Published in final edited form as:

J Evid Based Complementary Altern Med. 2014 January ; 19(1): 36–42. doi:10.1177/2156587213510005.

Self-Reported Sleep Difficulties and Self-Care Strategies Among Rural Older Adults

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Abstract

This study examined the use of self-care strategies to address difficulty sleeping among community-dwelling older adults. Data were collected from a series of 18 questionnaires administered to 195 rural African American and white older adults in North Carolina. Participants reported whether they had experienced difficulty sleeping and strategies used to respond to the symptom. The most widely used strategies included ignoring the symptom, staying in bed or resting, and praying. Herb and supplement use were not reported. Ethnicity, income, and education were associated with use of specific self-care strategies for sleep. This variation suggests that older adults may draw on cultural understandings to interpret the significance of difficulty sleeping and influence their use of self-care strategies, including complementary and alternative medicine use. This information may enable health care providers to communicate with the older patients about sleep difficulty strategies to minimize sleep problems.

Keywords

older adults; sleep; self-care

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Author Contributions

JCS conceptualized and wrote the article. CKS conducted statistical analyses. SAQ designed the study, oversaw data collection, and commented on the manuscript. KPA collected data and commented on the manuscript. RAB designed the study and commented on the manuscript. WL designed the study, oversaw statistical analysis, and commented on the manuscript. HTN commented on the manuscript. JGG designed the study and commented on the manuscript. TAC designed the study, oversaw data collection, and commented on the manuscript.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical Approval

The [Wake Forest School of Medicine] Institutional Review Board approved recruitment and data collection strategies (IRB Protocol Number 00000182). All participants gave signed informed consent.

Introduction

Sleep substantially affects and is affected by older adults' health and function. Sleep problems are associated with diverse conditions, including insulin resistance,¹ cardiac disease,² depression,^{3–5} reduced cognitive function,⁶ impaired performance of basic physical tasks,⁷ and increased risk of falls.⁸ Despite the negative impact that sleep difficulties can have on older adults' well-being, limited information is available about the self-care strategies, including complementary and alternative therapies, that they implement in response to sleep problems. This analysis addresses this knowledge gap among a sample of multiethnic, rural, older adults.

Estimates of sleep complaints and sleep disorders among older adults vary substantially by the measures used.^{9–12} Grandner et al¹⁰ found that among older adults, 18% to 20% reported trouble falling asleep or staying asleep, or sleeping too much at least 6 days during the previous 2 weeks. However, more than half of older adults residing in 3 communities in the Established Populations for Epidemiologic Studies of the Elderly reported that they experienced 1 or more of 5 sleep complaints most of the time.⁹

Several individual characteristics are associated with the prevalence of sleep problems among older adults. Sleep disorders or disruptions appear to be most common among the oldest adults.^{10,13} Women generally report more sleep disorders than men,⁹ although the gender difference is less pronounced among older adults than among younger adults.^{10,13} African American older adults are less likely than their white counterparts to report sleep problems in many but not all studies.^{9,10,14–18} Elevated income and education are generally associated with a reduced likelihood of reporting sleep problems.^{10,14}

Studies have examined the effectiveness and use of diverse strategies to address sleep problems. Researchers have reported that behavioral therapy and pharmacotherapy improve sleep for those with insomnia.^{19–21} Approximately 10% of older adults report using at least one of the following as sleep aids: alcohol, over-the-counter medication, or prescription medication.²² Fewer than 5% of adults with sleep problems use complementary and alternative medicine to treat their sleep problems.¹³ Scant research has examined a broad range of self-care strategies used by older adults to treat sleep problems. A notable exception is a study by Stoller et al²³ of predominantly white older adults in northern New York State conducted in the early 1990s. The majority of the 167 older adults with sleep problems took no action on one or more days on which they experienced difficulty sleeping. Among those who did take action, taking prescription medication, limiting activity, taking over-the-counter medication, and staying in bed were the most common responses. Dietary and nondietary remedies were reported less frequently. This research did not analyze whether older adults' characteristics were associated with self-care activities used to address sleep difficulties.

Self-care strategies include a range of responses to symptoms that individuals have identified. These strategies may consist of simply observing the progression of the symptom, reducing activities, or using nonmedical or medical products.^{23–25} Self-care includes but is not limited to use of products and practices associated with complementary and alternative

therapies. It recognizes that adults often use self-care strategies outside of consultation with health care providers²⁶ and focuses on care that individuals provide for themselves without health professionals.

Leventhal's self-regulatory model of illness posits that individuals' perceptions, beliefs, and cultural knowledge influence health behaviors, including self-care behaviors.^{27,28} Individuals note sensations and assess whether they perceive them as potential threats. Their response to sensations is influenced by the illness or situation to which they attribute the sensations, the expected trajectory of the illness or condition, the potential threat posed by the condition, the perceived cause of the condition, and the expected efficacy of treatment options. Based on their previous experience, beliefs, and perceived options, individuals determine whether and how to regulate their health. The belief held by some older adults that sleep problems are an inevitable result of aging,²⁹ for example, may reduce their efforts to determine what is causing their sleep problems or to engage in strategies to minimize sleep disturbances.

This analysis examines the prevalence of self-reported sleep problems among white and African American community dwelling, rural, older adults. It identifies self-care strategies, including complementary and alternative medicine, used by adults residing in the southern United States in response to sleep difficulties, and delineates the association between personal characteristics and both sleep quality and the use of specific strategies. This adds to our limited knowledge regarding use of specific self-care strategies for sleep difficulties among a multiethnic, older, adult population.

Methods

Data for this analysis come from a larger study of health self-management among African American and white older adults.³⁰ Participants were recruited from 3 rural counties in southcentral North Carolina that have high levels of residents who are ethnic minorities and have low incomes. The rural nature of the counties is reflected in their relatively low population densities (113–141 persons per square mile compared with the state average of 196)³¹ and substantial allocation of land for agricultural use (24% to 44%).³² Previous research in the region has indicated that these counties are socially and culturally rural.^{33,34} The [Wake Forest School of Medicine] Institutional Review Board approved recruitment and data collection strategies (IRB Protocol No. 00000182). All participants gave signed informed consent.

Sample

Community-dwelling older adults aged 64 years and older who self-reported that they were African American or white, spoke English, and were able to provide informed consent participated in this study. The sample was stratified by ethnicity and gender, with approximately 50 participants from each ethnicity–gender combination. Using a site-based strategy,³⁵ participants were recruited from 34 settings, including county recreation and social service departments, county government meetings, senior centers and housing complexes, social and support clubs, churches, businesses, and polling sites. Twelve older adults who were asked to participate declined, resulting in a participation rate of 94%. Two

hundred African American and white older adults completed a baseline interview, and 195 completed one or more sets of interviews, representing the full sample used in this analysis. Of the 195 participants, 139 completed all 6 sets of daily interviews.

Data Collection

Data collection was completed by trained interviewers between April 2008 and January 2010. Participants completed a baseline interview, then completed up to 6 sets of interviews. The sets of interviews were conducted on 3 consecutive days at intervals of at least 1 month, for a maximum of 18 interviews; most were conducted by telephone. Participants received an incentive that ranged from \$10 to \$100, depending on the number of interviews completed.

Measures

Participants were asked whether they had experienced each of 37 symptoms on each of the 18 days. This analysis restricts its focus to one symptom, difficulty sleeping at any time during the previous 24 hours. Those who reported that they had experienced difficulty sleeping were asked whether they had used any of the following strategies: taken an over-the-counter medication; eaten or drunk something; used some other kind of home remedy; stayed in bed or rested; prayed for relief; cut back on their usual activities; took an herb or supplement; ignored the symptom or waited to see how it would progress; took prescription medication; or visited a medical doctor or other health professional. The research team drew on research literature and experience working with rural older adults to determine the general categories that would be appropriate for the range of 37 symptoms addressed by the questionnaire.^[23] Prescription medicine use and medical visits were not considered self-care strategies because they did not require interaction with a health care provider and were therefore excluded in this analysis. Only one participant reported using a home remedy (baking soda), which was subsumed into a category that represents using food or beverages to encourage sleep. No participant reported taking an herb or supplement; therefore this category is omitted from the analysis.

Participant characteristics were collected. Age was recoded into 4 categories: 64–69, 70–74, 75–79, and 80 years and older. Gender and self-reported ethnicity, African American or white, were also recorded. Marital status represents whether the participant was currently married. Educational status indicates whether the participant had neither a high school diploma nor a GED, had a high school diploma or GED, or had formal education beyond a high school diploma or GED. Household income was dichotomized to indicate whether it was above or below the 2007 federal poverty level for a 2-person household.

Statistical Analyses

Analyses were performed using SAS version 9.2 (SAS Institute, Cary, NC). Characteristics of participants who reported difficulty sleeping were summarized using counts and percentages. Weighted percentages were reported for participants who had trouble sleeping on at least one of the 18 days. Chi-square tests were used to examine differences between those who did and did not report difficulty sleeping across demographic groups. Frequencies and weighted percentages of participants who used various therapies to treat difficulty

sleeping on at least one of the 18 days were also reported. Fisher's exact tests were performed because of small cell sizes to determine whether the use of self-care strategy varied significantly by individuals' characteristics. *P* values <.05 were considered statistically significant. Responses were weighted based on the fraction of days (out of 18) that a participant answered the question on difficulty sleeping (ie, a person who responded all 18 times gets a weight of 1).

Results

Of the 195 adults who completed one or more daily diary interviews, 105 (56%) reported that they had experienced difficulty sleeping on one or more diary days (Table 1). More white than African American older adults reported sleep difficulties (weighted percentages 66% vs 44%, *P* < .05). Sleep difficulty did not differ by age, gender, marital status, education, or household income. Although women were more likely than men to report sleep difficulties, and those with more than a high school education were more likely than those with less education to report sleep difficulties, the differences were not statistically significant.

Older adults who reported sleep difficulties engaged in multiple self-care responses (Table 2). In order of decreasing prevalence, the weighted self-care strategies reported for sleep difficulty were: ignoring the symptom or waiting to see how it progressed (75%); staying in bed or resting (62%); praying (61%); cutting back on activities (27%); ingesting food or drinking beverage (20%); or taking an over-the-counter medication (20%).

Ignoring sleep difficulties or waiting to see their progression, a response that suggests that participants avoided or postponed taking action or changing behavior, was a strategy widely used among older adults. There were no demographic differences in the use of this strategy (Table 3). African Americans were more likely than white adults to stay in bed or rest in response to sleep difficulties. African Americans and those with lower levels of education were more likely than white adults and those with more education to pray. Adults with low incomes were more likely than those with higher incomes to pray. Over-the-counter medication use was comparable across demographic categories. Those with limited education and income were more likely than those with more education and income to report cutting back on activities in response to sleep difficulties. The use of food and beverages to address sleep difficulties varied by age; those aged 75 to 79 years reported the most frequent use.

Discussion

The majority of participants reported on one or more days that they had experienced difficulty sleeping during the previous 24 hours. Sleep problems appear to be more prevalent among rural older adults in this study than among participants in the 2002 National Health Interview Survey¹³ and the 2006 US Behavioral Risk Factor Surveillance System.¹⁰ Participants defined as having sleep problems in those analyses reported sleep problems regularly to almost every night^{10,13}; the reports of prevalence are therefore not comparable. The prevalence of sleep problems among rural older adults in North Carolina is similar to

the prevalence of any chronic sleep complaint among Established Populations for Epidemiologic Studies of the Elderly participants, although the measures themselves vary.⁹

Previous research has generally indicated that some individual characteristics are associated with variation in sleep problems or self-reported sleep quality. The finding in this analysis that older African Americans were less likely than white older adults to report sleep difficulties is consistent with other literature, although some analyses indicate that this ethnic difference is evident only when economic variables are controlled.^{9,10,13,15,16} Although we cannot determine the causes of the self-reported differences in this study, the findings are consistent with Leventhal's self-regulatory model of illness,^{27,28} which argues that perceptions and interpretations of bodily sensations and symptoms, including sleep disturbances, are influenced by cultural beliefs and understandings.³⁶

Associations between reported sleep difficulty and both gender and education were not statistically significant; they were, however, in the direction reported in other studies.^{9,10,13} The lack of statistical significance of gender and education on sleep difficulties may be a result, at least in part, of this analysis' relatively small sample size. Income was not significantly associated with sleep quality, possibly because the dichotomous income measure did not allow us to distinguish between individuals whose household incomes fell above the poverty line, but were still quite limited, from those who had substantial financial resources.

The most commonly reported self-care strategies used by older adults were to ignore their sleep difficulty or see how it progressed, stay in bed or rest, and pray. The substantial reliance on passive self-care strategies may reflect a perception that poor sleep quality is an inevitable part of aging²⁹ and therefore not responsive to treatment. African American older adults were significantly more likely than white older adults to stay in bed or rest or pray. Older adults who had less education or income were more likely than those with more education or income to report prayer as a response to sleep problems. These findings are consistent with research that has reported that African Americans, those with less formal education, and those with limited incomes are more likely than white adults and those with more formal education or income to pray when experiencing health problems.³⁷⁻³⁹ These associations may reflect different interpretations of symptoms held by older adults. They may also reflect divergent conceptual frameworks that vary by ethnicity, educational background, or economic resources regarding how to respond to the condition represented by the symptoms. The variation in use of self-care strategies by these characteristics suggests that individuals' responses to specific symptoms are affected by the cultural context in which they experience and understand their symptoms.

Participants in this study reported they had not used herbal remedies or supplements, unlike other studies' findings.⁴⁰⁻⁴² The differing results may be due to cultural variation across geographic regions and variation in the time frame specified. Studies that reported use of natural products or complementary and alternative therapies more generally to address sleep difficulties asked about use during the past 12 months or did not specify a time period; participants in this study reported use on 18 or fewer days.^{13,40-42}

Few studies have examined the self-care strategies used by older adults to address sleep problems. A notable exception is the study by Stoller et al²³ of predominantly white older adults in northern New York State. Similar to their study, this analysis reports that the most common response to sleep difficulty was to ignore it or wait to see how it progressed. This is notable given that the studies were conducted in different regions of the country approximately two decades apart. Staying in bed or resting and praying were reported with substantially greater frequency among elders in our study than in the study by Stoller et al²³ (62% and 61% vs 15% and 12%). The difference in frequency may be due, in part, to the ethnic composition of the samples and the greater use of prayer and rest among African Americans than white older adults.

Although over-the-counter medication use was similar among older adults in rural North Carolina and northern New York, food and beverages were used to address sleep difficulties more frequently among those in the southern United States. Use of food and beverages to treat sleep difficulties may depend more on regional traditions and the local transmission of knowledge about treatment strategies.⁴³ Rural regions in northern New York and North Carolina have distinctive histories and cultures; it is therefore expected that there would be some variation in interpretation of and self-care responses to sleep difficulties. Widespread advertisements for over-the-counter medication for sleep problems may influence their patterns of use.⁴⁴ Although there are limitations, our analyses increase our current knowledge regarding older adults' self-care strategies to address sleep difficulties. The questionnaire did not address the full range of complementary and alternative strategies older adults can use to address sleep problems. Furthermore, the sample was restricted to older adults living in 3 rural, adjacent counties in 1 southern state, limiting the generalizability of the findings to other regions. However, comparison of our findings to those reported by Stoller et al²³ suggests that a broad range of self-care strategies are used by older adults in different regions, although their frequency may vary. This is consistent with Leventhal's self-regulatory model of illness that posits that perception and interpretation of bodily sensations and subsequent responses are influenced by individual's beliefs, values, and norms.^{27,28} This study measures older adults' perceptions about their sleep and therefore cannot address whether self-reported sleep difficulties would correspond to measures obtained through polysomnography or actigraphy. However, patient self-reports are central to the definition of insomnia, emphasizing the importance of self-report measures.⁴⁵

The widespread report of sleep difficulties and self-care strategies among older adults suggests that health care providers should speak with their older patients about whether they experience sleep difficulties and how they self-manage sleep problems, including use of complementary and alternative medicine. This information may enable the health care provider to identify older patients with poor sleep quality and address the adequacy of their current strategies. Health care providers should work with older adults to develop effective strategies to minimize sleep problems and the negative outcomes associated with sleep problems.

Conclusion

The majority of a multiethnic sample of older rural adults in North Carolina report occasional or chronic sleep difficulties, as recorded through 18 interviews. In response to perceived sleep problems, they implemented multiple self-care strategies. The most widely used strategies included ignoring the symptom, staying in bed or resting, and praying. Ingestion of food or beverages was less common. Older adults reported they had not used herbs or supplements to address sleep difficulties; the use of this subset of alternative and complementary therapy was therefore limited. Variation in the use of different self-strategies by ethnicity, education, and income suggests that older adults may draw on their cultural understandings to interpret the significance of difficulty sleeping and influence their use of self-care strategies in response to sleep difficulties. Health care providers should speak with older patients to discern whether they have sleep problems and discuss strategies that may improve their sleep health.

Acknowledgments

Funding

The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research was supported by a grant from the National Center for Complementary and Alternative Medicine (Grant No. R01 AT003635).

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Table 1

Personal Characteristics of Older Adults Reporting Difficulty Sleeping, North Carolina, 2008–2010 (N = 195).

Personal Characteristics	n	Weighted %
Reporting difficulty sleeping	105	56
Age-group (years)		
64–69	33	52
70–74	29	62
75–79	18	51
80+	25	59
Gender		
Female	55	59
Male	50	54
Race/ethnicity		
White	64*	66
African American	41	44
Marital status		
Not married	62	57
Currently married	43	55
Education		
Less than high school	33	53
High school/GED	13	53
More than high school	59	59
Household income per year		
Below poverty	27	56
Above poverty	74	55

* $P < .05$, χ^2 , full sample and those reporting sleep difficulties.

Table 2

Prevalence of Self-Care Strategies Among Older Adults Who Reported Sleep Difficulties, North Carolina, 2008–2010 (N = 105).

Self-Care Strategies	n	Weighted %
Ignoring symptom, or deciding to wait and see	76	75
Staying in bed or resting	65	62
Praying	64	61
Cutting back on activities	28	27
Use of food or beverage	21	20
Consume over-the-counter medicine	19	20

Table 3

Self-Management Strategies for Sleep Difficulties by Individual Characteristics, Older Adults, North Carolina, 2008–2010 (N = 105).

Individual Characteristics	Self-Management Strategies for Sleep Difficulties											
	Ignoring Symptom		Staying in Bed or Resting		Praying		Over-the-Counter Medicine		Cutting Back on Activities		Food or Beverage	
	n	%	n	%	n	%	n	%	n	%	n	%
Overall	76	75	65	62	64	61	19	20	28	27	21	20
Age-group (years)												
64–69	28	89	21	62	20	61	6	20	11	33	7*	22
70–74	21	72	19	65	18	62	6	21	5	17	3	11
75–79	11	67	8	45	11	65	2	13	6	36	8	52
80+	16	65	17	67	15	57	5	22	6	24	3	10
Gender												
Female	41	77	34	61	35	62	8	15	16	30	13	24
Male	35	73	31	63	29	59	11	24	12	23	8	16
Ethnicity												
White	46	74	34*	53	34*	53	14	23	14	21	10	17
African American	30	77	31	77	30	74	5	14	14	38	11	27
Marital status												
Not married	45	74	39	63	37	59	9	16	18	31	13	22
Currently married	31	76	26	60	27	63	10	25	10	21	8	19
Education												
Less than high school	23	71	25†	77	26*	82	6	20	15**	48	6	17
High school/GED	11	82	9	70	9	71	4	33	5	41	1	9
More than high school	42	75	31	51	29	47	9	17	8	12	14	25
Household income per year												
Below poverty	22	81	20	73	22*	83	3	12	11*	41	8	28
Above poverty	51	73	41	55	40	53	16	24	15	20	12	17

† $P < .10$;

* $P < .05$;

** $P < .01$.