Spectrum of Overweight and Obesity in School Going Population of Nepal: A Meta-analysis

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Background and Objectives

- Nepal has nearly 8 million school going population (NDHS 2016).
- Government of Nepal has focused mainly on undernutrition and food supplementation in school going population.
- However, the spectrum of overnutrition including overweight and obesity is frequently under looked.
- Overweight and obesity at young age has been proven as an important risk of cardiovascular illness in adult life.
- So, this review aims to analyze the prevalence of overweight and obesity in school going population of Nepal.

Methodology

Search Strategy

- Electronic database of Embase, PubMed, Google Scholar, Scopus, and Web of Science were searched till September 1st, 2024 to find the potential articles.
- Search terms were “Nepal”, “School going population”, “Overweight”, “Obesity”, “Childhood obesity”, “Children” with suitable Boolean operators “AND”/“OR” in between.

Inclusion Criteria

- Cross-sectional studies conducted either in school based or community-based settings that analyze the prevalence of overweight, obesity, or both among school going population in Nepal.

Exclusion Criteria

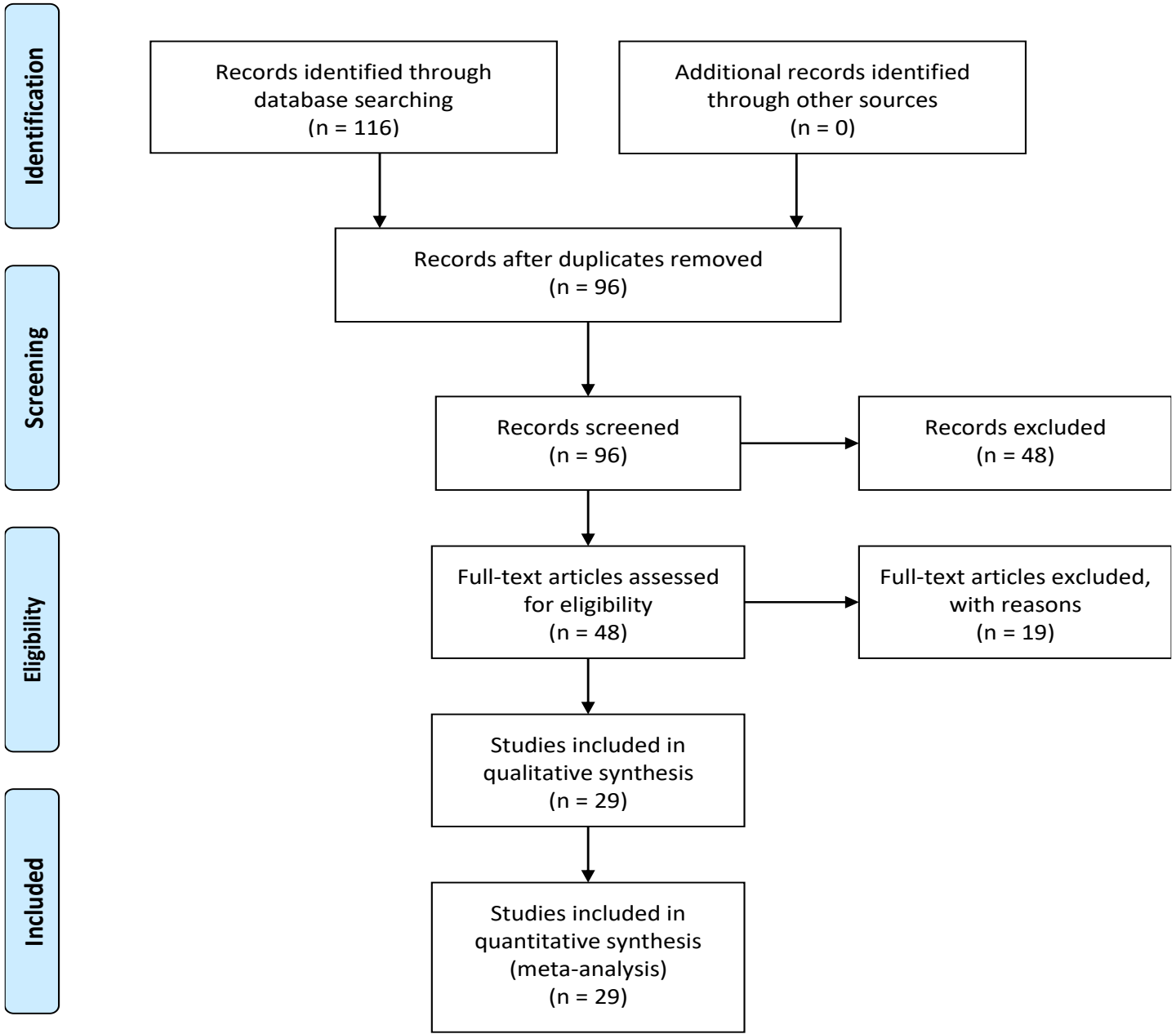
- Studies on specific cohorts of children such as male or female only, particular age groups, specific ethnicity, and disabled children.
- Studies conducted among preschool children.
- Studies with no cross-sectional design.
- Studies conducted among children with different dietary practices compared to the norm.

Statistical Analysis

- All basic calculations were performed in Microsoft Excel 2016 (Microsoft Corp., Redmond, WA, USA).
- For further analysis, data from the Excel sheet were extracted using STATA version 17.0 (Stata Corp., College Station, TX, USA).
- Random effect model with 95% confidence interval (CI) was used to calculate the prevalence of overweight and obesity.
- Substantial heterogeneity was measured for a value of I^2 >75%.
- All analysis was two-tailed with a significance level set to <0.05.

Results

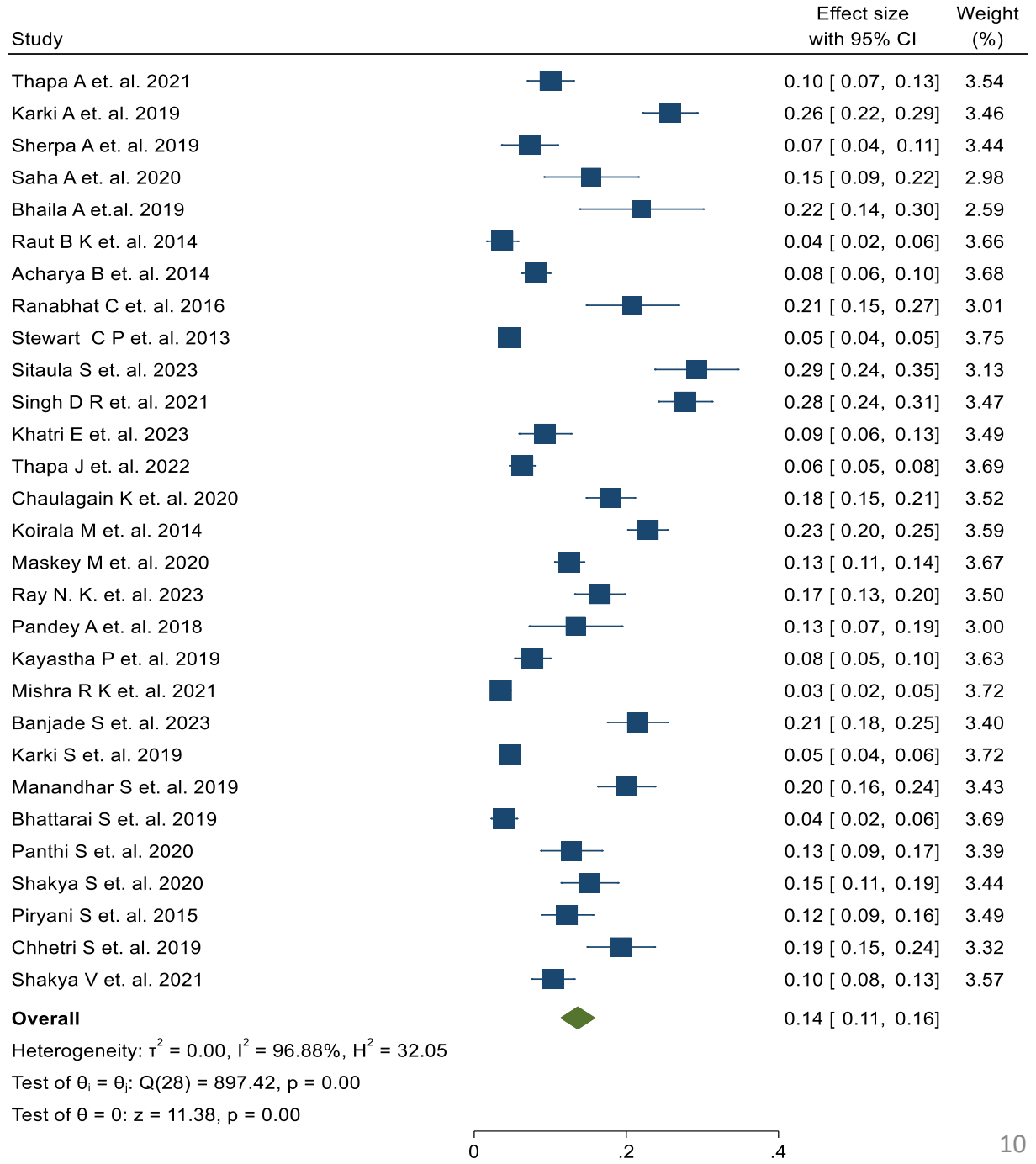
PRISMA Flow Diagram



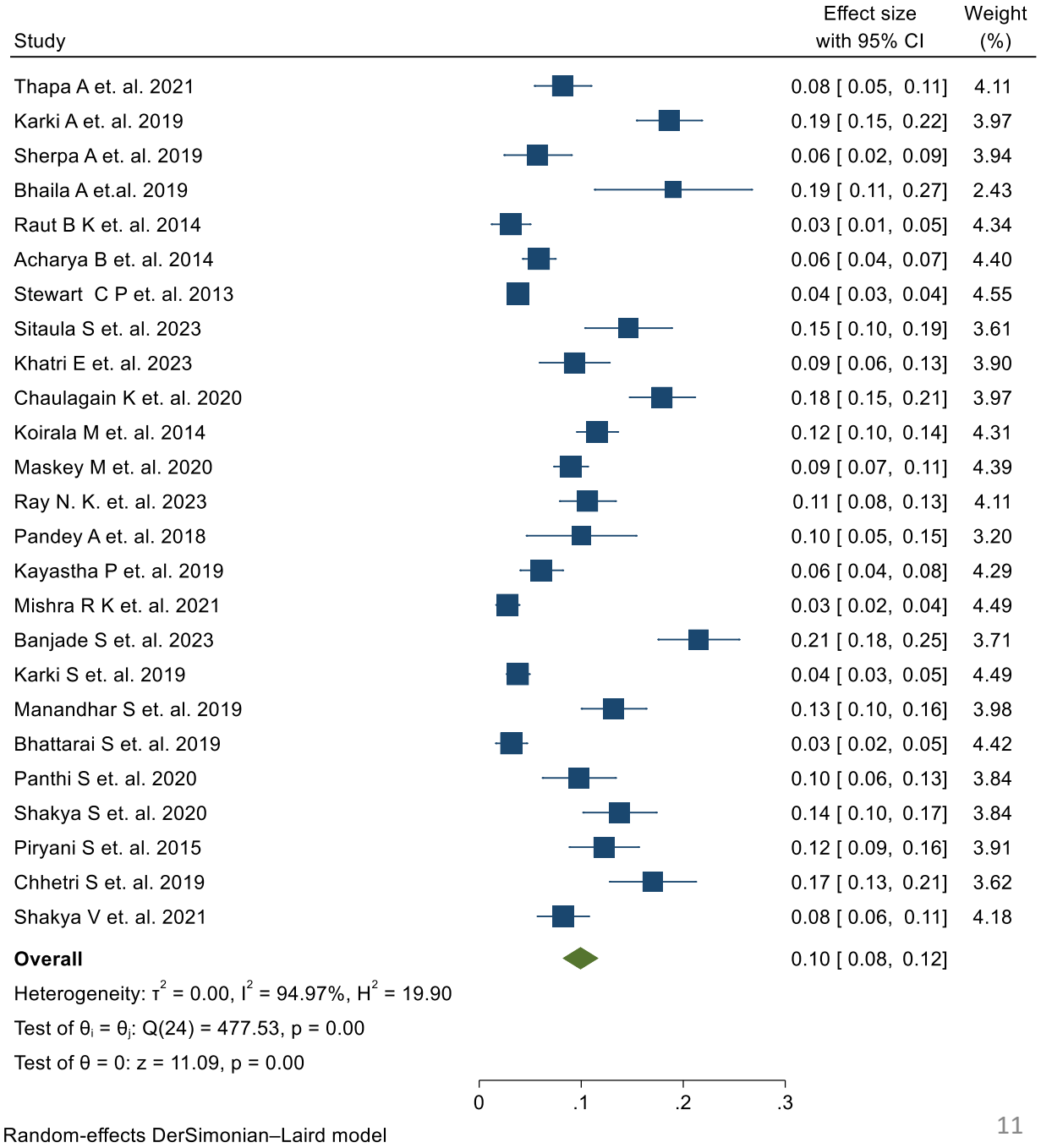
Result Cont^{d}

- Altogether, 29 studies with a total of 18325 school going population were included in the meta-analysis.
- The students were of age 5 to 23 years and were studying upto grade twelve.
- The pooled prevalence of overweight/obesity was 14% (95% CI: 0.11-0.16, I^2=96.88%, p<0.001).
- Similarly, by pooling the data from 25 studies, prevalence of overweight was 10% (95% CI: 0.08-0.12, I^2=94.97%, p<0.001); prevalence of obesity from 23 studies was 3% (95% CI: 0.03-0.04, I^2=92.92%, p<0.001).

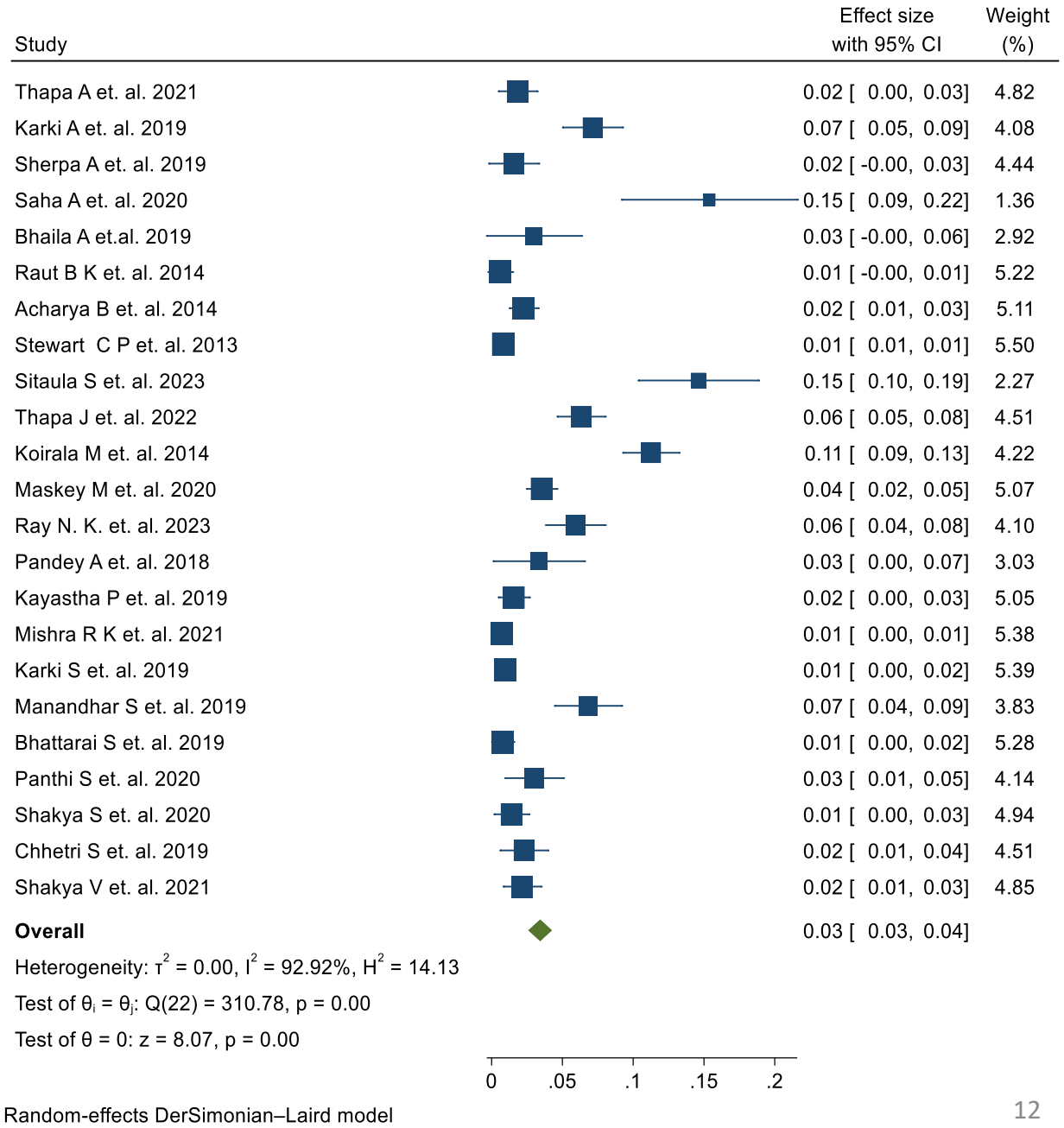
Forest plot showing pooled prevalence of overweight and obesity



Forest plot showing pooled prevalence of overweight from 25 studies



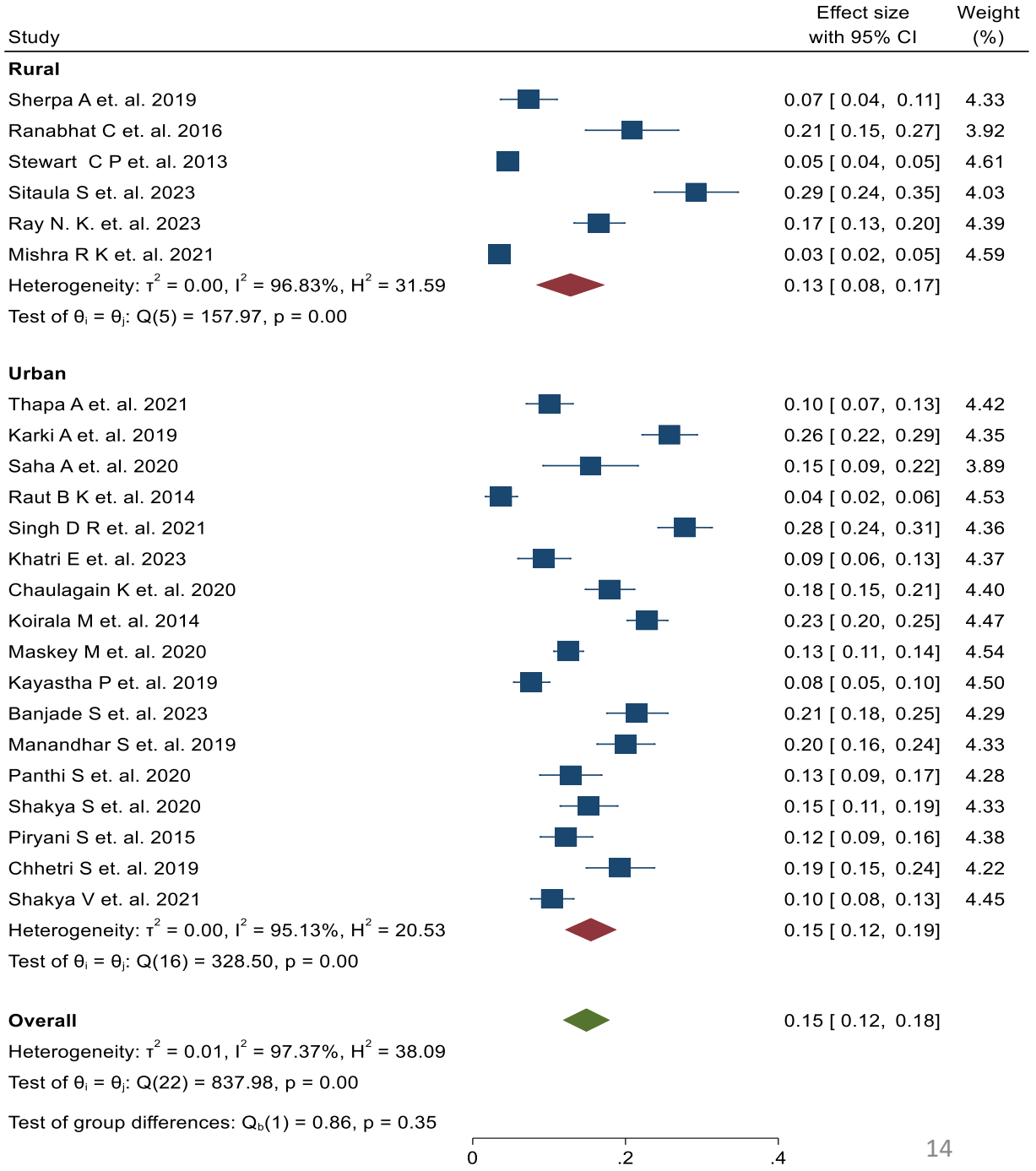
Forest plot showing pooled prevalence of obesity from 23 studies



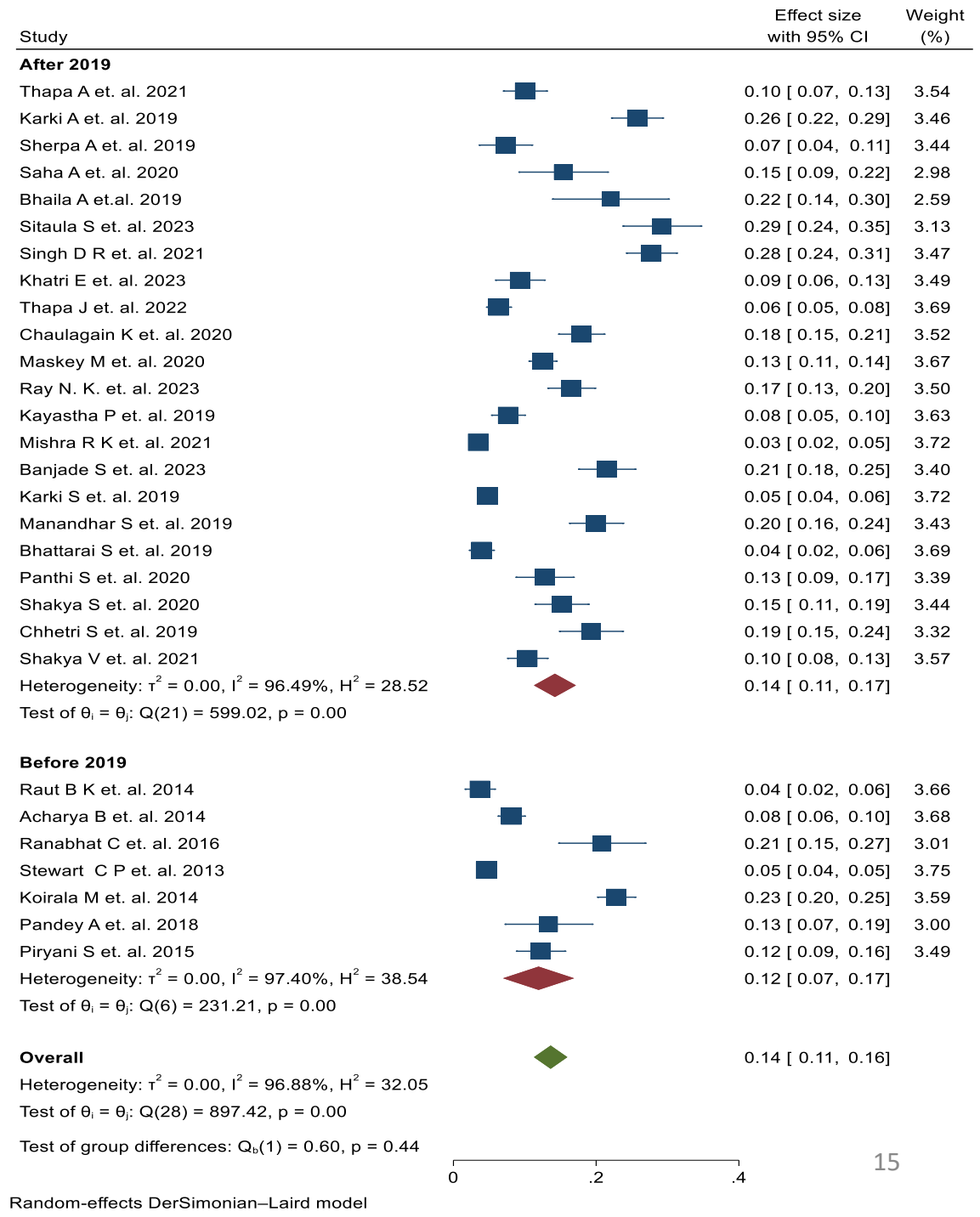
Subgroup Analysis

- From subgroup analysis, the prevalence of overweight/obesity was higher in urban areas 15% (95% CI: 0.12-0.19, I^2=95.13%) compared to rural areas 13% (95% CI: 0.08-0.17, I^2=96.88%).
- Furthermore, overweight/obesity was in rising trend after 2019 compared to previous years; 15% (95% CI: 0.11-0.19, I^2=96.38%) vs 13% (95% CI: 0.10-0.16, I^2=96.96%) respectively.

Rural vs Urban Forest plot



Time-trend Forest plot



Limitations

- Body mass index was utilized to define overweight and obesity, though it has its own limitations.
- Region-wise/province wise subgroup analysis could not be done due to clustering of studies from few districts.
- High degree of heterogeneity suggest cautious interpretation of the study findings.

Conclusions

- This meta-analysis showed that the burden of overweight/obesity is significant (14%) in school going population of Nepal and is in rising trend since COVID-19 pandemic.
- To address this issue, school curricula should emphasize healthy eating habits, physical activity, and educate young individuals about the long-term consequences of overweight and obesity in adulthood.
- This research opens door for key stakeholders for conducting nationwide studies focusing on non communicable diseases in young population of Nepal.

About the Presenter

Dr. Pashupati Pokharel is a recent MBBS graduate from Institute of Medicine, Tribhuvan University. He is currently working as a medical officer at Bangalachuli Hospital, Dang serving the rural communities of Nepal.

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Queries?
Suggestions??

Thank You