Aging, Subjective Sleep Quality, and Health Status: The Global Picture

Commentary on Stranges et al. Sleep problems: an emerging global epidemic? Findings from the INDEPTH WHO-SAGE study among more than 40,000 older adults from 8 countries across Africa and Asia. *SLEEP* 2012;35:1173-1181.

Yohannes Endeshaw, MD, MPH

Department of Aging and Geriatric Research, College of Medicine, University of Florida, Gainesville, FL

One of the proposed age-related changes that occur in most organ systems of the human body is decline in “organ reserve.”¹ This decline in reserve reduces the capacity of human body systems to maintain cellular homeostasis during external and internal challenges and may increase vulnerability to acute and chronic diseases.¹ Age-related changes in objective sleep quality have been reported previously. For example, changes in sleep stage distributions, decrease in sleep spindles, and amplitude of circadian rhythms, as well as increase in wake time after sleep onset and decrease in sleep efficiency, have been documented among older adults.²⁻⁴ Although the clinical significance of these age-related changes in sleep architecture is not clearly established, they may indicate reduction in “reserve” of the sleep-wake system. If so, they may make older adults more vulnerable to sleep-wake disturbances during “stressful” situations. This mechanism could explain, at least in part, the high prevalence of subjective sleep complaints among the elderly with increased comorbidity reported in previous studies.⁵⁻⁷ However, participants of most of the studies that reported relationships among aging, sleep complaints, and comorbidity are older adults from “high income” countries⁸ that live in temperate climate; and the extent of sleep problems and their correlates among older adults who live in “low income” countries⁸ in tropical environments have not been reported previously.

The study by Stranges and colleagues⁹ in the current issue of this journal fills this knowledge gap by reporting prevalence and correlates of sleep complaints among adults ≥ 50 years old living in 8 “low income” countries in Africa and Asia. Data for the current analysis are derived from a well-designed and well-executed multi-country study¹⁰; this makes results of the study valid and reliable. Descriptive analysis indicates increased prevalence of subjective sleep problem among older adults, participants with anxiety and depression symptoms, and those with decreased functional status. However, in a multivariable logistic regression model that included demographic and some clinical characteristics of participants as covariates, there was no independent association between age and subjective sleep problems among participants in 6 of the 8 countries, while the significant association between sleep problems and clinical variables that were observed in bi-variable analysis persisted.⁹

These findings indicate that the increased prevalence of sleep problems among older adults may not be due to age per se, but secondary to poor health status. These results are in agreement with previous reports from “high income” countries, suggesting that the pattern of relationships among age, sleep complaints, and clinical characteristics of older adults may be similar regardless of differences in socioeconomic status, ethnic origin, culture or language of participants, and the geography of the countries in which older adults live.

It is notable that despite a similar pattern of associations among age, sleep complaints, and health status reported by participants in all eight countries, the actual prevalence of sleep complaints by age groups and health status in each of these individual countries was not the same.⁹ For example, the prevalence rate of sleep problems was highest among participants in Bangladesh, and lowest among participants in Indonesia. However, participants in Bangladesh also had higher prevalence rates of anxiety/depression symptoms and low functional status, while participants in Indonesia had low rates for these conditions. These findings suggest that clinical characteristics of participants in the different countries may partly explain the inter-country differences in reported rates of sleep complaints.

Results of the current study by Stranges et al. suggest that increased prevalence of sleep complaints among older adults may be surrogate markers for poor health status as previously suggested,¹¹ and this may have important implications. Life expectancy is projected to increase in “low income” countries in the near future, and this implies an increase in the proportion of older adults in these countries.^{12,13} If this increase in life expectancy is accompanied by economic development, appropriate measures could be taken to accommodate the increased demand for health care services which is usually associated with increase in proportion of older adults. However, if there is a mismatch between increase in life expectancy and improvement in economic status of these countries (i.e., if these countries “grow old before they get rich”¹²), it may create an expanding problem for their health care systems.

The relationship between sleep complaints and health status (chronic diseases) could also be bi-directional, with chronic diseases contributing to poor sleep, and poor sleep quality in turn adversely affecting the course of chronic diseases as previously shown in some studies.¹⁴⁻¹⁶ Future research is needed to examine this bi-directional relationship in the hopes it will provide answers to questions such as: “Does successful treatment of chronic diseases improve sleep quality?” “Does improving sleep quality have a favorable effect on the course of chronic diseases?” Another issue that has not been examined is the relationships between primary sleep disorders, such as

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Address correspondence to: Yohannes W Endeshaw, MD, MPH, FAASM, College of Medicine, University of Florida, 210 East Mowry Road, Suite 1110, PO Box 112610, Gainesville, FL; Tel: (352) 273-9390; Fax: (352) 273-5920; E-mail: yendeshaw@ufl.edu

sleep-related breathing disorder, restless legs syndrome and periodic leg movements in sleep, and sleep complaints, health status, and quality of life among older adults living in low income countries.

In addition to the study limitations mentioned by the authors,⁹ information on specific sleep symptoms was not collected in their study database—only a single question related to nocturnal sleep problems was used to evaluate nocturnal sleep quality. Data on symptoms of common chronic disease (e.g., pain, shortness of breath), as well as primary sleep disorders (e.g., sleep disordered breathing) are lacking. These limitations should be taken into consideration when interpreting of study findings.⁹

In conclusion, similar to previously reported findings from “high income” countries, the study by Stranges et al.⁹ indicates that the increase in prevalence of subjective sleep problems among older adults living in “low income” countries may not be due to age per se, but associated with poor health status. These results would have important implications for successful management of sleep problems as well as chronic diseases among older adults in these countries.

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