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Importance of recognizing sleep health disparities and implementing innovative interventions to reduce these disparities

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Estimates suggest that by 2040 approximately half of the US population will consist of individuals who self-identify as minority. Yet, there has not been a concerted effort to address important racial/ethnic disparities in various diseases and health conditions, as articulated in the Institute of Medicine's landmark report "*Unequal Treatment*" [1]. According to the 1985 report from the US Secretary's Task Force on Black and Minority Health, several health equity objectives remain to be achieved. According to the report, despite the unprecedented explosion of scientific knowledge and the phenomenal capacity of medicine to diagnose, treat, and cure diseases, individuals of minority backgrounds (Blacks, Hispanics/Latinos, Native Americans, and Asians/Pacific Islanders) have not yet benefited fully or equitably from systems responsible for translating and using health sciences technology.

Evidently, minorities tend to exhibit far worse outcomes across a range of health conditions [1]. For instance, cardiovascular disease, diabetes, asthma, HIV/AIDS, and tuberculosis are all significantly more common among Blacks and Latinos than among non-Hispanic Whites [2]. Such racial/ethnic disparities persist even after adequate adjustment for socioeconomic position. These recalcitrant health disparities, observed both at the individual and system levels, are perhaps undergirded by structural, physiological, psychological, and behavioral differences across populations [1-3]. If we are to improve the overall health of the US population, understanding and reducing health disparities must remain a national priority.

In the field of sleep medicine, much less is known regarding sources of health disparities and potential ramifications of such disparities. Until recently, individuals' race/ethnicity, which is often a proxy for health disparities, has not been the focus of sleep research. The existence of comorbidities among ethnic minorities not only poses a greater burden and clinical

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Conflict of interest

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challenge, but also has negative impact on clinical outcomes. Over the years, accumulated evidence in health disparities research has shown that racial/ethnic minorities are at increased risk for several cardiometabolic conditions. Of note, sleep disorders co-occur or often lead to the development of chronic conditions such as obesity; systemic and pulmonary resistant hypertension; diabetes; dyslipidemia, heart failure; and stroke [4–13]. Yet, the reasons for these disparities are not entirely clear, although they might involve a wide range of epigenetic, behavioral, social, and environmental factors. For example, minorities are at higher risk for developing oxidative stress and metabolic dysfunctions such as abnormal glucose metabolism.

In the last decade, an emerging literature has addressed the potential overlap between sleep medicine and health disparities research. For example, investigators have attempted to characterize the presence of a “sleep disparity” in the population and the role of race/ethnicity in the development of cardiometabolic health disparities [14]. This special issue of *Sleep Medicine* entitled “*NHLBI workshop on reducing health disparities: the role of sleep deficiency and sleep disorders*” sought to shed light on the importance of sleep health disparities. The workshop brought together numerous experts in sleep health disparities research in 2011 to address the urgent need to conduct research to identify sources of sleep-related cardiovascular disparities and to implement innovative interventions to address such disparities. Attendees and scholars reflected upon what has been done so far to eradicate observed disparities and areas of research awaiting scientific inquiry in the coming years.

Although this is an emerging area of research and there are relatively few studies (and even fewer controlled studies) that address this issue, several key ideas emerged from the workshop and are characterized in the manuscripts included in this special issue. First, many studies have now shown that racial/ethnic disparities exist in terms of sleep quantity and quality. Further, factors such as unhealthy sleep behaviors, low socioeconomic status, sociocultural determinants, occupational and mundane stressful environmental factors (either internal or external; eg, noise, violence, crime), and perceived racial discrimination all may play pivotal roles in causing sleep disturbances or exacerbating existing sleep disorders among racial/ethnic minorities [8]. Furthermore, other notable disparities include unequal access to adequate care, service utilization, and sociocultural barriers. A growing body of literature suggests that disparities may reflect differences in risk factors, symptom burden, acceptance of having a problem, diagnosis of sleep disorders, poor adherence to recommended treatment, and differential response to therapies. In light of this, future evidence-based interventions should be culturally and linguistically tailored to maximize exposure to proven therapies and appropriate healthful sleep health practices.

A clear delineation of the role of sleep health in earlier life and how effects of sleep deficiency reverberate across years and decades is warranted. Similarly, a clear understanding of the degree to which sleep is influenced by cultural attitudes, beliefs, norms, rituals, perceptions, and practices is essential. Identifying and monitoring such cultural barriers in minority and disadvantaged populations will help develop and implement appropriate interventions to improve sleep health in those populations.

As outlined above, there are several provocative ideas that have been addressed in this special issue. There are many unanswered questions and challenges to be faced in the coming years [14,15]. In addition to future research in this area and increased awareness of the clinical implications of these findings, increased surveillance might eventually help to gain an improved understanding of the importance of adequate sleep health and to address the following questions: (1) are racial/ethnic minorities and socially-disadvantaged individuals more likely to experience poor sleep; (2) does this increased prevalence of poor sleep represent a potential modifiable risk factor for the development of health disparities; (3) what causative roles do epigenetic, behavioral, social, and environmental factors play in the development of poor sleep in these groups; and (4) how can interventions be developed to address these issues at the community and population levels.

At this juncture, we wish to thank the Editor-in-Chief, Dr. Sudhansu Chokroverty, who has graciously accepted and encouraged our idea to bring this special issue to fruition. We would also like to take this opportunity to thank the NHLBI Workshop organizers and contributors. We are indebted to the contributing authors who enthusiastically supported this special issue from start to finish. Finally, we would like to thank the editorial staff for their unwavering support.

This special issue is unique. We hope that the reader will enjoy its content, which has the ambitious goal of an unprecedented delineation of the role of sleep in understanding health disparities. This work has the potential to spur ground-breaking work in sleep health at the population level and stimulate development of interventions to improve adherence to sleep therapies. Ultimately, it will promote implementation of educational programs preventing the onset of sleep disorders among racial/ethnic minorities and other high-risk populations.

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References

1. Smedley, BD.; Stith, AY.; Nelson, AR. Unequal treatment: confronting racial and ethnic disparities in health care (with CD). Smedley, BD.; Stith, AY.; Nelson, AR., editors. The National Academies Press; 2003.
2. Williams D, Collins C. Racial residential segregation: a fundamental cause of racial disparities in health. *Public Health Rep.* 2001; 116(5):404–16. U.S. [PubMed: 12042604]
3. Department of Health and Human Services. Mental health: culture, race, and ethnicity – a supplement to mental health: a report of the surgeon general. Rockville, MD: U.S Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services; 2001. <<http://www.ncbi.nlm.nih.gov/books/NBK44243/pdf/TOC.pdf>> [accessed 17.11.14].
4. Barbé F, Durán-Cantolla J, Sánchez-de-la-Torre M, et al. Spanish Sleep And Breathing Network. Effect of continuous positive airway pressure on the incidence of hypertension and cardiovascular events in non-sleepy patients with obstructive sleep apnea: a randomized controlled trial. *JAMA.* 2012; 307(20):2161–8. DOI: 10.1001/jama.2012.4366 [PubMed: 22618923]
5. Martínez-García MA, Capote F, Campos-Rodríguez F, et al. Spanish sleep network. effect of CPAP on blood pressure in patients with obstructive sleep apnea and resistant hypertension: the HIPARCO randomized clinical trial. *JAMA.* 2013; 310(22):2407–15. [PubMed: 24327037]

6. Basner RC. Cardiovascular morbidity and obstructive sleep apnea. *N Engl J Med*. 2014; 370(24): 2339–41. [PubMed: 24918377]
7. Somers VK. Sleep—a new cardiovascular frontier. *N Engl J Med*. 2005; 353(19):2070–3. [PubMed: 16282183]
8. Centers for Disease Control and Prevention. Unhealthy sleep-related behaviors – 12 states, 2009. *MMWR Morb Mortal Wkly Rep*. 2011; 60:233–8. [PubMed: 21368738]
9. Kaneko Y, Floras JS, Usui K, et al. Cardiovascular effects of continuous positive airway pressure in patients with heart failure and obstructive sleep apnea. *N Engl J Med*. 2003; 348(13):1233–41. [PubMed: 12660387]
10. Marshall NS, Wong KK, Cullen SR, et al. Sleep apnea and 20-year follow-up for all-cause mortality, stroke, and cancer incidence and mortality in the busselton health study cohort. *J Clin Sleep Med*. 2014; 10(4):355–62. [PubMed: 24733978]
11. Marin JM, Agusti A, Villar I, et al. Association between treated and untreated obstructive sleep apnea and risk of hypertension. *JAMA*. 2012; 307(20):2169–76. [PubMed: 22618924]
12. Sánchez-de-la-Torre M, Campos-Rodriguez F, Barbé F. Obstructive sleep apnoea and cardiovascular disease. *Lancet Respir Med*. 2013; 1(1):61–72. [PubMed: 24321805]
13. Jean-Louis G, Zizi F, Clark LT, et al. Obstructive sleep apnea and cardiovascular disease: role of the metabolic syndrome. *J Clin Sleep Med*. 2008; 4(3):261–72. [PubMed: 18595441]
14. Knutson KL. Sociodemographic and cultural determinants of sleep deficiency: implications for cardiometabolic disease risk. *Soc Sci Med*. 2013; 79:7–15. [PubMed: 22682665]
15. Grandner MA, Pack AI. Sleep disorders, public health, and public safety. *JAMA*. 2011; 306(23): 2616–17. [PubMed: 22187285]