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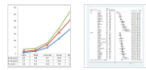
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eTable 1

Pain and severe sleep disturbance in the general population: Primary data and meta-analysis from 240,820 people across 45 low- and middle-income countries

Brendon Stubbs [a, b] [&] [✉], Davy Vancampfort [c, d], Trevor Thompson [e], Nicola Veronese [f], Andre F. Carvalho [h], Marco Solmi [g, i], James Mugisha [j, k], Patricia Schofield [l], A. Matthew Prina [m], Lee Smith [n], Ai Koyanagi [o, p]

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Abstract

Objective

Pain and sleep disturbances are widespread, and are an important cause of a reduced quality of life. Despite this, there is a paucity of multinational population data assessing the association between pain and sleep problems, particularly among low- and middle-income countries (LMICs). Therefore, we investigated the relationship between pain and severe sleep disturbance across 45 LMICs.

Method

Community-based data on 240,820 people recruited via the World Health Survey were analyzed. Multivariable logistic regression analyses adjusted for multiple confounders were performed to quantify the association between pain and severe sleep problems in the last 30 days. A mediation analysis was conducted to explore potential mediators of the relationship between pain and severe sleep disturbance.

Results

The prevalence of mild, moderate, severe, and extreme levels of pain was 26.0%, 16.2%, 9.1%, and 2.2% respectively, whilst 7.8% of adults had severe sleep problems. Compared to those with no pain, the odds ratio (OR, 95% CI) for severe sleep problems was 3.65 (3.24–4.11), 9.35 (8.19–10.67) and 16.84 (13.91–20.39) for those with moderate, severe and extreme pain levels respectively. A country wide meta-analysis adjusted for age and sex demonstrated a significant increased OR across all 45 countries. Anxiety, depression and stress sensitivity explained 12.9%, 3.6%, and 5.2%, respectively, of the relationship between pain and severe sleep disturbances.

Conclusion

Pain and sleep problems are highly co-morbid across LMICs. Future research is required to better understand this relationship. Moreover, future interventions are required to prevent and manage the pain and sleep disturbance comorbidity.

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Keywords

Sleep; Pain; Sleep disturbance; Psychiatry; Low- and middle-income countries

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