INPLASY PROTOCOL

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None declared.

Bidirectional relationships between sleep and mental health in young adults: A systematic review and meta-analysis

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Review question / Objective: The results were inconsistent between different sleep dimensions (e.g., daytime sleepiness, difficulty falling asleep, and sleep duration) and mental health dimensions (e.g., depression, anxiety, and stress). It's challenging to draw firm conclusions about the relationship between sleep and mental health in young people. Whether there is a bidirectional link between sleep and mental health is unclear. Two previous systematic studies found a bidirectional relationship between sleep disturbances, anxiety, and depression in adolescents and older adults (Alvaro et al. 2013; Bao et al., 2017). However, there have been no systematic reviews or meta-analyses of young people. Therefore, the aim of this study is to clarify the relationship between different dimensions of sleep and different dimensions of mental health.

INTRODUCTION

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However, there have been no systematic reviews or meta-analyses of young people.Therefore, the aim of this study is to clarify the relationship between different dimensions of sleep and different dimensions of mental health.

Condition being studied: Several studies have examined the relationship between sleep and various mental health conditions in young adults (Zou et al., 2020; Casement et al., 2020; Zhai et al., 2018; Morita et al., 2015). Casement et al. (2020) showed that sleep extension benefits young women who usually have mood disruption. Morita et al. (2015) reported that sleep problems (e.g., daytime sleepiness and difficulty initiating sleep) were significantly associated with depression. However, a contradictory finding was found in another investigation showing no significant association between insomnia and depression (Ribeiro et al. 2012). The other side of this association between mental health and sleep has been tested in some studies. Lund et al. (2010) showed that participants' emotional stress negatively correlated with their sleep quality. Furthermore, little research has suggested a bidirectional relationship between sleep and mental health among young adults.

METHODS

Participant or population: Young adults.

Intervention: Sleep; mental health.

Comparator: Sleep; mental health.

Study designs to be included: Cross-sectional, longitudinal, and intervention design articles were covered.

Eligibility criteria: The inclusion criteria were as follows: (1) Articles examining the relationship between sleep and mental health were included. (2) Articles providing sufficient information for evaluating odds ratio (OR) and 95% confidence interval (CI) for the association between sleep and mental health were included. (3) Cross-sectional, longitudinal, and intervention design articles were covered. (4) Reported results from a sample of 18–34-year-old healthy young adults were included. (5) Only published peer-reviewed journals with full text articles in English were included. The exclusion criteria were as follows: (1) Articles whose topic was not the relationship between sleep and mental health were excluded. (2) Studies missing data such as odds ratios(OR) and 95% confidence intervals(CI) were excluded. (3) systematic reviews, qualitative studies, case reports, and expert opinions were disregarded. (4) Samples reporting results from infants, children, adolescents, the elderly, and people with diseases were excluded. (5) unpublished articles, papers, monographs, and conference articles were excluded.

Information sources: All searches were executed on May 2022 from the following databases: PubMed, PsychINFO, Embase, Scopus, PsycArticles, Psychology and Behavioral Sciences Collection, and MEDLINE. Search terms were based on the combination of three main areas: (1) sleep: sleep* OR sleep problem OR sleep disorder OR sleep disturbance* OR insomnia OR nightmare* OR sleep duration OR sleep quality; (2) mental health: anxiety OR depression* OR stress* OR psychological stress OR psychological stress OR obsessive-compulsive OR mental disorders OR mental health; (3) target population: college student* OR university student* OR graduate* OR young adult* OR undergraduate* OR emerging adult* OR early adult*. A manual search was also conducted among the reference lists of retrieved articles to identify additional relevant papers.

Main outcome(s): Meta-analysis found that sleep quality was positively associated with depression and stress, and vice-versa. A one-way positive relationship was found between sleep efficiency and depression, anxiety, and stress and anxiety and sleep quality.

Quality assessment / Risk of bias analysis: The included articles' methodological quality was evaluated using the National Heart, Lung, and Blood Institute (NHLBI)

evaluation tool, which has been used to assess the methodological quality of previous reviews in similar areas (Saltzman and Liechty, 2016). The tool contains 14 items, which comprehensively evaluate the quality of articles from four aspects: evaluation object and participation rate, follow-up loss, data collection, and data analysis. Two researchers independently evaluated all the articles, and each criterion was judged as "yes" (the evaluation items were completely and clearly described and met the corresponding requirements), "no" (the evaluation items were not described or did not meet the corresponding requirements), or "?" (the description of the evaluation items is incomplete and unclear). When "yes" accounts for more than 80% of the total evaluation items, the articles are defined as high quality, 60%–80% are medium quality, and 0%–59% are low quality.

Strategy of data synthesis: To quantify the association between sleep and mental health, Stata14.0 software was used to conduct a meta-analysis of the included articles. OR value and 95% CI were selected and entered into the meta-analysis if the data were available from three or more articles.

Subgroup analysis: Subgroup analyses were conducted on the interaction between the four dimensions of sleep(sleep duration, sleep efficiency, sleep time, sleep quality, and daytime fatigue) and the four dimensions of mental health(depression, anxiety, stress, loneliness).

Sensitivity analysis: Sensitivity analysis was conducted to investigate the influence of a single study on the overall pool estimation by omitting one study at a time. Egger's tests and Begg's tests were used to assess potential publication bias.

Country(ies) involved: All three authors are from China.

Keywords: bidirectional relationships, mental health, sleep, young adults.

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