



Cooccurrence and bidirectional prediction of sleep disturbances and depression in older adults: Meta-analysis and systematic review



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ABSTRACT

The present study pooled the prevalence of sleep disturbances and depression in community-dwelling older adults (mean age ≥ 60 years) and quantified the strength of evidence of the relationship between these two problems. From 23 cross-sectional studies and five sets of baseline data, a high pooled prevalence of sleep disturbances (30.5%), depressive symptoms (18.1%) and coexisting disorders (10.6%) were found. In the 23 cohort studies, self-reported sleep disturbances increased the risk of the onset of depression (relative risk [RR] = 1.92). Persistent sleep disturbances increased the risk of the development (RR = 3.90), recurrence (RR = 7.70), and worsening (RR = 1.46) of depression in older adults. Little support was found for a predictive role for objective sleep characteristics in the development of depression. Older adults with depression had a higher risk of developing (RR = 1.72) and worsening (RR = 1.73) symptoms of sleep disturbances. This review emphasizes the importance of timely interventions in incipient sleep disturbances and depression among older adults, preventing the development of more serious comorbidities.

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1. Introduction

Sleep disturbances and depression are two major concerns that cause significant health problems and a public burden in the community-dwelling elderly (Alexopoulos, 2005; Morin and Benca, 2012; Prinz et al., 1990). Sleep disturbances mainly include insomnia, poor sleep quality, and sleep complaints, among others. They occur with an increasing prevalence in the elderly and are a prevalent complaint in older adults in primary care settings (Morin and Benca, 2012). Late-life depression also has a high prevalence and increases the morbidity and mortality of chronic medical illnesses in older adults (Alexopoulos, 2005; Cuijpers and Smit, 2002; Lucas, 2003). Both sleep disturbances and depression reduce quality of life and increase the risk of psychiatric comorbidity, medical comorbidity, disability, and mortality (Cuijpers and Smit, 2002; Li et al., 2014; Lucas, 2003). The two problems can cause profound and harmful consequences and severe health burdens as the worldwide population ages.

Clinical and epidemiological investigations have shown that sleep disturbances are tightly linked to depression, emphasizing the comorbid nature of sleep disturbances and depression, including the concurrent comorbidity model and sequential comorbidity model (Finan and Smith, 2013; Lustberg and Reynolds, 2000; Staner, 2010). The cooccurrence of sleep disturbances and depression in epidemiological and clinical studies indicates concurrent comorbidity between these two problems. The pooled prevalence of concurrent sleep disturbances and depression among community-dwelling older adults is needed to evaluate disease burden and guide healthcare services with regard to prevention and treatment. Although many epidemiological studies have reported the prevalence of sleep disturbances and depression in older adults, the reported prevalence has varied widely (Buchtemann et al., 2012; Luppá et al., 2012; Ohayon, 2002; Stranges et al., 2012). Definitive conclusions concerning the pooled prevalence of sleep disturbances and depression are difficult to draw. It is necessary to estimate the pooled prevalence of sleep disturbances and depression and their coexistence among older adults using meta-analysis.

Several studies have revealed that the link between sleep disturbances and depression is bidirectional and reciprocal

(Jansson-Frojmark and Lindblom, 2008; Lustberg and Reynolds, 2000). In adults and adolescents, the model of sequential comorbidity mainly focuses on the predictive role of sleep disturbances in depression (Baglioni et al., 2011; Lovato and Gradisar, 2014; Staner, 2010). Sleep disturbances are a risk factor for the development of depression and also a prodrome of major depressive episodes (Baglioni et al., 2011; Roberts et al., 2000). Persistent sleep disturbances can lead to recurrent depression in adults (Baglioni et al., 2011; Cole and Dendukuri, 2003; Ford and Kamerow, 1989; Franzen and Buysse, 2008; Lovato and Gradisar, 2014). Little support was found for a predictive role for depressive symptoms (DS) in the development of sleep disturbances, especially in adolescents with limited number of longitudinal studies (Lovato and Gradisar, 2014). Previous studies have reported that sleep disturbances are an important risk factor for the onset, development, and recurrence of depression in community-dwelling elderly individuals (Cole and Dendukuri, 2003; Lee et al., 2013). Moreover, depression has been shown to be a strong predictor of the development and persistence of sleep complaints in older samples (Fok et al., 2010). However, inconsistent findings were reported, in which depression at baseline did not predict the development or persistence of insomnia at follow-up (Gureje et al., 2011). Although prior systematic reviews have assessed risk factors for sleep disturbances, including depressed mood (Smagula et al., 2016), quantitative estimates of the magnitude of this risk are still needed. The quantitative strength of the bidirectional relationship and sequential comorbidity of these two problems will help us better understand and guide the development of prevention and early intervention strategies to reduce their coexistence and other medical comorbidities in older adults.

In the present study, we pooled the prevalence of sleep disturbances, depression, and their coexistence among community-dwelling older adults in cross-sectional studies and assessed the predictive relationship between these two problems in prospective longitudinal cohort studies by meta-analysis. We also reviewed the possible common mechanisms that underlie the cooccurrence of and bidirectional relationship between sleep disturbances and depression in the aging process. Lastly, we provide clinical recommendations.

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