INPLASY

The Association between COVID-19 Lockdown and Overweight/Obesity in Children and Adolescents: A Meta-Analysis

INPLASY202460012

doi: 10.37766/inplasy2024.6.0012

Received: 04 June 2024

Published: 04 June 2024

Liu, HZ; Huang M; Li XN.

Corresponding author:
Li Xuening

lixuening1988@163.com

Author Affiliation:
The Fourth Affiliated Hospital of China Medical University.

ADMINISTRATIVE INFORMATION

Support - The authors received no funding to perform this study.

Review Stage at time of this submission - The review has not yet started.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202460012

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 04 June 2024 and was last updated on 04 June 2024.

INTRODUCTION

Review question / Objective The relationship between coronavirus disease-2019 (COVID-19) lockdown and overweight/obesity in children and adolescents is unclear. This meta-analysis aims to summarize, quantify and explore the published literature to determine the relationship between COVID-19 lockdown and overweight/obesity in children and adolescents.

Condition being studied During COVID-19 epidemic, the daily lives of children and adolescents were greatly changed before the epidemic due to social restrictions imposed by various countries, including school closures, public places, as well as leisure centers . Vinker et al. conducted a retrospective prospective cohort study after COVID-19 lockdown in Israel and found that children gained significantly more weight, especially boys, during the outbreak period . A longitudinal study of trends in body mass index changes before and after the outbreak among 2-19 years old found that school closure due to COVID-19 pandemic interrupted the daily lives of children and adolescents, reduced the duration of physical activity, and resulted in overweight/obesity.

A meta-analysis showed that obesity showed a tendency to increase significantly during COVID-19 lockdown period in adult . In addition, Chang et al. in a meta-analysis on 12 observational studies quantified the association between weight gain and COVID-19 lockdown . Since then, more observational studies on COVID-19 lockdown and obesity have been published. Therefore, this meta-analysis aimed to examine the possible relationship between COVID-19 lockdown and overweight/obesity.

METHODS

Participant or population Children were enrolled in the study.

Intervention Not applicable.

Comparator Not applicable.

Study designs to be included Case-control studies.

Eligibility criteria Case-control study design on association between COVID-19 lockdown and overweight/obesity; children were enrolled in the study; a complete set of data is required for each study. This study excluded reviews, meta-analyses, animal studies, and duplicate literature.

Information sources PubMed, Web of Science and EMBASE. The search terms "COVID-19", "Lockdown", or "COVID-19 Lockdown" and "obesity" or " overweight" were used.

Main outcome(s) The body mass index (BMI) in children and adolescents (SMD: 0.23, 95% CI: 0.12-0.34) was significantly increased during COVID-19 lockdown than before the pandemic. The combined OR (95%CI) value of COVID-19 lockdown and overweight and obesity in children and adolescents were 1.23 (1.10-1.37) and 1.22(1.04-1.44), respectively.

Quality assessment / Risk of bias analysis All studies included in this study were assessed by the Newcastle-Ottawa Scale (NOS).

Strategy of data synthesis The search terms "COVID-19", "Lockdown", or "COVID-19 Lockdown" and "obesity" or " overweight" were used. Because there are many different names for COVID-19, we also referred to the search strategy of other article when searching articles in the database. In addition, we manually reviewed the list of references included in the article to avoid the potential omission of relevant articles.

Subgroup analysis Subgroup analysis based on the study type and method of body weight measurement were performed.

Sensitivity analysis Sensitivity analyses were performed using the metaninf test to assess the impact of each individual study on the overall result.

Country(ies) involved China (The Fourth Affiliated Hospital of China Medical University).

Keywords COVID-19 lockdown; Obesity; Meta-analysis.

Contributions of each author
Author 1 - Liu Hezuo.
Email: 13605785301@163.com
Author 2 - Huang Minhui.
Author 3 - Li Xuening.
Email: lixuening1988@163.com