

LETTERS TO THE EDITOR

## Sleep deserts: a key determinant of sleep inequities

Hrayr Attarian, MD<sup>1</sup>; Monica Mallampalli, PhD<sup>2</sup>; Dayna Johnson, PhD<sup>3</sup>

<sup>1</sup>Northwestern University Feinberg School of Medicine, Chicago, Illinois; <sup>2</sup>Institute for Women's Health Strategies, Ellicott City, Maryland; <sup>3</sup>Emory University Rollins School of Public Health, Atlanta, Georgia

It has been well established that adequate sleep, together with a proper nutrition and appropriate levels of physical activity, is essential for health. There is clear evidence that denizens of economically disadvantaged neighborhoods have poorer sleep<sup>1</sup> and subsequently overall poorer health.<sup>1</sup> Structural racism has led to neighborhood segregation by race/ethnicity, socioeconomic status, and immigration status, which has shaped the social and physical environment.<sup>2</sup> Historically minoritized individuals are disproportionately living in areas with higher noise, light, and air pollution levels and substandard housing that is not amenable to ambient temperature control and feeling unsafe due to higher crime,<sup>2</sup> which has been shown to contribute to poorer sleep health in the United States as well as globally.<sup>1,3</sup> Sleep is one of the many factors that has been comprised by residing in these areas. The term food desert refers to lack of nutritious dietary options found in disadvantaged neighborhoods. This is because supermarket chains with better variety and quality of food are often based in areas of higher socioeconomic status.<sup>4</sup> Hence there is a higher prevalence of chronic conditions such as obesity, diabetes, and cardiovascular disease among those residing in lower socioeconomic status neighborhoods.<sup>4</sup> Similarly, there is a lack of adequate exercise spaces in these neighborhoods as well, hence a disproportionate reduction in fitness also translates to poorer health.<sup>5</sup> In 2011, journalist Alex Schmidt<sup>6</sup> coined the term fitness desert or exercise desert to describe this phenomenon. Given the similarities that poor sleep health is patterned by neighborhood socioeconomic status and related factors, we propose the term sleep deserts to refer to neighborhoods that are not conducive to adequate sleep health. We believe all the 3 “deserts,” of course, are interdependent. Poorer diet and less activity can often translate to poorer sleep, and poor sleep often leads to unhealthy eating habits and less exercise. We cannot think of food deserts and fitness deserts as independent variables that need to be remedied separately. We need to address sleep deserts simultaneously with the food and exercise deserts and understand these relationships. It is possible that addressing 1 variable may have a greater impact on the other. For example, targeting fitness deserts alone may yield environments that are more walkable with more social destinations, which may promote noise and negatively impact sleep health. Housing

interventions may be necessary to ensure adequate sleep environments, thus considering both neighborhood and housing is crucial.<sup>7</sup> Effecting policy changes that require researchers to study these relationships may possibly improve all 3 together, thereby having a large public health impact. Although eliminating sleep deserts may require addressing upstream structural factors, it is necessary for public health. Improving access to nutrition and safe fitness opportunities will only have a partial impact on health. Appropriate sleep quality and optimal length in people who live in economically disadvantaged neighborhoods must also be addressed.

### CITATION

Attarian H, Mallampalli M, Johnson D. Sleep deserts: A key determinant of sleep inequities. *J Clin Sleep Med*. 2022; 18(8):2079–2080.

### REFERENCES

1. Hale L, Hill TD, Friedman E, et al. Perceived neighborhood quality, sleep quality, and health status: Evidence from the Survey of the Health of Wisconsin. *Soc Sci Med*. 2013;79:16–22.
2. Johnson D, Aljouni Y, Duncan D. Neighborhoods and Sleep. In: Duncan D, Kawachi I, Redline S, eds. *The Social Epidemiology of Sleep*. 1st ed. New York, NY: Oxford University Press; 2019:409–430.
3. Hill TD, Trinh HN, Wen M, Hale L. Perceived neighborhood safety and sleep quality: a global analysis of six countries. *Sleep Med*. 2016;18:56–60.
4. Walker RE, Keane CR, Burke JG. Disparities and access to healthy food in the United States: a review of food deserts literature. *Health Place*. 2010;16(5):876–884.
5. Smith M, Hosking J, Woodward A, et al. Systematic literature review of built environment effects on physical activity and active transport—an update and new findings on health equity. *Int J Behav Nutr Phys Act*. 2017;14(1):158.
6. Schmidt A. In Fitness Deserts, Working Out Isn't as Simple as Hitting the Gym. Published October 1, 2011. <https://www.good.is/articles/in-fitness-deserts-working-out-isn-t-as-simple-as-hitting-the-gym>. Accessed March 27, 2022.
7. Billings ME, Johnson DA, Simonelli G, et al. Neighborhood walking environment and activity level are associated with OSA: the Multi-Ethnic Study of Atherosclerosis. *Chest*. 2016;150(5):1042–1049.

## SUBMISSION & CORRESPONDENCE INFORMATION

**Submitted for publication April 6, 2022**

**Submitted in final revised form April 14, 2022**

**Accepted for publication April 14, 2022**

Address correspondence to: Hrayr Attarian, 676 N St Clair Street #701, Chicago, IL 60611; Email: h-attarian@northwestern.edu

## DISCLOSURE STATEMENT

All authors have seen and approved this manuscript. Work for this study was performed at Northwestern University. The authors report no conflicts of interest.