Healthcare utilization in overweight and obese children: a systematic review and meta-analysis

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Background

• Childhood obesity is one of the greatest pediatric public health concerns globally. In 2016, over 41 million children under the age of 5, and over 340 million children and adolescents aged 5-19 were overweight or obese worldwide.
• Childhood obesity tracks into adulthood and obese adults have an increased risk of developing cardio-metabolic conditions such as type-2 diabetes, ischemic heart disease and stroke.
• Increased prevalence of obesity in childhood has led to an increased incidence of previously unusual metabolic imbalances at this age.
• It could be inferred that overweight or obese children would experience greater morbidity, leading to increased healthcare utilization.

Objectives

• To evaluate the association of overweight or obesity with healthcare utilization in children
• To assess the effect of specific obesity-associated conditions on any association of obesity or overweight and healthcare utilization

Methods

• Search terms (up to June, 2018): “children or adolescents”, “obesity or overweight”, and “healthcare utilization”
• Databases: PubMed, Medline, EMBASE, Web of Science, CINAHL
  - Inclusion criteria:
    ✓ Observational studies
    ✓ English language
    ✓ Children ≤ 19 years
  - Exclusion criteria:
    ✓ Underweight children only
    ✓ Review articles
    ✓ Participants less than and greater than 19 years with no stratification
  - Narrative synthesis: Narrative synthesis was undertaken to discuss the impact of excess weight on health service use for all the included studies
  - Meta-analysis: Analysis to calculate pooled rate ratios (RRs) with 95% confidence intervals using a random effects model

Results

• Outpatient visits: 13 studies
• Emergency department (ED) visits: 9 studies
• Inpatient use: 5 studies
• GP visits: 2 studies
• Location: 22 in USA, 3 each in Germany & Australia, 2 each in Brazil & Canada, 1 each in Ireland, Israel and Netherlands.
• Four studies reported on healthcare utilization associated with respiratory diseases. Significant increase in utilization was reported across all four studies
• Seven and six studies were included in meta-analysis for outpatient visits and ED visits, respectively
• ED visits: Four studies reported a significant increase, while three reported a non-significant increase for obese or overweight children. Associated pooled RR for obese vs normal weight was 1.36 (95% CI: 1.15–1.60)
• Outpatient visits: Six studies reported a significant increase, while 3 studies reported a non-significant increase for obese children. Associated pooled RR for obese vs normal weight was 1.09 (95% CI: 1.00 – 1.18)

Conclusions

• Overweight and obesity are positively associated with increased utilization of ED and outpatient health services during childhood. Evidence for inpatient health service use is inconsistent
• Included studies were limited to a few developed countries, therefore it is difficult to generalize findings due to differences in healthcare systems and delivery of health services across countries
• Further research is required to understand the dynamics of obesity-associated health conditions that may drive increased healthcare utilization in children

References