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Social participation and older adults' sleep

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ABSTRACT

Sleep complaints are common among older adults, and poor sleep has been found to predict chronic diseases and mortality. Many studies suggest that social participation benefits healthy aging. We examined the relationships between older adults' social participation and their sleep using two waves (2005–2006, 2010–2011) of data from the National Social Life, Health, and Aging Project (NSHAP). The NSHAP recorded older adults' social participation (including religious attendance, volunteer work, and attendance at meetings of organized groups) over five years, and included self-reported sleep duration in both waves and, in the second wave, measures of insomnia symptoms and measures of sleep patterns and rhythms using actigraphy for a subsample. Cross-sectional analysis of the second wave indicates that those reporting higher levels of social participation had better actigraphic sleep but not better self-reported sleep. However, longitudinal analysis suggests that change in social participation was not associated with actigraphic or self-reported sleep characteristics in the second wave data. Further analysis using fixed-effects model showed no association between change in social participation and change in self-reported sleep duration. Thus, although older adults with greater social participation slept better, we did not find that increasing social participation improved sleep. These findings imply that a self-selection process may at work; or if social participation does affect sleep, the causal effect may be over a much shorter time frame than five years.

1. Introduction

The social connectedness of older adults is a salient issue in a rapidly aging society. Close connections to, and participation in, social groups and communities provide material and social support, a sense of belonging, and access to information that can be crucial for health and well-being (Berkman et al., 2000; Kawachi and Berkman, 2000; Uchino et al., 1996). Patterns of social participation change in parallel with life-cycle transitions. Events such as retirement, the decline in physical and mental health in later life, and the loss of a family member or spouse all have considerable effects on the level and configuration of an individual's social participation (Bukow et al., 2002; Cornwell et al., 2008; Erlinghagen and Hank, 2006). A large volume of literature has documented the health consequences of social participation at older ages (e.g., de Leon et al., 2003; Folland, 2007; Hill et al., 2005; Hummer et al., 1999). Although the exact mechanisms are not yet fully explored, most studies suggest that social participation is associated with better health outcomes, in particular mental health and mortality, in older adults.

Despite substantial attention to the link between social participation and morbidity/mortality, relatively few studies attempt to link social participation to behavioral risk factors at older ages. This is an oversight because, as many theories suggested (e.g., Berkman et al., 2000; Kawachi and Berkman, 2000), one of the reasons why social participation benefits older adults' health may be through promotion of healthy behaviors. For example, some studies suggest that participation in religious activities is negatively associated with the likelihood of smoking at older ages (Koenig et al., 1998; Strawbridge et al., 2001). Recently, sleep has been increasingly recognized as a crucial behavioral risk factor for cognitive decline, chronic diseases, and mortality in older adults (Cappuccio et al., 2010; Cricco et al., 2001; Gangwisch et al., 2008; Phillips and Mannino, 2007). However, to our knowledge, no study has examined the role of social participation in older adults' sleep. Furthermore, sleep problems are common among older adults (Ancoli-Israel, 2009); large surveys found that nearly half of older adults

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report at least one insomnia symptom (Foley et al., 1995; Lauderdale et al., 2014). Taken together, these studies suggest that sleep may be an important behavioral risk factor through which social processes affect morbidity and mortality at older ages.

Motivated by this concern, this study aims to examine the relationships between social participation and older adults' sleep. Drawing on theories and research from social epidemiology and medical sociology, we provide one of the first systematic analyses of social participation and older adults' sleep. In addition to social causation processes, we also consider the role of human agency (Thoits and Hewitt, 2001). Many studies of the impact of social relationships on health overlook the necessary role of human agency for social participation. Although an individual's well-being can be enhanced by social participation, personal health conditions also facilitate social participation (Bukow et al., 2002; Cornwell et al., 2008; Erlinghagen and Hank, 2006; Kelley-Moore and Ferraro, 2001). We thus consider both social causation and self-selection processes in explaining the relationships between social participation and sleep. Finally, nationally representative data that include information both on older adults' social participation and on sleep are scarce. Notably, our data include direct actigraphic assessments of sleep characteristics. The richness of our data allow us to examine the influence of social participation on two dimensions of sleep—perceived sleep disorder of older adults and sleep patterns and rhythms. .

1.1. Social determinants of sleep

Sleep is one of the most important restorative behaviors for an individual's health and well-being. All humans require sleep because it provides new energy for the brain and for physical activities. However, relatively few surveys with representative population samples include sleep questions, and most sleep research is clinic based, includes patients or volunteers, and collects data in a clinical sleep laboratory. We thus know more about the role of mental and physical illness in shaping an individual's sleep outcomes than about the effects of social processes.

This, however, appears to have changed recently; epidemiologists and social scientists have begun to link a wide array of social factors to sleep outcomes using population-based samples. For example, in a series of papers, Burgard and Ailshire show that those with strained family relationships report more sleep problems (Ailshire and Burgard, 2012), and differences in family responsibilities generate substantial gender gaps in sleep outcomes, including more interrupted sleep and longer self-reported sleep duration in women (Burgard, 2011; Burgard and Ailshire, 2013). In a recent article, we (2015b) examined the relationship between marriage and self-report and actigraphic sleep characteristics in older adults. We found that married older adults showed better actigraphic sleep characteristics than single older adults. Among married older adults, positive aspects of the marital relationship were associated with better actigraphic sleep characteristics. The work environment also influences younger adults' sleep. Those who report stressful experiences at work also tend to report poor sleep quality (Burgard and Ailshire, 2009). Lastly, as is the case for other health outcomes, scholars have found that markers of socioeconomic status are strong predictors of sleep characteristics. Both education and income were negatively associated with time to fall asleep (Lauderdale et al., 2006; Friedman et al., 2007), higher rates of sleep complaints (Grandner et al., 2010), and short sleep duration (Stamatakis et al., 2007).

Whereas these studies document the influence of family relationships, the work environment, and socioeconomic status on sleep, the implications of social participation—an influential factor in older adults' health— have received little attention. Furthermore, few prior studies on the social determinants of sleep consider the complex nature of human sleep. Defining what constitutes good sleep is not straightforward. Sleep duration, sleep consolidation, and experience of restfulness are all key aspects for evaluating a person's sleep. These aspects of sleep may be measured by time set aside for sleep, frequency of awakening during the night, or the degree to which one feels rested in the morning. Prior studies have found that individuals' perceptions of their sleep and direct assessments of sleep often diverge (Chen et al., 2015a,b). As such, the social scientific literature of sleep would be strengthened by considering the influence of social process on both individuals' perceived sleep disorder and sleep patterns and rhythms. With a few exceptions (i.e., Chen et al., 2015a,b), prior studies in social sciences are unable to examine these two important aspects of sleep. Because of these limitations, we have gaps in our understanding of the influence of social life on sleep at older ages.

1.2. Social participation and sleep at old ages

The literature on older adults' social participation and theories from medical sociology provide substantial theoretical motivation for understanding the relationship between social participation and sleep in older adults. Bukov et al., 2002 defined social participation as “the conduct of actions in which individuals share their resources with others.” Depending on the resources that individuals shared, social participation can be further distinguished as collective, productive, and political (Bukov et al., 2002). Of the three types, collective social participation—“common acting of group members through shared time” (Bukov et al., 2002)—appears to be the most consequential for older adults' health. It has been documented that older adults who frequently participate in religion, community, or volunteer activities show better health outcomes than others (Hill et al., 2005; Hummer et al., 1999; Zhang, 2008). However, studies of other types of social activities (such as giving help to relatives, friends, or neighbors) often find no strong beneficial effect on the elderly person's health (Pynnonen et al., 2012). Thus, this study focuses on the role of collective social participation in older adults' sleep.

Collective social participation can affect sleep through two mechanisms. First, one key positive feature of collective social participation is the provision of a sense of belonging and social integration through shared time and engagement in joint activities with members of a religious or community group. Companionship and social integration are crucial for older adults' psychological well-being, which in turn promotes sleep at night. Clinical and epidemiological studies find that loneliness undermines sleep quality (Cacioppo et al., 2002; Kurina et al., 2011). Companionship with confidants and friends may thus support good sleep quality. Furthermore, the emotional support and resources gained from social participation may help buffer stress, which can damage psychological well-being (Thoits, 2011). Given that insomnia is an important symptom of mental health problems (Harvey, 2001), the resources from social membership may improve sleep outcomes by ameliorating the effects of stress. Accordingly, collective social participation may affect sleep via its influence on psychological well-being and mental health outcomes.

Second, social participation may influence older adults' physical health and health-related behaviors. Older adults who are more involved in religious and community groups have better physical health outcomes, such as lower mortality risk at mid-life (e.g., de Leon et al., 2003; Folland, 2007; Hill et al., 2005; Hummer et al., 1999). Because older adults with medical problems are more likely to report insomnia symptoms (Foley et al., 2004), social participation may promote sleep through an improvement in physical health status or a promotion of positive health behaviors.