Review Paper

A systematic review of studies on the prevalence of Insomnia in university students

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ABSTRACT

Objectives: Many studies have shown that insomnia is a common problem among university students, but there are wide variations in the prevalence of insomnia. In this systematic review, we aimed to explore the prevalence of insomnia among university students using scientific and conclusive methods.

Study design: A systematic review is designed to analyze the studies reporting on prevalence of insomnia among university students.

Methods: Systemic searches were conducted in PubMed, BioMed Central, EBSCO, ScienceDirect, Ovid LWW and Medline databases between January 2000 and July 2014, The Meta analyst software was used to calculate the prevalence rate of each study, the pooled means of prevalence rates and 95% CIs across studies were then calculated and presented.

Results: Seven articles that met the inclusion and exclusion criteria were selected. The overall sample size in the current review was 16,478, with a minimum of 219 and a maximum of 10,322. The prevalence rates of the seven studies ranged between 9.4% (95%CI 8.8—10.0%) and 38.2% (95% CI 35.4—41.1%). Overall, the total students studied with a weighted mean prevalence of 18.5% (95% CI 11.2—28.8%), considerably higher than rates of 7.4% (95% CI 5.8—9.0%) reported in general population.

Conclusions: This review emphasized that insomnia prevalence in university students is considerably higher than that in general population, suggested that more attention should be paid to insomnia in university students.

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Introduction

Insomnia is a disease characterized by difficulty falling and remaining asleep, accompanied with early morning awakening, daytime impairment,[34—36] and/or non-restorative sleep, and associated with a variety of psychiatric conditions, especially depression and anxiety.[37—40] It is plausible that there are relationships between these variables and insomnia.[41—43] Recently, many studies have shown that insomnia is a common problem in young adults, including university students,[15,24,29,30] but there are wide variations in the prevalence of insomnia among university students.

With the advent of the rapid development of new media (such as computers and smartphones) in the twentieth century, sleep quality and quantity among young adults, including university students, has changed.[1—3] Many of university students experience insomnia, which could have detrimental effects on daytime activities, including studying.[4—7] It is believed that insomnia not only weakens physical and mental functions and lowers work productivity, but could also cause mental problems, such as anxiety and depression.[8—10] The cost of sleep and affective disturbance can be distinctively high in university students because they represent the future of society.[11—13]

Although there has been increasing concern regarding insomnia in specific groups such as adolescents or the elderly, insomnia among university students has received relatively little attention.[10,14—18] Studies have reported wide variations in the proportion of university students identified as insomniacs, from relatively low rates of approximately 9%[19] to high rates of between 38% and 71%.[20—22] These wide variations appear to be affected by many factors such as geographical location, methods of assessment and demographic factors.[23—25] Notably, methods for evaluating insomnia are also widely variable. In some studies that evaluated the presence of insomnia symptoms without restrictive criteria, the prevalence was relative high (33—76.3%) in the general population.[25—28] In studies that evaluated the presence of insomnia using the DSM-IV or the International Classification of Sleep Disorders, the prevalence was relative low (6—8%) in the general population.[24] Studies evaluating the presence of insomnia with quantitative scales reported a prevalence of 8—38%.[15,30,31] Therefore, studies on the prevalence of insomnia among university students are inconclusive. A systemic review is necessary to select and evaluate high-quality epidemiology studies, and then explore the prevalence of insomnia among university students using scientific and conclusive methods.

To our knowledge, no systemic review of studies examining the prevalence of insomnia in university students has been published. In this systematic review, we aimed to identify studies reporting the prevalence of insomnia among university students from 2000 to 2014.

Method

Search strategy

A systematic literature review of PubMed, BioMed Central, EBSCO, ScienceDirect, Ovid LWW and Medline databases was carried out to identify peer reviewed studies, published between January 2000 and July 2014, reporting on insomnia among university students. Searches used the keywords ('insomnia' or 'sleep symptoms' or 'sleep disorders' or 'sleep quality' or 'sleep disturbance') AND ('prevalence' or 'epidemiology survey' or 'cross-sectional study') AND ('university students' or 'college students' or 'undergraduate students' or 'adolescents or young adults'). The MeSH used the subject heading as 'insomnia', then the searches used sub-heading words 'adults' and 'prevalence'. The details of search strategy was listed using PubMed as an example (see supplementary material). Additional articles were identified through the reference lists of the retrieved articles and previous review studies. Searches were limited to articles published in English.

Inclusion and exclusion criteria

Inclusion criteria were as the followings: (1) cross sectional study, (2) the study sample included students in college or university who are away from home for the first time; (3) the study included an aim to provide prevalence of insomnia; (4) the study evaluating the presence of insomnia with some quantitative and validated scales. The exclusion criteria were (1) failure to report a separate prevalence rate of insomnia of students; (2) the study did not report the response rate; (3) other epidemiological study such as longitude study or clinical trial. Demographic data, response rate, sample size, diagnostic scales used and prevalence data on students' insomnia were abstracted.

Quality assessment

We adapted the quality assessment instrument used by Ibrahim et al.[20] Each of the included articles scored one point for each of the following markers: (1) if the article defined the target population clearly, (2) if the article selected the sample population randomly, (3) if the target sample is representative for the university students (4) the response rate was equal or greater than 70%, (5) the insomnia scale used is a validated measure, (6) the sample size is adequate with a minimum sample size of 300, (7) the confidence intervals (CI) or standard error (SE) are reported. A full description of the quality assessments for the examined studies is included in the supplementary material.

Meta analysis

The Meta analyst software was used for calculate the prevalence rate of each study, which was multiplied by the corresponding sample size and divided by the total sample size to give a pooled prevalence of insomnia. The pooled means of prevalence rates and 95%CIs across studies was then calculated and presented in Meta analyst beta 3.13 (Tufts Medical Center, Boston, MA, USA).

Results

This review identified 852 peer reviewed articles. After examining the titles, the abstracts and reference lists of 63