



Review

A systematic review of the longitudinal relationships between subjective sleep disturbance and menopausal stage



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ARTICLE INFO

Article history:

Received 12 September 2014

Accepted 20 September 2014

Keywords:

Menopausal stage

Sleep disturbance

Longitudinal

Systematic review

ABSTRACT

Sleep disturbance is a common complaint for women going through the menopausal transition. A previous systematic review and meta-analysis of cross-sectional studies showed a small but significant relationship between self-reported sleep disturbance and menopausal stage and highlighted a possible influence of culture. However, the longitudinal relationship between self-reported sleep disturbance and menopausal transition has not been explored. This paper aimed to review literature on the longitudinal relationship between self-reported sleep disturbance and menopausal transition among community dwelling midlife women. Multiple electronic databases were systematically searched. Literature published prior to 2013 was reviewed. A narrative synthesis was used to analyse the results due to high level of heterogeneity across the included studies. Overall, review of eligible studies showed a small increased risk of self-reported sleep disturbance as women go through the menopausal transition after adjustment of potential confounders. Although the methodological quality of the majority of included studies was classified as high, the impact of culture on this relationship could not be explored, as all of the included studies were conducted in western countries. Like vasomotor symptoms, self-reported sleep disturbance is one of the core menopausal symptoms. Management strategies should be put in place to help women manage sleep disturbance to prevent complications and to improve health related quality of life.

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1. Introduction

Sleep disturbance is a common health concern, with 30% of the general population experiencing sleep difficulty of varying severity [1]. While sleep disturbance is more common for women than men at any stage of their life [e.g., 1, 2, 3], during the menopausal transition, the prevalence of sleep disturbance increases dramatically from 30% in premenopausal women to approximately 50% in peri- and postmenopausal women [for reviews, see 3, 4].

At a physiological level, the decreasing levels of Estradiol and increasing follicle stimulating hormone (FSH) levels may interfere with the secretion of melatonin and other circadian hormones [3]. In addition, ageing may be an important consideration. As women age, their circadian rhythm changes, resulting in shortened sleep duration and early morning awakening.

However, it is clear that sleep disturbance is multifactorial, and many aspects of the menopausal transition are believed to have an association with sleep disturbance in addition to the hormonal changes of the menopausal stages [3–6]. First, vasomotor symptoms, particularly night sweats, are associated with difficulty maintaining sleep at night. The sudden perspiration can awaken women, as well as necessitate the change of bed linen and clothes. Furthermore, women's psychosocial status is also a possible contributor to sleep disturbance, as sleep disturbance is often an inherent feature of mental health problems; some of which are also more common in women. Given the adjustments many women have to make during menopausal transition, psychosocial status should always be considered. Lastly, health behaviour such as weight status, physical activity, consumption of alcohol and tobacco can influence women's sleep as well. A high body mass index is associated with obstructive sleep apnea, which is a cause for sleep disturbance. Individuals who complete moderate physical activity during the day experience better sleep quality. Given the associations between these factors and sleep disturbance, it is essential that when investigating the relationship between menopausal transition and sleep disturbance, these factors are taken into consideration.

The question of whether menopausal stage independently predicts sleep quality was examined via systematic review and meta-analysis in our earlier paper [7]. This paper quantified the relationship between menopausal transition and sleep disturbance, and more importantly, highlighted the cultural variation in this relationship. However, our conclusions are based on the analysis of cross-sectional data, which does not allow the consideration of the influence of sleep disturbance at pre-menopausal stage on sleep at a later time, or changes of confounding factors (such as vasomotor symptoms, psychosocial factors or health variables) over time. It may be important to control for women's sleep quality before their menopausal transition because women who sleep poorly may be more likely to experience sleep disturbance at menopausal transition than those who do not. Investigating the changes in confounders allows for the evaluation of whether the increase in sleep disturbance during the menopausal transition is a result of changing life circumstances, health behaviour or other factors.

The purpose of this paper is to systematically review the longitudinal relationship between sleep disturbance and the menopausal transition among community dwelling women using a narrative synthesis approach. Critique of the methodological quality of eligible studies will be conducted to inform the interpretation of the overall findings.

2. Method

2.1. Literature search

A systematic literature search was conducted in multiple electronic databases including AgeLine, CINAHL, Cochrane Library, Health Collection, Health and Medical Complete, Informit Health Collection-Health Collection, Joanna Briggs Institute, PubMed, ProQuest Psychology Journals, PsycARTICLES, Psychology and Behavioral Sciences Collection, PsycINFO, ProQuest Family Health, and SAGE text. *Sleep* or *sleep disorder* in combination with *menopause* or *menopausal* were used as both keywords and Medical Subject Headings/subject terms. The search was conducted from the first available year to November 2013. The search was limited to human subjects, apart from this; no other limits were applied in search strategy (including language) to maximize search outcomes. The reference lists of review articles were manually searched to ensure eligible studies were included.

2.2. Inclusion and exclusion criteria

The purpose of this review was to evaluate the longitudinal relationship between menopausal transitions and sleep disturbance in community dwelling midlife women. Studies were included if they (1) quantitatively examined the longitudinal relationship between menopausal transition and sleep disturbance; and (2) the comparison of sleep disturbance was performed using the premenopausal (reproductive) stage or a combined premenopausal and early perimenopausal stage as the reference group.

Studies that met any of the following criteria were excluded: (1) failed to define stages of menopausal transition clearly; (2) examined women at one menopausal stage only (e.g. postmenopausal women only); (3) classified menopausal stages in a way that is not comparable with other included studies (e.g. non-postmenopausal vs. postmenopausal); (4) examined a specific sleep disorder such as restless leg syndrome, nocturia or obstructive sleep apnea; (5) examined the result of sleep disturbance such as daytime sleepiness rather than sleep disturbance itself; and (6) used a patient sample. Papers which did not present primary research containing quantitative data, such as traditional reviews, commentaries or editorials were also excluded. When multiple reports were published from a single study (defined as one study sample), only the report that contains relevant and the most complete data was included. Fig. 1 provides a flowchart displaying the paper selection process.

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