INPLASY

Obesity and prevalence of dental caries in children and adolescents: a systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

INTRODUCTION

Review question / Objective Does obesity and overweight influence the prevalence of dental caries in children and adolescents?
– Participants (P): children and adolescents;
– Exposure (E): obesity or overweight;
– Comparison (C): normal weight;
– Outcome (O): prevalence of dental caries;
– Study design (S): observational studies (cohort and cross-sectional).

Condition being studied Obesity is often defined simply as a condition of abnormal or excessive fat accumulation in adipose tissue, to the extent that health may be impaired (World Health Organization, 2000). However, the amount of excess fat, its distribution within the body, and the associated health consequences vary considerably between obese individuals. Therefore, obesity is a chronic disease, prevalent in both developed and developing countries, and affecting children and adolescents as well as adults (World Health Organization, 2000).

METHODS

Participant or population Obese or overweight children and adolescents who received oral examination for dental caries.

Intervention The exposure in present study is obesity or overweight. There has not been the same level of agreement over the classification of overweight and obesity in children and adolescents. Inclusion criteria for: Studies that addressed dental caries data in obese/overweight children and adolescents. "overweight" is defined as a BMI (kg/m2) ≥ the sex–age-specific 95th BMI percentile and "at risk for overweight" as 85th ≤ BMI<95th percentile. We defined "obesity" as a BMI (kg/m2) ≥ the sex–age-specific 95th BMI percentile. The BMI was calculated based on the WHO index for students aged 18 years. Exclusion criteria for obesity: Studies that do not address patients' measurement on BMI; studies without obese/overweight patients.

Comparator The comparison will be normal weight children and adolescents.

Study designs to be included Observational studies (cohort and cross-sectional).

Eligibility criteria The exposure in present study is obesity or overweight. There has not been the same level of agreement over the classification of overweight and obesity in children and adolescents. Inclusion criteria for: Studies that addressed dental caries data in obese/overweight children and adolescents. "overweight" is defined as a BMI (kg/m2) ≥ the sex–age-specific 95th BMI percentile and "at risk for overweight" as 85th ≤ BMI<95th percentile. We defined "obesity" as a BMI (kg/m2) ≥ the sex–age-specific 95th BMI percentile. The BMI was calculated based on the WHO index for students aged 18 years. Exclusion criteria for obesity: Studies that do not address patients' measurement on BMI; studies without obese/overweight patients.

Information sources The following electronic bibliographic databases will be searched: PubMed, Scopus, EMBASE, ISI Web of Science and LILACS. Reference lists of all full texts of interest will also be examined for further relevant searches. The search will use a combination of controlled vocabulary and keywords.

Main outcome(s) Prevalence of dental caries evaluated using validated indicators in children and adolescents. Caries will be diagnosed using criteria proposed by the World Health Organization (WHO) and using the Decayed and Filled Teeth Index (i.e. dft and DFT for the deciduous and permanent dentitions, respectively).

Quality assessment / Risk of bias analysis The methodological quality of the included studies was assessed by two reviewers (GFM and ANP) using the Newcastle-Ottawa Scale (NOS) (Wells et al., 2009) for cohort and the adapted NOS for cross-sectional studies (Herzog et al., 2013) The NOS evaluates the methodological quality of primary studies using a star system according to three categories: (1) patient selection (up to four stars); (2) the comparability of the study groups (up to two stars); and (3) assessment of outcome (up to three stars). Subsequently, each study was classified according to the risk of bias: high (0–3 stars); medium (4–6 stars); or low (7 or more stars) (Lo et al., 2014).

Strategy of data synthesis Meta-analysis will be performed to obtain pooled estimates using a random effects model Review Manager (RevMan). The measurements from the primary studies with available data will be converted into a log-binomial and subsequently transformed into prevalence ratio (PR) with respective 95% confidence intervals (CI). A global meta-analysis will be performed between obesity and dental caries. Subgroup meta-analysis will be conducted considering country's economic classification, study design and the obesity indicator. Heterogeneity was examined using the I^2 statistic.

Subgroup analysis Subgroup meta-analysis will be conducted considering country's economic classification, study design and the obesity indicator.

Sensitivity analysis Sensitivity analysis will be performed by meta-regression. Caries prevalence data in obese and non-obese individuals will be included in Software R (r-project.org) and analyzed using the "meta" package in order to verify the influence of obesity on caries prevalence.

Country(ies) involved Brazil.

Keywords Dental caries; Obesity; Children; Adolescents; socioeconomic level.

Contributions of each author
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