

REVIEW ARTICLES

Sleep disparities in Asian Americans: a comprehensive review

Vibhav Nandagiri^{1,*}; Siddarth Vannemreddy, MD^{2,*}; Andrew Spector, MD³

¹Trinity College of Arts and Sciences, Duke University, Durham, North Carolina; ²Nash UNC Health Care, Rocky Mount, North Carolina; ³Department of Neurology, Duke University School of Medicine, Durham, North Carolina; *Contributed equally

Study Objectives: This review summarizes race-based sleep health disparities between Asian Americans and other American racial groups and compares sleep outcomes between Asian American subgroups disaggregated by ethnicity and ancestral national origin. The study identifies gaps in the existing literature, analyzes barriers to studying Asian American sleep, and recommends topics for future research.

Methods: A PubMed review of research on adult Asian American sleep was conducted. The articles included utilized actigraphy, polysomnography, and questionnaires to gather sleep health metrics. Information from these articles included data on sleep duration, sleep quality, sleep disturbances, and sleep disorders.

Results: Most aggregated studies find Asian American adults experiencing lower sleep duration and poorer sleep quality compared to non-Hispanic White Americans and comparable or slightly higher sleep duration compared to Black Americans. Within Asian Americans, first-generation immigrants report better sleep quality than subsequent generations. East Asian Americans may experience better sleep outcomes compared to Southeast Asian Americans. Obstructive sleep apnea is critically underreported in South Asian Americans.

Conclusions: Significantly more research is required in Asian American sleep disparities, specifically in South and Southeast Asian Americans. Sleep disparities between Asian Americans and other racial groups are impacted by perceived discrimination, poor mental health, and cultural attitudes toward sleep. The observed within-group disparities of Asian American sleep may be attributed to socioeconomic status and generational status/acclimation. Existing barriers to research include the model minority myth and lack of disaggregated racial sleep data.

Keywords: Asian American, racial health disparities, sleep duration, sleep quality, sleep disorders, social determinants

Citation: Nandagiri V, Vannemreddy S, Spector A. Sleep disparities in Asian Americans: a comprehensive review. *J Clin Sleep Med.* 2023;19(2):393–402.

INTRODUCTION

Sleep is a fundamental human process, yet it is experienced in a fundamentally inequitable manner. It is well established that various populations in the United States, particularly minoritized racial groups, are subject to sleep health disparities.^{1–5} Much of the existing literature surrounding these disparities compares sleep health between Black Americans and White Americans. Meta-analyses of the literature have found that Black Americans experience shorter sleep duration, greater daytime sleepiness, and worse sleep quality compared to White Americans.^{6,7} These findings are often attributed to multiple forms of discrimination against Black Americans.⁸ Such crucial research has greatly advanced the discourse surrounding racial health disparities in the United States, but the full picture of racial/ethnic sleep disparities remains incomplete. In particular, disparities for Hispanic, Asian, and other racial/ethnic groups are disproportionately underresearched.⁹

Asian Americans are the fastest growing racial or ethnic group in the United States, with their population having nearly doubled over the first 2 decades of the 21st century.¹⁰ Asian Americans comprise 7% of the US population, a figure slated to increase according to current immigration estimates.¹¹ As the population has increased, so too have advocacy efforts for more targeted health policies tailored for the Asian American community. The data supporting these potential policies, however, are often sparse.

In a recent meta-analysis, Asian American sleep efficiency, sleep latency, sleep continuity, and sleep architecture could not be fully ascertained due to lack of data.⁹ This deficiency is potentially related to cultural and socioeconomic misconceptions of the Asian American diaspora.¹²

Adding to the urgency for data on Asian American sleep is the recent increase in anti-Asian racism and violence during the COVID-19 pandemic.¹³ The mainstream perception of Asian Americans as “perpetual foreigners” has frequently pinned the Asian American diaspora as suspected vectors of disease.^{14,15} These racist tropes, when combined with recent incendiary rhetoric from leading American politicians, have contributed to marked increases in hate crimes against Asian Americans.^{16,17}

Researchers suspect that the rapid rise in hate crimes against the Asian American diaspora, when combined with the decline of mental health during the COVID-19 pandemic, has inflicted significant psychological trauma on Asian Americans.^{18,19} Higher amounts of psychological trauma associated with racial victimization are associated with lower sleep duration and poorer sleep quality in Black Americans.^{8,20–22} Only recently have researchers begun to assess the initial fallout of recent traumatic events and daily microaggressions on the sleep outcomes of the Asian American population,^{13,23} laying the groundwork for further research on racial sleep disparities.

This paper is the first comprehensive review article of sleep health and sleep disparities specifically in Asian Americans.

We aim to examine the existing data on the prevalence of sleep disparities among Asian Americans with particular emphasis on studies that reflect specific Asian ethnicities and nationalities in an attempt to uncover sleep disparities in specific populations that could be masked by homogenizing individuals into the broad category of “Asian.” Once we have explored what is known about disaggregated Asian American ancestral nationalities, we will sort this information into geographic subgroups to make broader conclusions about factors such as immigration patterns and socioeconomic backgrounds that are often shared among geographic regions. Though the exact ethnicities included in each of these diasporic groups are not uniformly recognized, we draw from resources within Asian American advocacy groups and university diaspora studies programs to develop a concrete, workable definition of these subgroups. We will consider the following Asian American subgroups: East Asian Americans (those who have ancestral origin from China, Hong Kong, Japan, Mongolia, North Korea, South Korea, or Taiwan), South Asian Americans (Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, or Sri Lanka), and Southeast Asian Americans (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Singapore, Thailand, Timor-Leste, Philippines, and Vietnam).^{24–26}

This review will explore, summarize, and seek to explain the full scope of sleep health disparities between Asian Americans and other American racial groups through studies that both consider the aggregated Asian American racial group and disaggregated ethnicities and subgroups. Additional literature on intergenerational trends in Asian American sleep disparities will be highlighted and examined. The main markers of sleep health that will be analyzed in this review include sleep duration, sleep quality, and sleep disorders. Current barriers for sleep research in Asian Americans will be further elucidated in the hopes of informing future inclusive and comprehensive study design. Gaps in the existing literature will be identified along with suggestions for future research.

METHODS

We conducted a PubMed review of articles on Asian American sleep, looking at both aggregated data considering Asian Americans as a single group and disaggregated data that analyzed specific ethnicities within the Asian American diaspora. Studies of Asian diaspora in other nations were excluded from the review. Search terms utilized for obtaining aggregated data included Asian American sleep, Asian immigrant sleep, Asian American sleep duration, Asian American sleep disorders, and Asian American sleep quality. When searching for disaggregated data, all countries listed among the geographic subgroups were searched using the same strategy. The following terms yielded successful results: Bangladeshi American/immigrant sleep, Chinese American/immigrant sleep, Filipino American/immigrant sleep, Hmong American/immigrant sleep, Japanese American/immigrant sleep, Korean American/immigrant sleep, South Asian/immigrant sleep, Taiwanese American/immigrant sleep, and Vietnamese American/immigrant sleep.

A second level of review occurred following a consultation of the references sections of the papers identified through the

PubMed search. The papers were evaluated for their relevance, appropriate study design, and referenced groups. The third and final level of review was conducted through Google Scholar. The aim of this level was to primarily fill literature gaps and include pertinent concepts from fields and journals that would not otherwise be published on PubMed. No restrictions were placed on the date of publication.

Key information gleaned from these articles included data on sleep duration, sleep quality, sleep disturbances, and sleep disorders. Sleep-disordered breathing (SDB) was the most commonly encountered sleep disorder. This study focused on assessing metrics in adult populations; therefore, all studies with participants under the age of 17 years were excluded from the review. Ages included in this review ranged from 17 to 97 years. Studies with both healthy and nonhealthy participants were included as a significant portion of the studies researched older adults, many of whom had underlying health conditions.

Identified articles were published in peer-reviewed journals. Of the 26 identified studies with data on Asian American sleep, 10 utilized objective data-gathering methods such as polysomnography or actigraphy.^{2,3,5,27–29} The remaining studies gathered data via established sleep questionnaires and other qualitative metrics, introducing the potential for recall and social desirability biases. These biases could lead to the underreporting of sleep problems and inaccurate portrayal of sleep duration metrics. Many of the questionnaires were translated into the native language of the study participants, especially for older populations. Several of the papers analyzed data from previous larger national or state-level population health studies. Voluntary community study designs were more common in certain Asian ethnicities with known geographic clustering.^{30–35}

RESULTS

Overview of aggregated Asian American sleep disparities

The existing literature paints a mixed picture of sleep duration in Asian Americans when compared to other racial groups (**Table 1**). A number of surveys have indicated that Asian Americans experience sleep duration comparable to that of non-Hispanic White Americans and greater sleep duration compared to Blacks, American Indian or Alaska Natives, and Native Hawaiians or Pacific Islanders.^{26–28} However, a large study of adults found that Asian Americans were more likely to report short sleep compared to White Americans.⁴ Furthermore, elderly Asian American men have been found to have much shorter nighttime sleep duration than elderly White men and sleep duration comparable to that of elderly Black men.⁵ The Chicago Area Sleep Study also found that sleep duration was significantly shorter in Asian Americans compared to non-Hispanic Whites.² This study was one of few to utilize actigraphy in Asian American populations, thereby providing an objective measure of sleep duration.

The most comprehensive review of racial sleep disparities found that Asian American adults, compared to non-Hispanic White adults, had shorter sleep duration, lower sleep quality, and more sleep complaints.¹ Daytime sleepiness in Asian Americans, interestingly, was lower than in non-Hispanic White adults.¹

Table 1—List of studies examining sleep of aggregated Asian American participants.

Authors	Year Published	Population Studied	Number of Asian American Participants	Age of Participants, y	Sleep Variables Investigated
Yip T, Feng Y, Fowle J, Fisher CB	2021	Asian Americans	90	18–25	<ul style="list-style-type: none"> • Sleep duration • Sleep quality
Liu Y	2016	Asian Americans	8,313	18–60	<ul style="list-style-type: none"> • Sleep duration
Redline S, Kirchner HL, Quan SF, Gottlieb DJ, Kapur V, Newman A	2004	Asian Americans	57	37–92	<ul style="list-style-type: none"> • Sleep architecture • Sleep efficiency
Song Y, Ancoli-Israel S, Lewis CE, Redline S, Harrison SL, Stone KL	2011	Asian Americans	82	67–96	<ul style="list-style-type: none"> • Sleep architecture • Sleep duration • Sleep latency • Sleep efficiency • Total nap time • WASO
Carnethon MR, De Chavez PJ, Zee PC, et al	2015	Asian Americans	109	35–64	<ul style="list-style-type: none"> • Daytime sleepiness • Sleep duration • Sleep efficiency • Sleep fragmentation • Sleep quality • WASO
Ogbenna BT, Ryu S, Lee S, Slopen N	2021	Asian Americans/ Pacific Islanders	1,765	>18	<ul style="list-style-type: none"> • Sleep duration • Subjective sleep difficulty (low, moderate, high)
Johnson DA, Jackson CL, Williams NJ, Alcántara C	2019	Asian Americans*	Review	>18	<ul style="list-style-type: none"> • Sleep duration • Sleep quality
Okun ML, Lin L, Pelin Z, Hong S, Mignot E	2002	Asian Americans	32	>18	<ul style="list-style-type: none"> • Cataplexy occurrence • Daytime sleepiness • Hypnagogic hallucinations • Sleep disturbances • Sleep latency • Sleep paralysis
Ong KC, Clerk AA	1998	Asian Americans	105	>18	<ul style="list-style-type: none"> • Daytime sleepiness • Number of arousals • Number of awakenings • REM % • REM latency • Sleep efficiency • Sleep latency • Snoring frequency • SWS % • SWS latency

*Review included a study on Asians in Singapore and another study that characterized Asian with “Other” racial group. REM = rapid eye movement, SWS = slow-wave sleep, WASO = wake after sleep onset.

However, certain studies included in the review examined Asians in Asia and included Asians as part of a larger “Other” racial group, thus reducing the generalizability of the results to Asian Americans.^{36,37}

Sparse literature describes sleep disorders in Asian Americans. In a study comparing Asian American patients and White patients diagnosed with SDB, Asian Americans were found to have a much higher prevalence of obstructive sleep apnea (OSA) despite having a lower rate of obesity.³⁸ Narcolepsy, meanwhile, presented at nearly similar rates across races,

though Asian Americans reported less frequent cataplectic attacks.³⁹

Sleep in disaggregated Asian American subgroups

The heterogeneity of Asian Americans raises the risk that the reporting of aggregate data on Asian American sleep as a group will miss meaningful disparities within specific subgroups of this population (**Table 2**). Chinese Americans, Korean Americans, and Japanese Americans are the most widely studied subgroups of Asian Americans with regard to sleep. Extremely

Table 2—List of studies on sleep of disaggregated Asian American participants by ancestral nationality.

Authors	Year Published	Population Studied	Number of Asian American Participants	Age of Participants, y	Sleep Variables Investigated
Robbins R, Chong SK, Chou ATH, et al	2021	Bangladeshi Americans, Chinese Americans	32	62–97	<ul style="list-style-type: none"> • Prior sleep apnea diagnosis • Sleep difficulties • Sleep routines
Chen X, Wang R, Zee P, et al	2015	Chinese Americans	262	45–84	<ul style="list-style-type: none"> • Daytime sleepiness • Insomnia symptoms • Prior sleep apnea diagnosis • Sleep-disordered breathing • Sleep duration • Sleep quality • Snoring frequency
Hale L, Troxel WM, Kravitz HM, Hall MH, Matthews KA	2014	Chinese Americans, Japanese Americans	228 Chinese, 271 Japanese	42–52	<ul style="list-style-type: none"> • Sleep complaints (adapted from insomnia questionnaire)
Lee M, Nam JH, Yi E, Bhimla A, Nelson J, Ma GX	2021	Chinese Americans, Japanese Americans, Vietnamese Americans	150	>50	<ul style="list-style-type: none"> • Sleep duration
Karan M, Park H	2020	Chinese Americans, Korean Americans	266	18–25	<ul style="list-style-type: none"> • Sleep duration • Sleep quality
Chew M, Xie J, Klein R, Klein B, Cotch MF, Redline S, Wong TY, Cheung N	2016	Chinese Americans	677	45–84	<ul style="list-style-type: none"> • Physician-diagnosed sleep apnea prevalence • Snoring frequency
Shadyab AH, Kritz-Silverstein D, Laughlin GA, Wooten WJ, Barrett-Connor E, Araneta MRG	2015	Filipino American	330	50–86	<ul style="list-style-type: none"> • Nighttime sleep duration • Total nap time
Young E, Xiong S, Finn L, Young T	2013	Hmong Americans	747	18–86	<ul style="list-style-type: none"> • Respiratory event index at different sleep stages • Daytime sleepiness • Insomnia symptoms • Sleep apnea indicators • Prevalence of sleep paralysis, hypnogogic hallucinations, nightmares, cataplexy • Traditional beliefs surrounding sleep
Barbar SI, Enright PL, Boyle P, et al	2000	Japanese Americans	3845	71–93	<ul style="list-style-type: none"> • Daytime sleepiness • Insomnia symptoms
Maskarinec G, Jacobs S, Amshoff Y, et al	2018	Japanese Americans	2779	45–75	<ul style="list-style-type: none"> • Sleep duration
Anzai T, Grandinetti A, Katz AR, Hurwitz EL, Wu YY, Masaki K	2020	Japanese Americans	709	79–97	<ul style="list-style-type: none"> • CSA prevalence • OSA prevalence
Oh H, Ko J, Waldman K	2019	Korean Americans	137	>17	<ul style="list-style-type: none"> • Sleep disturbances
Sok SR	2008	Korean Americans	52	65–86	<ul style="list-style-type: none"> • Insomnia symptoms • Subjective satisfaction with sleep • Insomnia treatment utilization
Song Y, Martin JL, Lee D, et al	2021	Korean Americans	43	59–85	<ul style="list-style-type: none"> • Daytime sleepiness • Dysfunctional beliefs and attitudes about sleep • Medical Outcomes Study Sleep Scale (MOS-Sleep) • Sleep apnea risk • Sleep quality

(continued on following page)

Table 2—List of studies on sleep of disaggregated Asian American participants by ancestral nationality. (Continued)

Authors	Year Published	Population Studied	Number of Asian American Participants	Age of Participants, y	Sleep Variables Investigated
Suen L jen W, Morris DL, McDougall GJ	2004	Taiwanese Americans	100	60–88	• Sleep quality
Deol R, Lee KA, Kandula NR, Kanaya AM	2017	South Asian Americans	899	40–84	• Sleep apnea risk
Robbins R, Trinh-Shevrin C, Chong SK, et al	2022	South Asian Americans	27	>50	• Sleep apnea risk

CSA = central sleep apnea, OSA = obstructive sleep apnea.

limited data are available for South Asian and Southeast Asian populations in the United States.

East Asian American sleep

In 2015, the Multi-Ethnic Study of Atherosclerosis showed that Chinese American participants averaged a sleep duration of 6.56 hours and were 2.3 times more likely than non-Hispanic Whites in the study to have a short sleep duration.³ A smaller-scale study in elderly Chinese Americans found a high prevalence of sleep difficulties and short sleep, most commonly associated with other chronic conditions.⁴⁰

Using polysomnography, Chinese Americans were found to have higher frequency of SDB relative to non-Hispanic Whites, especially when adjusted for body mass index. The elevated likelihood of SDB was coupled with a lower likelihood of Chinese Americans to report apneas and insomnia to their physicians.³ However, using data from the Multi-Ethnic Study of Atherosclerosis, Chinese Americans presented with significantly lower prevalence of habitual snoring and physician-diagnosed sleep apnea compared to other racial groups.⁴¹

Severe SDB was a common occurrence in elderly Japanese American men, with 19% of the sample in the Honolulu-Asia Aging Study of Sleep Apnea experiencing severe SDB.²⁷ Another study of SDB in elderly Japanese Americans found severe OSA presenting at 20.2%, central sleep apnea prevalence at 6.4%, and Cheyne-Stokes breathing at 3.2% via overnight polysomnography.⁴²

Another study conducted in elderly Japanese American men found similar insomnia levels but lower rates of excessive daytime sleepiness when compared to a sample of elderly non-Hispanic Whites.⁴³ More recently, Japanese Americans were found to be more likely to experience shorter sleep (< 6 hours) compared to Latinos and non-Hispanic Whites but less likely compared to African Americans and Native Hawaiians.⁴⁴ Research in younger Korean American adults is limited but suggests a high prevalence of poor sleep quality along with a strong association between sleep and mental health outcomes. A study of Korean and Chinese American undergraduate students found the average sleep duration of the two groups to be 6.88 hours, with 70% of the participants classified as poor-quality sleepers.⁴⁵ In a sleep quality survey of a predominantly second-generation Korean American church, over 70% of participants reported some form of sleep disturbance, with over

25% classifying these sleep disturbances as moderate or severe.³¹ Heightened sleep disturbance was found to be associated with mental health problems, including perceived stress and loneliness.³¹

Research into older Korean American adults revealed poor sleep quality and low nighttime sleep duration. A study of a Pittsburgh, Pennsylvania Korean American community found average nighttime sleep to be 5.3 hours, with 80.8% of participants reporting dissatisfaction with their sleep quality.³² A similar community study in Orange County, California and Los Angeles County, California found older Korean American adults reporting poor sleep quality and high levels of daytime sleepiness.³³ Only one study of Taiwanese American sleep was identified. In this study, Taiwanese American adults reported poor sleep quality, an observation in line with other members of the East Asian American diaspora.³⁵

Southeast Asian American sleep

Comparing the sleep habits of Vietnamese Americans to a group of Chinese Americans and Korean Americans (East Asians), the East Asian group slept an average of 1 hour longer than the Vietnamese Americans. Furthermore, 81.0% of Vietnamese American participants reported sleep troubles.⁴⁶

Other groups within the Southeast Asian diaspora in the United States show findings similar to those in Vietnamese Americans. A study of postmenopausal Filipina Americans found their average nighttime sleep duration to be significantly lower than that of both Black and non-Hispanic White women in the study. However, the Filipina Americans seemed to make up some of the nighttime sleep deficit with daytime napping.⁴⁷

A study of Hmong immigrants in Wisconsin found a high prevalence of sleep apnea, sleep paralysis, hypnagogic hallucinations, and severe nightmares compared to the general population.²⁹ The authors proposed that the psychological trauma experienced by this population, stemming both from military conflicts in Southeast Asia and the high mortality rate among Hmong men from Brugada syndrome (known also as sudden unexpected nocturnal death syndrome, or SUNDS), contributed significantly to the high rates of sleep disorders.²⁹

South Asian American sleep

Studies of South Asian Americans have predominantly focused on determining clinical risk for OSA. In a study of a large,

middle-aged and older cohort of South Asians, 41% were found to have SDB and 12% of the sample had excessive daytime sleepiness.⁴⁸ Further assessment of clinical comorbidities found that 24% of the cohort were at high risk for OSA, with higher risk correlated with a diagnosis of prediabetes and diabetes. In a study of older yellow cab taxi drivers of South Asian descent in New York City, 33% of the cohort reported excess daytime sleepiness, 52% of the sample reported short sleep during workdays, and 37% were identified as being at high risk for OSA.³⁴ It is important to note, however, that this study did not compare to taxi drivers of other racial or ethnic backgrounds. Likewise, a study of elderly Bangladeshi Americans found around 35% of the sample reporting sleep apnea symptoms from a questionnaire.⁴⁰

DISCUSSION

This review identified a lack of disaggregated data on the sleep of Asian Americans from many different ancestral nationalities. Aggregated analyses of Asian American sleep disparities suggest that Asian Americans experience lower sleep duration than non-Hispanic White Americans, though the degree to which this difference is observed varies between studies.^{1,2,5,28,49,50} Furthermore, the gap in sleep duration between Asian Americans and non-Hispanic White Americans may widen with age.⁵ Compared to Black Americans, Asian Americans exhibit comparable or slightly higher sleep duration.^{1,2,5,28,49,50} Existing data also point to lower sleep quality and higher sleep disturbances among Asian Americans compared to non-Hispanic White Americans.¹

Among the sleep disorders, both aggregated and disaggregated data indicate disparities in sleep apnea and insomnia.^{34,38–40,42,48} OSA appears much more frequently in Asian Americans compared to White Americans, though the rates may vary between different disaggregated Asian American groups.^{38,41,42} Meanwhile, narcolepsy and cataplexy rates do not vary significantly between Asian Americans and other racial groups.³⁹

The disaggregated analysis of Asian American sleep revealed that East Asian Americans demonstrate better sleep parameters than Southeast Asian Americans. Directly comparing studies of different subgroups was complicated both by the lack of data in Southeast Asian American sleep and the different age ranges sampled between the studies. Although data are limited, there is evidence that Vietnamese, Cambodian, and Filipino Americans are at particularly high risk for sleep dysfunction.^{29,46,47}

Socioeconomic drivers of disparities

Socioeconomics are likely to influence the observed disparities. Despite prevailing stereotypes, such as the model minority myth—the belief that Asian Americans, across all ethnicities and nationalities, are uniquely successful in academic, professional, and economic contexts⁵¹—Asian Americans possess substantial heterogeneity in socioeconomic background and overall health outcomes.⁵² After adjusting for household size and regional disparities in cost of living, estimates suggest that Asian Americans earn significantly less than White Americans

on a per-capita basis.⁵³ Furthermore, substantial income disparities exist in median household income for Asian Americans.⁵³ According to a 2018 Pew Research, income inequality among Asian Americans was the highest of any racial group in the United States, and the gap is continuing to widen.⁵⁴ The substantial number of low-income Asian Americans may potentially reinforce the link between low socioeconomic status and poorer sleep health indicators.^{55,56}

Some of the heterogeneity within Asian Americans arises from historical differences in immigration patterns, with many Southeast Asian families arriving as refugees to the United States, in contrast to the voluntary pathways employed by many East Asian families.⁵⁷ Southeast Asian American communities have faced limited social safety nets, disparities in educational and occupational opportunities, and barriers to affordable health insurance.^{58,59} Poverty rates among Southeast Asians in the United States remain some of the highest in the nation, and earnings estimates show median household income of Southeast Asian American households to be below the earnings of the average American households.^{11,60,61} The existing literature reveals a strong association between lower socioeconomic status and low sleep duration, sleep quality, and higher prevalence of apneas.⁵⁵ Though the sleep data on Southeast Asian American sleep remains limited, further studies coupled with socioeconomic data could reveal stark differences in sleep health between Southeast Asian American and East Asian American populations.

Generational status and sleep outcomes in Asian Americans

Generational status (eg, first-generation American born outside the United States, second-generation American born in the United States to parents born outside the United States, etc) could play a substantial role in the sleep patterns and practices of Asian Americans.⁶² In first-generation Asian Americans, acculturative stress (the psychological impact of adapting to a new culture) was found to decrease sleep duration and increase sleep disturbance.^{63,64}

Higher acculturation into the United States was correlated with worse sleep outcomes in second generation Asian Americans and beyond. Recent research found that US-born Asian Americans experience longer sleep duration compared to foreign-born Asian Americans, but they report more difficulty falling or staying asleep.⁶⁵

Further corroborating these findings, Chinese and Korean American students experienced worse sleep quality than international students of the corresponding nationalities at US universities.⁴⁵ Moreover, The Study of Women's Health Across the Nation found that US-born Chinese and Japanese Americans expressed a higher rate of sleep complaints compared to first-generation immigrants of the same ethnicities.³⁰ Similar phenomena have been extensively documented in Latino and Black populations. Studies of Hispanic and Latino American sleep have linked acculturation in the United States to worse sleep outcomes.^{66–68} In Black populations, the more generations an individual's family has lived in the United States, the greater the amount of sleep difficulty they reported.^{69,70}

While the exact mechanism elucidating the relationship between immigration, acculturation, and sleep complaints remains

unknown, an important contributing factor appears to be the perceived level of discrimination.⁶⁴ Asian Americans and Pacific Islanders reporting higher levels of discrimination were found to have shorter sleep duration and greater difficulty sleeping. Of those respondents who experienced moderate to high amounts of discrimination, US-born Asian Americans reported far greater sleep difficulty compared to their foreign-born counterparts.⁷¹ One hypothesis to explain this phenomenon is that US-born children of immigrants are exposed to discrimination more frequently by being more acculturated into mainstream American culture.⁷¹

The model minority myth and aggregation of data

The fact that Asian American sleep disparities can result from socioeconomic disadvantage and generational status directly contradicts the model minority myth. One of the consequences of being subjected to this myth on a routine basis is the stress of living up to societal expectations of achievement. Stress has been identified as a core driver of poor sleep health, and the positively framed narratives of the model minority myth both deny the realities of many Asian Americans while also overwriting existing and historical racial traumas. These traumas and misrepresentations, particularly in the context of pervasive historical and current anti-Asian American Pacific Islander violence, have been hypothesized to exacerbate mental health problems and lead to worse sleep outcomes in Asian Americans.⁵⁶

Like the model minority myth, aggregated racial groupings that homogenize Asian Americans can reinforce biased and incomplete data. Disaggregation of Asian American sleep data is a critical step in understanding the spectrum of sleep and sleep problems in this population. Disaggregation represents a conscious effort to consider the disparities inherent to such a diverse racial category, subverting dominant stereotypes of a homogeneous Asian American identity and furthering the discourse on racial sleep disparities.

Biological contributors to disparities

Sociological factors may not fully explain the high prevalence of sleep disorders such as OSA in Asian Americans. One study assessed craniomandibular features between East Asian American (Chinese, Japanese, and Korean) males and White males as a potential risk factor for SDB.⁷² Compared to White participants, the Asian American group possessed greater maxillomandibular protrusion, narrower cranial base angle, larger posterior airway space, and a more superiorly positioned hyoid bone. These features were hypothesized to contribute to a greater likelihood of upper airway obstruction and therefore OSA.⁷² Biological factors, however, are not thought to contribute to the myriad other disparities, such as shorter sleep times and less restful sleep, which are socially mediated.

The problem of underreporting sleep issues

Despite the preponderance of evidence pointing to significant sleep disparities between the Asian American diaspora and other racial groups, research suggests that many Asian Americans are experiencing poorer sleep outcomes in silence. The Multi-Ethnic Study of Atherosclerosis revealed that Chinese Americans were less likely to report symptoms of sleep apnea

or insomnia to physicians.³ Studies in older Korean immigrants revealed a predisposition to getting sleep advice from family and friends compared to professional help.^{33,73} These studies corroborated the observation that Asian Americans are less likely than other racial and ethnic groups to speak with physicians about sleep problems.⁶⁴ Additional studies must be conducted to determine the root causes of this phenomenon. The explanatory factors could, however, be similar to those identified when looking at the low mental health service utility rate among Asian Americans, including cultural stigma, discrimination and distrust in the health care system, and the model minority myth.^{74–76} Future interventions into improving the sleep outcomes of Asian Americans must take into consideration these important trends.

Future paths for studying Asian American sleep

We have identified four strategies that would greatly expand our knowledge of Asian American sleep: increasing the volume of research on South and Southeast Asian Americans, exploring the links between mental health and sleep in Asian American populations, developing a better understanding of the role of acculturation and discrimination on sleep health, and investigating the cultural attitudes toward sleep in different Asian American subgroups. Current studies in South Asian American sleep focus primarily on SDB and sleep apnea.^{34,48} Future research should explore additional critical metrics such as sleep duration and sleep quality, while also expanding their scope to include younger South Asian adults.

The status of many Southeast Asian Americans as refugees or descendants of refugees may substantially impact future studies into the group's sleep health outcomes. Southeast Asian refugees present with mental illnesses such as depression, anxiety, and posttraumatic stress disorder at high rates.⁷⁷ Mental health disorders and sleep disturbances exist in a bidirectional relationship.⁷⁸ With existing evidence in Hmong Americans suggesting a major mediating role of mental illnesses on sleep,²⁹ further explorations of Southeast Asian Americans must consider the impact of mental illness on sleep outcomes.

More broadly, mental health in Asian Americans, while substantially understudied, has pointed to serious concerns surrounding the prevalence of mental illness within the diaspora.⁷⁹ Less still is known about the interactions between mental health and sleep in Asian Americans. A study of second-generation Korean Americans found poor sleep quality to mediate worse mental health outcomes.³¹ With rising levels of perceived discrimination and mental distress from the COVID-19 pandemic, Asian American mental health and sleep health have suffered substantially over the past few years.^{18,19} Coupled with already low mental health services utility rate of Asian Americans and lower likelihood for Asian Americans to speak with physicians about sleep problems,^{3,33,64,73–76} future studies on the intersection between sleep and mental health are critical to reducing sleep dysfunction in Asian Americans.

The third step is to continue reviewing the impact of acculturation on sleep outcomes. It is known that acculturative stress negatively impacts the sleep health of first-generation immigrants.^{63,64} For children and grandchildren of first-generation

immigrants, acculturation appears to mediate even greater sleep difficulty when compared to first-generation immigrants.^{30,65} Explanations for this correlation range from varying exposures to racial discrimination to different cultural attitudes toward sleep and must be further investigated.

Cultural attitudes serve as the foundation for the fourth call to action. The heterogeneity of the Asian American population, both in ethnicity and in generational status, confers different attitudes toward sleep. Future research should seek to link sleep and nap habits of Asian Americans with the sleep attitudes in the countries of origin of first-generation Asian immigrants.

Limitations

Several of the studies involved in this review focused on specific populations, such as college students and the elderly. Such studies reduce the generalizability of findings to given Asian American ethnicities/nationalities. Furthermore, many of the community-focused studies, especially in the elderly, relied on convenience sampling. The lack of random sampling could potentially introduce bias into the data.

Perhaps the most significant limitation is sleep study design centered around questionnaires. While some recent studies have begun to incorporate actigraphy and polysomnography, objectively measured sleep metrics in Asian Americans are few and far between. The potential for bias in these responses raises risks of inaccurate portrayal in an already inaccurately portrayed racial group.

CONCLUSIONS

The COVID-19 pandemic has caused health systems to take a deeper look at providing more equitable care. This movement has brought to light many of the historical injustices faced by the Asian American community and their impact on quality of life. The unique context and history of Asian American health care and, more specifically sleep health, necessitates further research to understand the intersecting cultural, socioeconomic, and psychological factors involved. Ideally, we will soon see new care models that account for the many upstream, structural factors central to Asian American sleep health.

ABBREVIATIONS

OSA, obstructive sleep apnea
SDB, sleep-disordered breathing

REFERENCES

- Johnson DA, Jackson CL, Williams NJ, Alcántara C. Are sleep patterns influenced by race/ethnicity - a marker of relative advantage or disadvantage? Evidence to date. *Nat Sci Sleep*. 2019;11:79–95.
- Carnethon MR, De Chavez PJ, Zee PC, et al. Disparities in sleep characteristics by race/ethnicity in a population-based sample: Chicago Area Sleep Study. *Sleep Med*. 2016;18:50–55.
- Chen X, Wang R, Zee P, et al. Racial/ethnic differences in sleep disturbances: the Multi-Ethnic Study of Atherosclerosis (MESA). *Sleep*. 2015;38(6):877–888.
- Jackson CL, Kawachi I, Redline S, Juon HS, Hu FB. Asian-White disparities in short sleep duration by industry of employment and occupation in the US: a cross-sectional study. *BMC Public Health*. 2014;14(1):552.
- Song Y, Ancoli-Israel S, Lewis CE, Redline S, Harrison SL, Stone KL. The association of race/ethnicity with objectively measured sleep characteristics in older men. *Behav Sleep Med*. 2011;10(1):54–69.
- Ruiter ME, Decoster J, Jacobs L, Lichstein KL. Normal sleep in African-Americans and Caucasian-Americans: a meta-analysis. *Sleep Med*. 2011;12(3):209–214.
- Petrov ME, Lichstein KL. Differences in sleep between black and white adults: an update and future directions. *Sleep Med*. 2016;18:74–81.
- Fuller-Rowell TE, Nichols OI, Robinson AT, Boylan JM, Chae DH, El-Sheikh M. Racial disparities in sleep health between Black and White young adults: the role of neighborhood safety in childhood. *Sleep Med*. 2021;81:341–349.
- Ahn S, Lobo JM, Logan JG, Kang H, Kwon Y, Sohn MW. A scoping review of racial/ethnic disparities in sleep. *Sleep Med*. 2021;81:169–179.
- Budiman A, Ruiz NG. Asian Americans are the fastest-growing racial or ethnic group in the U.S. Pew Research Center. <https://www.pewresearch.org/fact-tank/2021/04/09/asian-americans-are-the-fastest-growing-racial-or-ethnic-group-in-the-u-s/>. Accessed May 15, 2022.
- Budiman A, Ruiz NG. Key facts about Asian Americans, a diverse and growing population. Pew Research Center. <https://www.pewresearch.org/fact-tank/2021/04/29/key-facts-about-asian-americans/>. Accessed May 15, 2022.
- Chen A. Amid growing anti-Asian racism, a call for more research into its health effects. NPR. <https://www.npr.org/sections/health-shots/2021/05/29/1001373994/amid-growing-anti-asian-racism-a-call-for-more-research-into-its-health-effects>. Accessed May 15, 2022.
- Chen S, Wu C. #StopAsianHate: understanding the global rise of anti-Asian racism from a transcultural communication perspective. *J Transcult Commun*. 2021;1(1): 5–19.
- Kim CJ. The racial triangulation of Asian Americans. *Polit Soc*. 1999;27(1):105–138.
- Tessler H, Choi M, Kao G. The anxiety of being Asian American: hate crimes and negative biases during the COVID-19 pandemic. *Am J Crim Justice*. 2020;45(4): 636–646.
- Shah N. 1. Public Health and the Mapping of Chinatown. In: *Contagious Divides*. Berkeley, CA: University of California Press; 2021:17.
- Gover AR, Harper SB, Langton L. Anti-Asian hate crime during the COVID-19 pandemic: exploring the reproduction of inequality. *Am J Crim Justice*. 2020;45(4): 647–667.
- Liu Y, Finch BK, Brenneke SG, Thomas K, Le PD. Perceived discrimination and mental distress amid the COVID-19 pandemic: evidence from the Understanding America Study. *Am J Prev Med*. 2020;59(4):481–492.
- Lee S, Waters SF. Asians and Asian Americans' experiences of racial discrimination during the COVID-19 pandemic: impacts on health outcomes and the buffering role of social support. <https://psycnet.apa.org/fulltext/2020-77454-001.html>. Accessed May 28, 2022.
- Hicken MT, Lee H, Ailshire J, Burgard SA, Williams DR. "Every shut eye, ain't sleep": the role of racism-related vigilance in racial/ethnic disparities in sleep difficulty. *Race Soc Probl*. 2013;5(2):100–112.
- Davenport MA, Landor AM, Zeiders KH, Sarsar ED, Flores M. Within-person associations between racial microaggressions and sleep among African American and Latinx young adults. *J Sleep Res*. 2021;30(4):e13226.
- Hart AR, Lavner JA, Carter SE, Beach SRH. Racial discrimination, depressive symptoms, and sleep problems among Blacks in the rural South. *Cultur Divers Ethnic Minor Psychol*. 2021;27(1):123–134.
- Ong AD, Cerrada C, Lee RA, Williams DR. Stigma consciousness, racial microaggressions, and sleep disturbance among Asian Americans. *Asian Am J Psychol*. 2017;8(1):72–81.
- CSUSM. Defining diaspora: Asian, Pacific Islander, and Desi identities. Cross-Cultural Center, CSUSM. <https://www.csusm.edu/ccp/programs/diaspora.html>. Accessed July 2, 2022.
- Census Data & API Identities. Asian Pacific Institute on Gender Based Violence. <https://www.api-gbv.org/resources/census-data-api-identities/>. Accessed June 30, 2022.
- Northern Illinois University Center for Southeast Asian Studies. Southeast Asian countries. <https://www.niu.edu/cseas/resources/countries.shtml>. Accessed July 2, 2022.

27. Foley DJ, Masaki K, White L, Larkin EK, Monjan A, Redline S. Sleep-disordered breathing and cognitive impairment in elderly Japanese-American men. *Sleep*. 2003;26(5):596–599.
28. Redline S, Kirchner HL, Quan SF, Gottlieb DJ, Kapur V, Newman A. The effects of age, sex, ethnicity, and sleep-disordered breathing on sleep architecture. *Arch Intern Med*. 2004;164(4):406–418.
29. Young E, Xiong S, Finn L, Young T. Unique sleep disorders profile of a population-based sample of 747 Hmong immigrants in Wisconsin. *Soc Sci Med*. 2013;79:57–65.
30. Hale L, Troxel WM, Kravitz HM, Hall MH, Matthews KA. Acculturation and sleep among a multiethnic sample of women: the Study of Women's Health Across the Nation (SWAN). *Sleep*. 2014;37(2):309–317.
31. Oh H, Ko J, Waldman K. Church-based sleep screenings to detect mental health problems among Korean-Americans. *J Immigr Minor Health*. 2019;21(6):1440–1443.
32. Sok SR. Sleep patterns and insomnia management in Korean-American older adult immigrants. *J Clin Nurs*. 2008;17(1):135–143.
33. Song Y, Martin JL, Lee D, et al. Associations of self-reported sleep quality with demographic and other characteristics in older Korean immigrants. *J Immigr Minor Health*. 2022;24(2):403–411.
34. Robbins R, Trinh-Shevrin C, Chong SK, et al. Examining demographic, work, and sleep characteristics among older South Asian American yellow taxi drivers in New York City: a brief report. *Sleep Med*. 2022;96:128–131.
35. Suen LJ, Morris DL, McDougall GJ Jr. Memory functions of Taiwanese American older adults. *West J Nurs Res*. 2004;26(2):222–241.
36. Tan NC, Tan MS, Hwang SW, et al. Sleep time and pattern of adult individuals in primary care in an Asian urbanized community: a cross-sectional study. *Medicine (Baltimore)*. 2016;95(35):e4749.
37. Whinnery J, Jackson N, Rattanaumpawan P, Grandner MA. Short and long sleep duration associated with race/ethnicity, sociodemographics, and socioeconomic position. *Sleep*. 2014;37(3):601–611.
38. Ong KC, Clerk AA. Comparison of the severity of sleep-disordered breathing in Asian and Caucasian patients seen at a sleep disorders center. *Respir Med*. 1998;92(6):843–848.
39. Okun ML, Lin L, Pelin Z, Hong S, Mignot E. Clinical aspects of narcolepsy-cataplexy across ethnic groups. *Sleep*. 2002;25(1):27–35.
40. Robbins R, Chong SK, Chou ATH, et al. A qualitative study of sleep and daily routines from focus groups with Chinese and Bangladeshi American older adults living in New York City. *J Gerontol Nurs*. 2021;47(12):35–41.
41. Chew M, Xie J, Klein R, et al. Sleep apnea and retinal signs in cardiovascular disease: the Multi-Ethnic Study of Atherosclerosis. *Sleep Breath*. 2016;20(1):15–23.
42. Anzai T, Grandinetti A, Katz AR, Hurwitz EL, Wu YY, Masaki K. Association between central sleep apnea and atrial fibrillation/flutter in Japanese-American men: the Kuakini Honolulu Heart Program (HHP) and Honolulu-Asia Aging Study (HAAS). *J Electrocardiol*. 2020;61:10–17.
43. Barbar SI, Enright PL, Boyle P, et al. Sleep disturbances and their correlates in elderly Japanese American men residing in Hawaii. *J Gerontol A Biol Sci Med Sci*. 2000;55(7):M406–M411.
44. Maskarinec G, Jacobs S, Amshoff Y, et al. Sleep duration and incidence of type 2 diabetes: the Multiethnic Cohort. *Sleep Health*. 2018;4(1):27–32.
45. Karan M, Park H. Sleep quality and cultural orientation among Chinese and Korean undergraduates in the United States. *J Am Coll Health*. 2022;70(3):660–664.
46. Lee M, Nam JH, Yi E, Bhimla A, Nelson J, Ma GX. Differences in subjective memory impairment, depressive symptoms, sleep, and physical activity in African American and Asian American elderly. *Brain Sci*. 2021;11(9):1155.
47. Shadyab AH, Kritz-Silverstein D, Laughlin GA, Wooten WJ, Barrett-Connor E, Araneta MRG. Ethnic-specific associations of sleep duration and daytime napping with prevalent type 2 diabetes in postmenopausal women. *Sleep Med*. 2015;16(2):243–249.
48. Deol R, Lee KA, Kandula NR, Kanaya AM. Risk of obstructive sleep apnoea is associated with glycaemia status in South Asian men and women in the United States. *Obes Med*. 2018;9:1–6.
49. Yip T, Feng Y, Fowle J, Fisher CB. Sleep disparities during the COVID-19 pandemic: an investigation of AIAN, Asian, Black, Latinx, and White young adults. *Sleep Health*. 2021;7(4):459–467.
50. Liu Y, Wheaton AG, Chapman DP, Cunningham TJ, Lu H, Croft JB. Prevalence of healthy sleep duration among adults—United States, 2014. *MMWR Morb Mortal Wkly Rep*. 2016;65(6):137–141.
51. Yi V, Museus SD. Model Minority Myth. In: Stone J, Dennis RM, Rizova PS, Smith AD, Hou X, eds. *The Wiley Blackwell Encyclopedia of Race, Ethnicity, and Nationalism*. Hoboken, NJ: John Wiley & Sons, Ltd; 2015:1–2.
52. Holland AT, Wong EC, Lauderdale DS, Palaniappan LP. Spectrum of cardiovascular diseases in Asian-American racial/ethnic subgroups. *Ann Epidemiol*. 2011;21(8):608–614.
53. Ramakrishnan K, Ahmad FZ. State of Asian Americans and Pacific Islanders Series. https://americanprogress.org/wp-content/uploads/2014/09/AAPISReport-comp.pdf?_ga=2.155544184.258872309.1652538037-96161938.1652538037. Accessed May 14, 2022.
54. Kochhar R, Cilluffo A. Income inequality in the U.S. is rising most rapidly among Asians. Pew Research Center's Social & Demographic Trends Project. <https://www.pewresearch.org/social-trends/2018/07/12/income-inequality-in-the-u-s-is-rising-most-rapidly-among-asians/>. Accessed May 14, 2022.
55. Grandner MA, Patel NP, Gehrman PR, et al. Who gets the best sleep? Ethnic and socioeconomic factors related to sleep complaints. *Sleep Med*. 2010;11(5):470–478.
56. Cheng P, Johnson DA. Moving beyond the “model minority” myth to understand sleep health disparities in Asian American and Pacific Islander communities. *J Clin Sleep Med*. 2021;17(10):1969–1970.
57. Trinh Vo L. Essay 15: Asian immigrants and refugees: demographic transformations in the United States from World War II to the present. <https://www.nps.gov/articles/aapi-theme-study-essay-15-demographics.htm>. Accessed July 27, 2022.
58. SEARAC. SEARAC and Advancing Justice-LA launch groundbreaking report on the state of the Southeast Asian American community in the United States. <https://www.searac.org/press-room/searac-and-advancing-justice-la-launch-ground-breaking-report-on-the-state-of-the-southeast-asian-american-community-in-the-united-states/>. Accessed May 30, 2022.
59. Dinh Q, McDavid J, Dizon Mariategue K. Southeast Asian Americans in 2020: 45 years of resilience and resistance. *Asian American Policy Review*. <https://aapr.hkpublications.org/2021/04/16/southeast-asian-americans-in-2020-45-years-of-resilience-and-resistance/>. Accessed May 30, 2022.
60. Liu J. How the model minority myth holds Asian Americans back at work—and what companies should do. CNBC. <https://www.cnbc.com/2021/05/03/how-the-model-minority-myth-holds-asian-americans-back-at-work.html>. Accessed January 3, 2022.
61. Namkung V. The model minority myth says all Asians are successful. Why that's dangerous. *NBC News*. <https://www.nbcnews.com/news/asian-america/model-minority-myth-says-asians-are-successful-dangerous-rcna420>. Accessed January 3, 2022.
62. US Census Bureau. Frequently asked questions (FAQs) about foreign born. <https://www.census.gov/topics/population/foreign-born/about/faq.html>. Accessed July 16, 2022.
63. Lee S, Ryu S, Lee GE, Kawachi I, Morey BN, Slopen N. The association of acculturative stress with self-reported sleep disturbance and sleep duration among Asian Americans. *Sleep*. 2022;45(4):zsab298.
64. Song Y, Ta Park VM, Martin JL. Future directions to address sleep health disparity among Asian American immigrants. *Sleep*. 2022;45(4):zsac024.
65. Ryu S, Slopen N, Ogbenna BT, Lee S. Acculturation and sleep outcomes in Asian Americans and Pacific Islanders: results from the National Epidemiologic Survey on Alcohol and Related Conditions-III. *Sleep Health*. 2021;7(6):683–690.
66. Loreda JS, Soler X, Bardwell W, Ancoli-Israel S, Dimsdale JE, Palinkas LA. Sleep health in U.S. Hispanic population. *Sleep*. 2010;33(7):962–967.
67. Patel SR, Sotres-Alvarez D, Castañeda SF, et al. Social and health correlates of sleep duration in a US Hispanic population: results from the Hispanic Community Health Study/Study of Latinos. *Sleep*. 2015;38(10):1515–1522.
68. Seicean S, Neuhauser D, Strohl K, Redline S. An exploration of differences in sleep characteristics between Mexico-born US immigrants and other Americans to address the Hispanic paradox. *Sleep*. 2011;34(8):1021–1031.
69. Garcini LM, Chen MA, Brown RL, et al. Kicks hurt less: discrimination predicts distress beyond trauma among undocumented Mexican immigrants. *Psychol Violence*. 2018;8(6):692–701.
70. Gee GC, Ryan A, Laflamme DJ, Holt J. Self-reported discrimination and mental health status among African descendants, Mexican Americans, and other Latinos in the New Hampshire REACH 2010 Initiative: the added dimension of immigration. *Am J Public Health*. 2006;96(10):1821–1828.
71. Ogbenna BT, Ryu S, Lee S, Slopen N. Discrimination and sleep among Asians and Pacific Islanders adults. *Sleep*. 2021;44(10):zsab109.

72. Li KK, Powell NB, Kushida C, Riley RW, Adornato B, Guilleminault C. A comparison of Asian and white patients with obstructive sleep apnea syndrome. *Laryngoscope*. 1999;109(12):1937–1940.
73. Song Y, Ryan GW, Lee D, et al. Experiences of sleep problems among older Korean immigrants. *Res Gerontol Nurs*. 2022;15(4):193–202.
74. McLean Hospital. Why Asian Americans don't seek help for mental illness. <https://www.mcleanhospital.org/essential/why-asian-americans-dont-seek-help-mental-illness>. Accessed July 3, 2022.
75. Office of Minority Health. Mental and behavioral health - Asian Americans. <https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvlid=54>. Accessed July 3, 2022.
76. Nishi K. Mental health among Asian-Americans. <https://www.apa.org>. <https://www.apa.org/pi/oema/resources/ethnicity-health/asian-american/article-mental-health>. Accessed May 15, 2022.
77. Hsu E, Davies CA, Hansen DJ. Understanding mental health needs of Southeast Asian refugees: historical, cultural, and contextual challenges. *Clin Psychol Rev*. 2004;24(2):193–213.
78. Stowkowy J, Brummitt K, Bonneville D, et al. Sleep disturbances in youth at-risk for serious mental illness. *Early Interv Psychiatry*. 2020;14(3):373–378.
79. Chu JP, Sue S. Asian American mental health: what we know and what we don't know. *Online Read Psychol Cult*. 2011;3(1).

SUBMISSION & CORRESPONDENCE INFORMATION

Submitted for publication August 11, 2022

Submitted in final revised form October 2, 2022

Accepted for publication October 3, 2022

Address correspondence to: Andrew Spector, MD, FAASM, 2424 Erwin Rd, Suite 1001, DUMC 2720, Durham, NC 27705; Email: andrew.spector@duke.edu

DISCLOSURE STATEMENT

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