

How Does Sleep Quality Affect Resilience?—A Longitudinal Study on the Sequential Mediating Role of Anxiety and Depression

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Objective

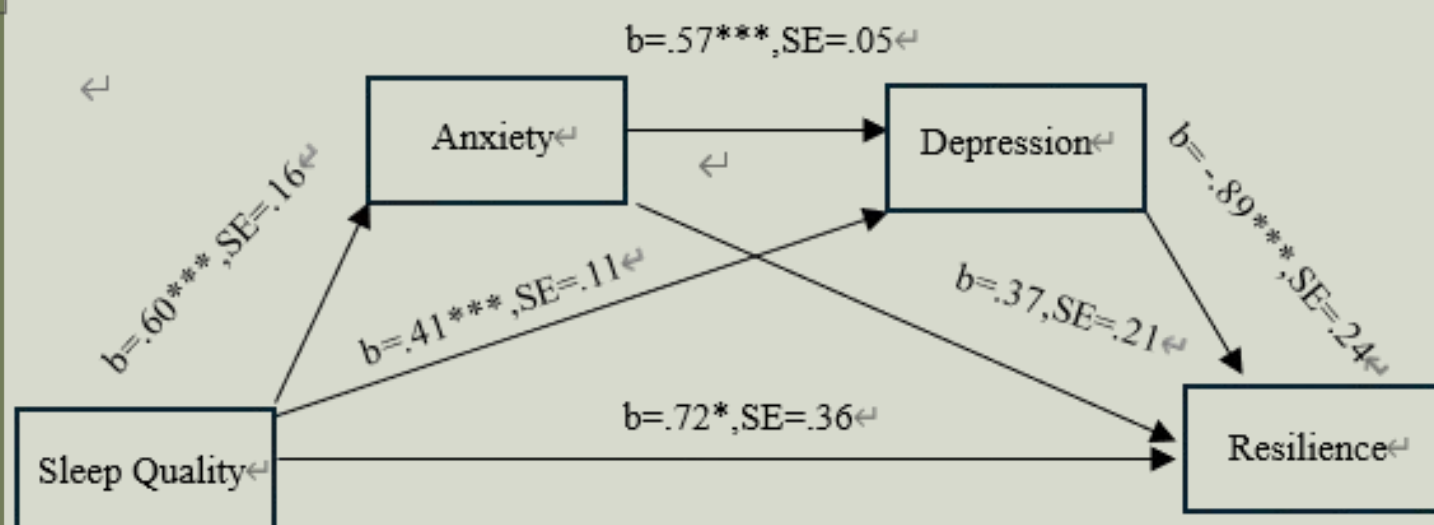
Previous research has shown a positive link between sleep quality and resilience, but the emotional mechanisms underlying this relationship remain unclear. This study aims to examine the serial mediating roles of anxiety and depression in the association between sleep quality and resilience, offering insights into potential pathways for enhancing resilience through sleep-related interventions.

Methods

This study recruited adults aged 18 to 40 years. Participants with epilepsy, brain injury, hyperthyroidism, pregnancy, substance or alcohol abuse, intellectual disabilities, or those undergoing clinical intervention were excluded. Measures included the Pittsburgh Sleep Quality Index (PSQI), Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI), and the Connor-Davidson Resilience Scale (CD-RISC). Data were collected at baseline and at two follow-up points spaced three months apart. A serial mediation model was tested using Model 6 of Hayes' (2017) PROCESS macro for SPSS, with 5,000 bootstrap resamples to estimate 95% confidence intervals.

Results

A total of 260 valid responses were analyzed (mean age = 25.23, SD = 4.64). Sleep quality was negatively associated with resilience and positively associated with both anxiety and depression. Serial mediation analysis showed significant indirect effects through anxiety ($b = .23$, 95% CI [.03, .69]), depression ($b = -.30$, 95% CI [-.52, -.10]), and the sequential pathway from anxiety to depression ($b = -.35$, 95% CI [-.79, -.13]), indicating that anxiety and depression jointly mediate the relationship between sleep quality and resilience.



Results

Sequential Mediating Effects of Anxiety and Depression Between Sleep Quality and Resilience

	Sleep Quality
Total effect	-.71
Direct effect	(-1.29 ~ -.13)
Indirect effects	-.19
Sleep Quality → Anxiety → Resilience	-.23
	(.03 ~ .69)
Sleep Quality → Depression → Resilience	-.14
	(-.26 ~ -.03)
Sleep Quality → Anxiety → Depression → Resilience	-.35
	(-.79 ~ -.13)
	partial mediation

Note: The values in the table are b values, and the numbers in brackets are 95% confidence intervals

Discussion

This study demonstrates that poor sleep quality is associated with reduced resilience, both directly and indirectly through increased anxiety and depression. Among the mediating pathways, anxiety had the strongest effect, suggesting it may play a primary role in the emotional mechanisms linking sleep and resilience. These findings are consistent with previous research showing that poor sleep can predict emotional difficulties, which in turn hinder adaptive coping (Meng et al., 2025; Wu et al., 2020). While anxiety and depression often co-occur, their relationship is complex and bidirectional (Jacobson & Newman, 2017), reinforcing the importance of examining both in mediation models. Clinically, the results underscore the value of addressing anxiety in individuals with sleep problems as a way to strengthen psychological resilience.

References

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Disclosure of conflict of interest name of first author:
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I have no COI with regard to the presentation