

INPLASY PROTOCOL

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None declared.

The Associations between Headache (Migraine and Tension-type Headache) and Psychotic Symptoms (Depression and Anxiety) in Pediatrics: A Systematic Review and Meta-analysis

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Review question / Objective: The purpose of this study was to investigate the association with specific psychiatric symptoms such as depression and anxiety in pediatric patients suffering from migraine and TTH. In our meta-analysis for a detailed evaluation of depression and anxiety, we attempted to review the research using various psychodiagnostic tools.

Eligibility criteria: The detailed inclusion criteria for the network meta-analysis were studies with (1) inclusion of pediatric patients; (2) patients with migraine and TTH; (3) evaluation of association between headache (migraine or TTH) and psychotic symptoms (depression and anxiety); (4) comparison between group with headache (migraine or TTH) and control group; (5) using tools for evaluating degree of depression or anxiety; and (6) written in English. Review articles, case reports, letters, and studies with insufficient data or results were excluded.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 19 October 2022 and was last updated on 19 October 2022 (registration number INPLASY2022100078).

INTRODUCTION

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anxiety, we attempted to review the research using various psychodiagnostic tools.

Condition being studied: Headaches are common neurologic problems for children and adolescents, which lead to a lower quality of life. The prevalence of headache rises throughout childhood, reaching its

peak in both sexes between the ages of 11 and 13. Although there was a large difference in the prevalence of each study worldwide, the prevalence of headache among elementary school students in Korea was 29.1%. Headaches are divided into two types based on their etiology; primary and secondary. Primary headaches are disorders not caused by other disorders and account for the majority of headaches. The two most common types of primary headaches are migraine and tension-type headache (TTH). Primary headache disorders in children and adolescents usually have a good clinical course, but when recurrent or chronic, they can interfere with daily activities and lead to negative affective states. Numerous studies over the past decades have revealed a relationship between headache and psychopathology in children and adolescents. Longitudinal population-based studies conducted in Norway using questionnaires to assess psychopathological symptoms found that both anxiety and depressive symptoms were associated with recurrent headache.

METHODS

Participant or population: Patients with migraine and TTH.

Intervention: Group of children and adolescents with headache.

Comparator: Group of children and adolescents without headache.

Study designs to be included: All study designs were considered in this study except for review, case report, and letter.

Eligibility criteria: The detailed inclusion criteria for the network meta-analysis were studies with (1) inclusion of pediatric patients; (2) patients with migraine and TTH; (3) evaluation of association between headache (migraine or TTH) and psychotic symptoms (depression and anxiety); (4) comparison between group with headache (migraine or TTH) and control group; (5) using tools for evaluating degree of depression or anxiety; and (6) written in

English. Review articles, case reports, letters, and studies with insufficient data or results were excluded.

Information sources: Relevant articles were systematically searched using the PubMed, Embase, Cochrane library, and Scopus databases up to October 19, 2022.

Main outcome(s): Children's Depression Inventory, Beck's Depression Inventory, Multidimensional Anxiety Scale for Children, State-Trait Anxiety Inventory, and Beck Anxiety Inventory were used to measure the degree of depression and anxiety in children and adolescents.

Quality assessment / Risk of bias analysis: The Newcastle-Ottawa scale (NOS) was used to assess the methodological quality of the included studies based on three aspects: selection of subjects, comparability of the groups, and assessment of outcomes or exposures. The quality of each study was graded as low (0-3), moderate (4-6), or high (7-9). All divergences were resolved by consensus.

Strategy of data synthesis: All statistical analyses of the pooled data were performed using RevMan 5.3 software (<http://tech.cochrane.org/revman>). I² statistics were used to assess heterogeneity between studies, which measures the extent of inconsistency among the results. I² percentages of around 25, 50, 75% represent low, medium, and high heterogeneity, respectively. Significant heterogeneity was considered to be present if I² ≥ 50%, and the random-effects model was used for data analysis. The pooled data were considered to be homogenous if I² < 50%, and the fixed effects model was used. For the results of meta-analysis, p < 0.05 was considered statistically significant. A funnel plot and Egger's test were also used to assess publication bias with R version 4.1.2. The funnel plot was used to determine the publication bias of individual studies based on the pooled estimate. Egger's test was used to determine whether the funnel plot was symmetrical p < 0.05 indicated the possibility of publication bias.

Subgroup analysis: Not applicable.

Sensitivity analysis: Not applicable.

Country(ies) involved: Republic of Korea.

Keywords: headache, migraine, tension type headache, depression, anxiety, children.

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