Sleep Medicine 59 (2019) 88–89

Contents lists available at ScienceDirect

Sleep Medicine

journal homepage: www.elsevier.com/locate/sleep

Editorial

Sleep and cardiometabolic health in indigenous populations: importance of socio-cultural context

The importance of sleep for cardiometabolic health has been evaluated in a large number of populations across the globe, and has been identified as a key contributor to health. In particular, there has been a recent focus on the real-world determinants of sleep health. These determinants include individual-level factors (eg, beliefs, attitudes, and behaviors), social-level factors (eg, work, home, school, neighborhood, culture, socioeconomics, and social networks), and societal-level factors (eg, technology, politics, globalization, and 24/7 society) [1]. The issue of sleep disparities, ie, systematic experiences of poor sleep along racial, ethnic, and socioeconomic lines, has emerged as a key factor in understanding the relationship between social environments and sleep [2]. Furthermore, the discussion of sleep disparities exists in the context of other health disparities, which impact many areas of life, including longevity [3].

Previous research has identified indigenous populations as experiencing high rates of health disparities. These groups have particularly high rates of diabetes, cardiovascular disease, liver disease, and obesity. Moreover, other important health outcomes that contribute to this overall problem include higher rates of substance abuse, violence, child abuse, and psychiatric disorders (including depression, anxiety disorders, and suicide). This results in higher mortality rates due to a wide range of causes of death. However, less focus has attended to sleep disparities in these populations worldwide.

Accordingly, the present study by Yiallourou and colleagues [4] addresses the relationship between sleep and cardiometabolic disease risk in indigenous populations. Overall, they note that there is a general lack of information in this area. Nevertheless, some conclusions can be drawn. First, they report that indigenous populations worldwide likely experience poor sleep quality, more frequent sleep disorders, and greater rates of insufficient sleep compared to the majority population of the region studied. Second, the authors note that this experience of poor sleep likely adversely impacts cardiometabolic health. Third, the authors suggest that the causes of these sleep disturbances include factors such as psychosocial stress, socioeconomics, racial discrimination, physical environment, remote residency, and cultural practices; as well as beliefs, attitudes, and knowledge about sleep. Yet, as previously stated, the authors also note that existing data are quite limited. Currently, much of the data from these populations are self-reported, retrospective data, which come with a number of important limitations to reliability and validity of measurements. Furthermore, studies generally are unable to account for the heterogeneity among the category of people identified as indigenous as these groups can represent a wide range of diversity across geographic, environmental, governmental, and other factors. Still, the authors note that the evidence supporting an important role of sleep health at the interface of social, behavioral, and environmental factors and cardiometabolic health seems to be of particular importance in this group, which is likely at disproportionate risk.

This work is especially significant because it shows the relationship among sleep, stress, and cardiometabolic diseases in this segment of the global population that is at increased risk for all three of these outcomes [4]. Furthermore, it highlights the great need for additional work in this area, particularly among American Indians and Alaskan Natives in North America.

The manuscript raises the important role of psychosocial stress. One notable issue in this population that relates to psychosocial stress that has not been sufficiently addressed, yet may underlie many of the experiences of physiologic stress and associated risk factors, is the concept of historical trauma. “Historical trauma” refers to the intergenerational transmission of adverse experiences through altered physiology, altered behavior (which may contribute to altered physiology), altered environment, and altered social functioning. Throughout history, the indigenous people of the United States - American Indian and Alaska Natives (AIAN) — have endured ethnic and cultural genocide, as well as traumatic assaults [5,6]. The impact of these assaults have been devastating to subsequent generations, impacting individuals and families which has to some degree augmented and changed their cultures. These assaults include community massacres, genocidal policies, forced relocation, the prohibition of spiritual and cultural practices, and the forced removal of children through Indian boarding schools [7,8]. The intergenerational impact of these assaults has been a combination of changes to neurophysiology, behavior, and contemporary cultural practices. As a result, contemporary AIAN communities suffer from some of the highest rates of lifetime traumatic events [5,9–11], including interpersonal violence, child abuse and neglect, poor health, negative stereotypes and microaggressions that affect identity, as well as societal views of AIAN people.

The impacts of historical trauma are multilayered. First, neurophysiological changes are reflected in an over-activated hypothalamic-pituitary adrenal axis, hyperarousal and hypervigilance, and sympathetic activation. Second, pathophysiological changes may include stress-induced chronic inflammation, other chronic diseases, metabolic dysregulation, and obstructive sleep apnea.

DOI of original article: https://doi.org/10.1016/j.sleep.2018.10.011.

https://doi.org/10.1016/j.sleep.2018.11.013

Third, intergenerational trauma may lead to behavioral changes such as substance abuse, overeating, and other maladaptive behaviors. Hyperarousal and hypervigilance in particular are associated with anger, violence, and poor sleep [12–14]. In addition, this results in poor mental health outcomes such as depression and suicide. Finally, durable cultural changes have altered how stress is coped with; how mental, emotional and behavioral health issues are dealt with; as well as how familial roles, including parenting styles, roles, and responsibilities, are borne in communities.

Indigenous populations are at an increased risk for many adverse health outcomes, and this is likely due to the social, behavioral, and environmental determinants of health; including the intergenerational transmission of stress experiences [15]. Sleep may occupy an important role as an embodiment of this phenomenon, reflecting both the products of social, behavioral, and environmental pressures and the physiologic risk factors that may impinge on health. Future studies should further explore these relationships by understanding the role of historical trauma and cultural change among indigenous populations, and how this plays a role in the relationship between sleep and health.

Conflict of interest

The ICMJE Uniform Disclosure Form for Potential Conflicts of Interest associated with this article can be viewed by clicking on the following link: https://doi.org/10.1016/j.sleep.2018.11.013.

References

[1] Grandner MA, Patel NP, Hale L, et al. Mortality associated with sleep duration: the evidence, the possible mechanisms, and the future. Sleep Med Rev 2010;14:191–203.
[2] Grandner MA, Williams NJ, Knutson KL, et al. Sleep disparity, race/ethnicity, and socioeconomic position. Sleep Med 2016;18:7–18.
[3] Centers for Disease Control and Prevention. CDC health disparities and inequalities report – United States, 2011. Atlanta, GA: CDC; 2011.
[4] Yiallourou SR, Maguire GP, Eades S, et al . Sleep influences on cardio-metabolic health in indigenous populations. Sleep Med 2019;59:78–87. https://doi.org/10.1016/j.sleep.2018.10.011.
[5] Greenfeld LA, Smith S. American Indians and crime. 1999.
[6] Smith A. Soul wound: the legacy of Native American schools. Amnesty Now; 2003. Summer; 14–17.
[7] Stannard DE. American holocaust: the conquest of the new world. Oxford University Press; 1993.
[8] Thornton R. American Indian holocaust and survival: a population history since 1492, vol. 186. University of Oklahoma Press; 1990.
[9] Cross TA, Earle KA, Simmons D. Child abuse and neglect in Indian country: policy issues. Fam Soc J Contemp Human Serv 2000;81(1):49–58.
[10] Jones ML, Galliher RV. Daily racial microaggressions and ethnic identification among native American young adults. Cult Divers Ethnic Minor Psychol 2015;21(1):1–9.
[11] Walters KL, Simoni JM, Evans-Campbell T. Substance use among American Indians and Alaska natives: incorporating culture in an "indigenist" stress-coping paradigm. Publ Health Rep 2002;117(3):S104–17.
[12] Bonnet MH, Arand DL. Hyperarousal and insomnia: state of the science. Sleep Med Rev 2010;14(1):9–15.
[13] Elsesser K, Sartory G, Tackenberg A. Attention, heart rate, and startle response during exposure to trauma-relevant pictures: a comparison of recent trauma victims and patients with posttraumatic stress disorder. J Abnorm Psychol 2004;113(2):289–301.
[14] Griffing S, Lewis CS, Chu M, et al. Exposure to interpersonal violence as a predictor of PTSD symptomatology in domestic violence survivors. J Interpers Violence 2006;21(7):936–54.
[15] Brave Heart MYH. The historical trauma response among natives and its relationship with substance abuse: A Lakota illustration 2003;35(1):7–13.

Tommy K. Begay*, Michael A. Grandner
Sleep and Health Research Program, Department of Psychiatry, College of Medicine, University of Arizona, USA

* Corresponding author.
E-mail address: tommyb@email.arizona.edu (T.K. Begay).

30 October 2018
Available online 29 November 2018