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Causal relations between sleep quality and mental health: a meta-analysis.

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Association between sleep and mental health is well-documented, however, consensus on exact causality remains elusive. This study evaluates sleep in the progression of neuropsychological outcomes through a systematic review and meta-analysis. Following PRISMA protocols and pre-registered via PROSPERO, we screened 1,052 records, synthesizing 29 randomized controlled trials (RCTs; $n=2,847$) and 3 longitudinal studies ($n=44,566$). RCT results demonstrate that improving sleep quality reduces symptom severity with small-to-medium effect sizes ($g^+ = -0.46$), specifically for depression ($g^+ = -0.48$), anxiety ($g^+ = -0.41$), and stress ($g^+ = -0.73$). Longitudinal data revealed a moderate risk factor ($HR=1.76$), confirming poor sleep as a precursor to neuropsychological decline. High RCT heterogeneity ($I^2=81.7\%$) was addressed through sensitivity and bias analysis (Egger's $p>.05$). The evidence underscores sleep as a critical mechanism for cognitive and emotional regulation, supporting sleep-targeted interventions as a primary strategy for managing neuropsychological disorders.