INPLASY

Prevalence of depressive symptoms among children and adolescents between one-child and multi-child families in China: a meta-analysis of comparative studies

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ADMINISTRATIVE INFORMATION

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 17 May 2024 and was last updated on 17 May 2024.

INTRODUCTION

Review question / Objective Participants: children and adolescents from one-child families in China. Intervention: not applicable. Comparison: children and adolescents from multi-child families in China Outcome: prevalence of depression among children and adolescents measured with any standardized scales on depression. Study design: case-control studies.

Condition being studied The condition being studied in this essay is the prevalence of depression among children and adolescents from one-child and multi-child families. Depression is a common mental health disorder characterized by persistent feelings of sadness, loss of interest or pleasure in activities, changes in appetite and sleep patterns, fatigue, difficulty concentrating, and thoughts of self-harm or suicide. It is a significant public health concern, affecting individuals of all ages, including young people.

Depression in children and adolescents can manifest differently than in adults, often presenting as irritability, school refusal, academic decline, social withdrawal, or physical complaints. The impact of depression on young individuals' development, relationships, and overall well-being cannot be understated. Family dynamics, particularly family size, have been suggested as potential contributors to depression prevalence in this population. Understanding the association between family size and depression among children and adolescents is crucial for identifying risk factors, informing preventive strategies, and developing targeted interventions. By examining the differences in depression prevalence between one-child and multi-child families, this research aims to shed light on the potential influence of family structure on mental health outcomes in young individuals, ultimately contributing to a better understanding of depression in this population and paving the way for effective support and intervention initiatives.

METHODS

Search strategy This meta-analysis was conducted in accordance with the Meta-Analysis of Observational Studies in Epidemiology (MOOSE) (Stroup et al., 2000) and Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA-2020 version) (Page et al., 2021) guidelines. The protocol was registered with the identifier INPLASY202450086. Four researchers (YYJ, PC, WZ, and SYR) independently conducted a comprehensive literature search across five international databases: Web of Science, PubMed, PsycINFO, China National Knowledge Infrastructure [CNKI], and Wanfang from their commencement to August 28, 2023.

Participant or population Participants: children and adolescents from one-child families in China.

Intervention This meta-analysis is designed for case-control studies, therefore no intervention in this research.

Comparator This meta-analysis is designed for case-control studies, therefore no comparative intervention applied in this research.

Study designs to be included Case-control studies.

Eligibility criteria Inclusion criteria were made based on the "PICOS" acronym: Participants: children and adolescents from one-child families in China. Intervention: not applicable. Comparison: children and adolescents from multi-child families in China Outcome: prevalence of depression among children and adolescents measured with any standardized scales on depression. Study design: case-control studies. Case studies, commentaries and studies conducted on special populations (e.g., left-behind children, medical or educational students, military veterans, patients, and pregnant women) and those conducted during specific periods (e.g., the COVID-19 pandemic, post-earthquake periods) were excluded.

Information sources Four researchers (YYJ, PC, WZ, and SYR) independently conducted a comprehensive literature search across five international databases: Web of Science, PubMed, PsycINFO, China National Knowledge Infrastructure [CNKI], and Wanfang from their commencement to August 28, 2023..

Main outcome(s) To assess the overall differences in the prevalence of depression between children and adolescents from one-child and multi-child families, the weighted OR based on the 33 studies was 0.943 (95%CI: 0.820, 1.084; P=0.408; I2 = 84.9%), indicating that the differences in depression prevalence among children and adolescents from one-child and multi-child families are not significant.

Additional outcome(s) The subgroup analysis revealed a significant association between population type and the depression prevalence differences (Q = 5.49, P = 0.019). The OR in college students (OR=1.181, 95%CI=0.940-1.484) is higher than the OR in secondary students (OR=0.851, 95%CI=0.731-0.990).

The different depression prevalence between one-child and multi-child families was significantly associated with publication years (Q=8.29, P=0.016). The OR in those published during 2019-2023 (OR=1.082, 95%CI=0.838-1.398) is larger than those during 2014-2018 (OR=0.944, 95%CI=0.709-1.259), while studies published from 2014-2018 have the lowest OR (OR=0.758, 95%CI=0.699-0.822).

The depression prevalence varied significantly based on the scales used in studies (Q=11.76, P=0.008). The OR in studies using the SDS is greater than 1 (OR=1.076, 95%CI=0.821-1.409), while studies using other scales were lower than 1 (DSRSC: OR=0.708, 95%CI=0.643-0.781; CES-D: OR=0.908, 95%CI=0.753-1.095; CDI: OR=0.688, 95%CI=0.295-1.607). Furthermore, the meta-regression analysis indicated that older participants' age (P=0.025) was significantly associated with greater differences in depression prevalence.

Quality assessment / Risk of bias analysis The methodological quality of each study was assessed by the same four researchers using an assessment instrument for epidemiological studies. The score of assessment for each study was evaluated, ranging from 0 to 8. These scores correspond to three levels of quality: 0-3 points for low quality, 4-6 points for medium quality, and 7-8 points for high quality. Any disagreement among the investigators were resolved throughdiscussion.

Strategy of data synthesis The statistical analyses were conducted using R version 4.3.1 (R Core Team, 2023) with the meta package (version 6.5.0). In this meta-analysis of case-control studies, the odds ratio (OR) and 95% confidence interval (CI) were calculated as effect sizes. A random-effects model was employed for all analyses. The potential publication bias was employed by the funnel plot and Egger's test.

Subgroup analysis To address heterogeneity among studies, the inverse variance statistic (I2) was calculated to determine the percentage of variation. If the value of I2 exceeded 50%, subgroup and meta-regression analyses were conducted to account for the high heterogeneity for categorical and countinuous varaibles, respectively (Higgins et al., 2003). Categorical variables included population type (primary vs. secondary vs. college students), sampling method (probability vs. non-probability sampling), publication year (2009-2013 vs. 2014-2018 vs. 2019-2023), geographical regions based on the National Bureau of Statistics of China (National Bureau of Statistics of China, 2011) (eastern vs. central vs. western vs. northeastern China) and the depression scales used. Continuous variables included mean age, sample size, and study quality score.

Sensitivity analysis Sensitivity analysis was performed to assess the stability of the outcomes by repeatedly removing different studies. A two-tailed P-value threshold of 0.05 was considered statistically significant.

Country(ies) involved China.

Keywords children and adolescents, depressive symptoms, depression, meta-analysis, one-child families, multi-child families.

Contributions of each author
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