

A Meta-Analysis of Associations Between Insomnia Symptoms and Suicidal Behaviors in Adolescents

Hsiao-Yean Chiu, PhD, RN

School of Nursing, College of Nursing, Taipei Medical University, Taipei, Taiwan

Purpose: Suicide in adolescents is a major public health concern. To reduce youth suicide rates, identifying modifiable risk factors of suicidal behaviors in adolescents is of importance. Insomnia symptoms have received considerable attention as a potential predictor of youth suicidal behaviors; however, evidence on the associations between insomnia symptoms and suicidal behaviors have not been synthesized. The purpose of the current study was to explore the correlations between insomnia symptoms and suicidal behaviors in adolescents.

Methods: We systematically searched electronic databases, including PubMed, EEMBASE, PsycINFO, ProQuest, and CNKI, from their inception to April 30, 2017. Only observational studies that investigated the associations between insomnia symptoms and suicidal behaviors in adolescents were included. The 2016 JBI critical appraisal instruments for appraisal quality was used to assess the study quality. Publication bias was evaluated by the Egger's test and Begg's test. All analyses were conducted using Comprehensive Meta-Analysis 2.0.

Results: A total of nine studies (seven for cross-sectional design and two for prospectively longitudinal design) involving 42,527 participants were included. For seven cross-sectional studies, we found significant associations of any insomnia symptom with suicidal ideation, plan, and attempts (pooled odds ratios [ORs] = 1.68, 1.55, and 1.95; 95% confidence intervals [CIs] = 1.50-1.88, 1.40-1.72, and 1.53-2.50). After categorizing insomnia symptoms into three types: difficulty in initiating sleep [DIS], difficulty in maintaining sleep [DMS], and early morning awakening [EMA], we found that DIS significantly correlated to suicidal ideation, plan, and attempt, that DMS was significantly associated with suicidal ideation and plan, and that EMA significantly correlated to suicidal plan (all $p < 0.05$). For two longitudinal studies, there were significant associations of any insomnia symptom with suicidal ideation and attempt using fixed-effects model (pooled ORs = 1.21 and 1.25; 95% CI = 1.10-1.33 and 1.08-1.44); however, the significant associations were not observed while using random -effects model. For subgroup analyses and meta-regressions, the studies conducted in the Western countries reported a stronger association between insomnia symptoms and suicidal ideation compared to those conducted in the Eastern countries ($p = 0.02$). Studies that adjusted for depression had comparable association of any insomnia symptom with suicidal ideation, plan, and attempts in comparison with those did not. ($p = 0.20$, 0.54 and 0.25). The association between insomnia symptoms and suicidal ideation elevated with increasing age ($B = 0.24$, $p = 0.05$). The association between insomnia symptoms and suicidal attempts increased with a higher percentage of women ($B = 0.04$, $p = 0.003$). Both the Egger's test and Begg's test proved no publication bias.

Conclusion: The current evidence suggests substantial associations between insomnia symptoms and suicidal behaviors in adolescents, particularly DIS. Depression did not moderate the relationship. From the standpoint of preventing youth suicide, healthcare providers should screen out adolescents with insomnia symptoms, and scheme effective interventions to reduce insomnia symptoms.

Title:

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References:

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Abstract Summary:

Insomnia symptoms is substantially and independently associated with suicidal behaviors in adolescents, particularly difficulty in initiating sleep. Depression did not moderate the relationship. Healthcare providers should be informed by our study findings and scheme effective interventions to reduce insomnia symptoms.

Content Outline:

Content outline

Introduction

Youth suicidal behaviors are major public health concern, and insomnia symptoms have been proposed to be associated with youth suicidal; however, previous studies produced conflicting findings.

Body

1. Difficulty in initiating sleep significantly correlated to suicidal ideation, plan, and attempt.
2. Difficulty in maintain sleep was significantly associated with suicidal ideation and plan.
3. Early morning awakening significantly correlated to suicidal plan.

Conclusion

Insomnia symptoms substantially and independently correlated to suicidal behaviors in adolescents,

First Primary Presenting Author

Primary Presenting Author

Hsiao-Yean Chiu, PhD, RN

Taipei Medical University

School of Nursing, College of Nursing

Assistant Professor

Taipei
Taiwan

Professional Experience: 2014-present Associated Professor, School of Nursing, College of Nursing, Taipei Medical University 2013-2014 post-doctoral fellow, Taipei Medical University 2008-2009 Research Assistant, Taipei Medical University 2007-2008 Clinical Nursing Instructor, Chang Gung Institute of Technology 2006-2007 Research Assistant, Yang-Ming University 1998-2002 RN, Chang Gung Memorial Hospital

Author Summary: My research focus is in sleep assessment and management. Previous research experiences focused on the trajectory of sleep in patients with traumatic brain injury in acute and chronic stages.