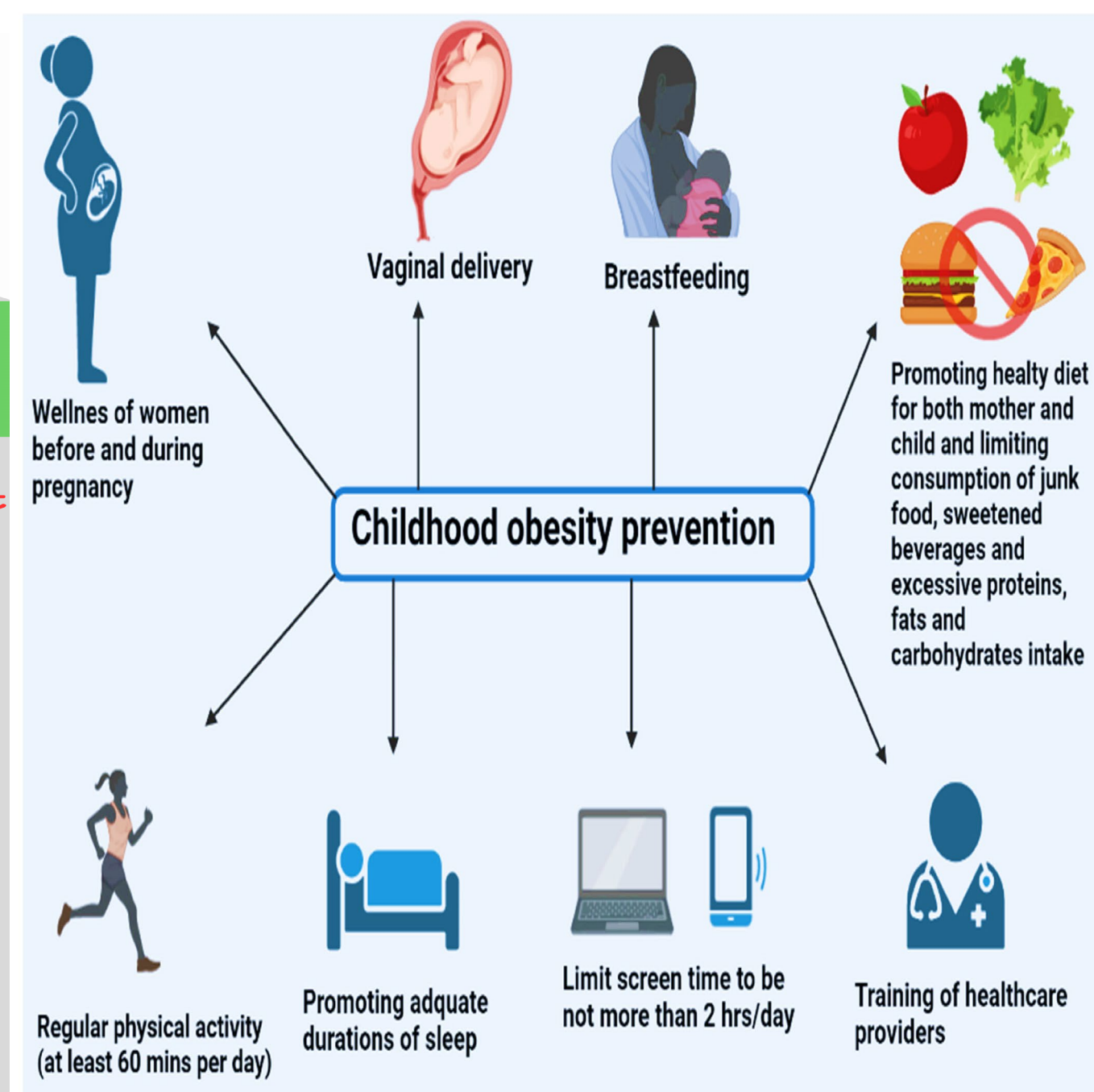
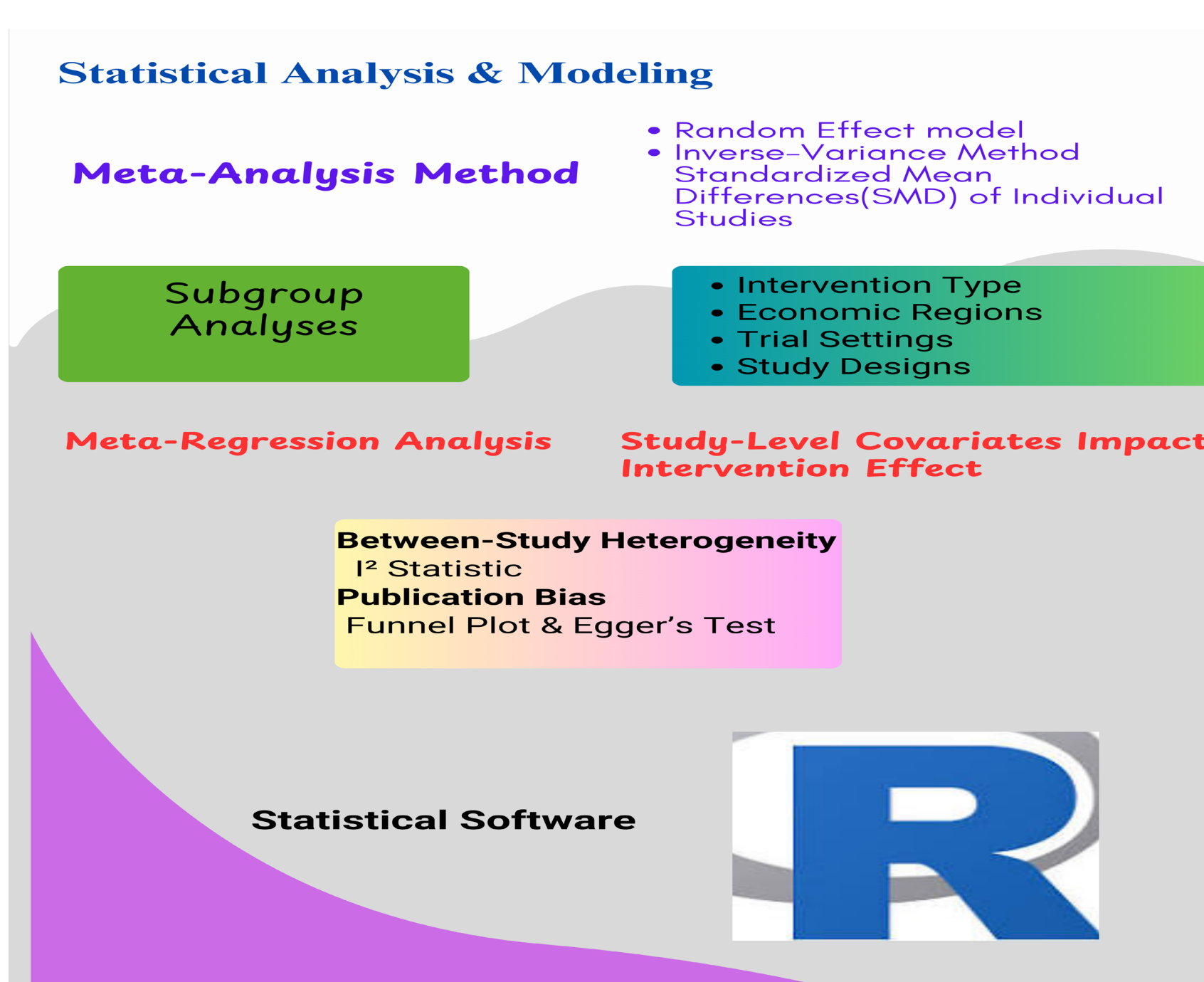
Our findings suggest that the combination of dietary and physical activity, along with behavioural strategies alone shows promise in reducing central obesity. Coordinated efforts from various stakeholders (e.g., Government, NGOs, WHO, CDC) will be essential for addressing this multifaceted issue.

Findings from this study have policy implications for Sustainable Development Goals 2.2 and 3.4.

Figure 1: flow chart



CHILDHOOD OBESITY



Sample References

- Organization WH. Noncommunicable diseases: Childhood overweight and obesity. World Health Organization 2020.
- Assembly G. Resolution adopted by the General Assembly on 11 September 2015. New York: United Nations 2015.
- Organization WH. Comprehensive implementation plan on maternal, infant and young child nutrition: World Health Organization, 2014.
- Phelps NH, Singleton RK, Zhou B, et al. Worldwide trends in underweight and obesity from 1990 to 2022: a pooled analysis of 3663 population-representative studies with 222 million children, adolescents, and adults. The Lancet 2024.

Contact info

Name: Setognal Aychiluhm
Phone:0493952200
Email: saychiluhm@csu.edu.au