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Developmental links between ethnic and racial discrimination and sleep

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Abstract

A robust literature is developing around how the stress of discrimination is implicated in individual- and group-level sleep disturbances, and how these disturbances contribute to the development of population-level sleep disparities over time. Although discrimination can be based on many individual and intersecting biases, like gender, sexuality, socioeconomic status, and education, in this article, we focus on discrimination rooted in ethnicity and race because of the well-founded documentation of disparities in sleep by race. Focusing primarily on adolescence and young adulthood, we integrate research linking ethnic and racial discrimination to sleep across a variety of methods and developmental time spans, ending with reflections on interventions. In so doing, we seek to advance research and encourage conversations that cross-fertilize collaborations between those with interests in discrimination, sleep, and population-level health equity.

KEYWORDS discrimination, sleep

INTRODUCTION

Parents, teachers, scholars, and educational institutions agree nearly universally that sleep and sleep behaviors are important for the healthy development of young people. Sufficient and good-quality sleep is critical for overall adjustment, developmental milestones, and daily functioning for humans across the lifespan. Although sleep duration declines from infancy through old age, its importance for functioning and thriving does not wane (Centers for Disease Control and Prevention, 2022; National Sleep Foundation, 2020). In this article, we focus on the developmental period of adolescence (12-17 years) and young adulthood (18-25 years) as especially critical periods for sleep health. These are developmental periods of significant physical and social change (Erikson, 1950), and times when sleep is especially important for cognitive functioning,

psychological health (e.g., anxiety, depression), and physical health (e.g., inflammation, aging, weight; Galván, 2020; Sletten et al., 2023). Short sleep duration (less than 8h a day for adolescents and less than 7h a day for young adults) and poor sleep quality are associated with lower levels of daily functioning; decreased positive mood; compromised academic performance; and chronic health issues such as obesity, cardiovascular dysfunction, and immune deficiency (Bryant & Gómez, 2015; Chen et al., 2021; Galván, 2020; Kansagra, 2020; Paruthi et al., 2016; Wheaton et al., 2018; Wheaton & Claussen, 2021). Adolescence and young adulthood are also periods when ethnic and racial discrimination is especially salient, the effects of this discrimination on well-being and adjustment are particularly pronounced (Benner et al., 2018; El-Sheikh et al., 2021), and discrimination can predict later adult outcomes (Adam et al., 2015).

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FACTORS THAT INFLUENCE SLEEP

Although sleep needs have biological bases, sleep behaviors are strongly influenced by immediate and distal social, environmental, and societal contexts. Notably, contextual sources of stress, such as neighborhood conditions, bedroom characteristics, and socioeconomic pressures, have been linked to disruptions in sleep (Johnson et al., 2018; Kim et al., 2022; Mayne et al., 2021; Sharma et al., 2021). In this article, we consider the stress of interpersonal ethnic and racial discrimination as yet another context with empirical links to sleep disturbances (Goosby et al., 2017; Huynh & Gillen-O'Neel, 2016; Slopen et al., 2016; Thomas et al., 2006; Tomfohr et al., 2012). Motivations for investigating the links between ethnic and racial discrimination and sleep originate from observations of race-based disparities in sleep duration and quality from infancy through adulthood (Cespedes et al., 2014; El-Sheikh et al., 2022; Johnson et al., 2018; Tomalski et al., 2016; Tomfohr et al., 2012; Yip, Cham, et al., 2020; Yip, Cheon, Wang, Cham, et al., 2020; Yip, Cheon, Wang, Deng, et al., 2020). Rather than being explained biologically, sleep disparities (like many other health disparities) have been linked to social determinants such as racism and race-based discrimination (Slopen & Williams, 2014; Yip, Cham, et al., 2020; Yip, Cheon, Wang, Cham, et al., 2020).

THE NATURE OF THE ASSOCIATIONS BETWEEN SLEEP AND DISCRIMINATION

Next, we address the three ways in which the associations between sleep and ethnic and racial and unspecified discrimination have been considered. The most common approach is to investigate direct associations between discrimination and sleep, either through correlational or longitudinal designs, with discrimination linked to sleep disturbances. Building on the investigation of direct associations, a second approach considers sleep disturbances as a mediating, or explanatory, mechanism linking discrimination to compromised developmental outcomes through pathways of sleep disturbance. Finally, a third area of research builds on theories of stress amplification (Felson, 1992; Ingersoll-Dayton et al., 1997) and investigates the joint effects of discrimination and sleep, where the negative impact of discrimination on outcomes is amplified for young people with poor sleep (e.g., short duration, poor quality, high variability) and protected for youth with better sleep (e.g., sufficient duration, good quality, low variability). We conclude with a discussion of the possible promise of sleep interventions for mitigating the effects of racism and discrimination on youth development.

SLEEP MEASUREMENT AND **TERMINOLOGY**

Sleep and sleep disturbances are measured by a host of indicators, including self-report measures and obiective indicators like ambulatory wrist actigraphy (Brown et al., 2018; Naismith & Mowszowski, 2018; Smith et al., 2018) and lab-based polysomnography (Lee et al., 2019; Shahid et al., 2012). Sleep is a complex biobehavioral activity and each sleep indicator provides complementary information. Sleep onset refers to the transition from wake to sleep. Sleep offset refers to the transition from sleep to wake. Sleep duration is a common focus of sleep science and national guidelines provide discrete benchmarks by age (Centers for Disease Control and Prevention, 2022; National Sleep Foundation, 2020). Sleep duration can be selfreported for a "typical" evening (sometimes differentiating weekdays from weekends; Buysse et al., 1989) or self-reported for a given evening (e.g., using experience sampling techniques that query participants daily for several days or weeks); it can also be assessed objectively with equipment like wrist actigraphy or polysomnography, which passively measures motion, physical activity, and heart rate in predetermined intervals (e.g., seconds, minutes) to determine periods of sleep and wakefulness (Sadeh, 2011).

Sleep quality is another common metric, with measurements ranging from subjective self-report (e.g., how well did you sleep yesterday/the past week/the past month; Dewald et al., 2010; Meijer et al., 2010) to objective actigraphy or polysomnography (e.g., minutes of wakefulness after sleep onset, considered an indicator of poor-quality sleep, sleep efficiency; Chee et al., 2021; Chiang et al., 2017; Kuula et al., 2015; Lee & Suen, 2017). A newer and increasingly popular indicator of sleep quality is regularity, a self-reported or objectively measured assessment of whether an individual's sleep onset and offset occur at approximately the same time each day (Lunsford-Avery et al., 2018). Emerging research supports the health benefits of higher regularity for outcomes such as academic grades, mood, performance, health, and mortality (Phillips et al., 2017; Sano et al., 2015; Sletten et al., 2023; Windred et al., 2023; Yip et al., 2023). In the following sections, we discuss the aforementioned sleep indicators, with details about the relevant metric and method of data collection.

DIRECT ASSOCIATIONS BETWEEN DISCRIMINATION AND SLEEP

Discrimination based on ethnicity or race is a form of stress, and stress has been implicated in sleep disturbances (Alcántara et al., 2017). A growing body of research, using both cross-sectional and longitudinal approaches, has supported the link between discrimination

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and sleep among ethnically and racially minoritized young people.

Cross-sectional approaches

Cross-sectional studies have linked ethnic and racial discrimination with concurrent sleep problems (e.g., more sleep disturbance, poorer sleep quality, shorter sleep duration) among Black, Latine, and Asian adolescents (Durley et al., 2023; Huynh & Gillen-O'Neel, 2016; Majeno et al., 2018; Shipman-Lacewell et al., 2023). Not only are direct experiences of ethnic and racial discrimination related to sleep disturbance, but research on Indigenous and ethnically diverse adolescents (range_{age}=10-15 years) in New South Wales and Victoria, Australia (Priest et al., 2020), has found that vicarious ethnic and racial discrimination (e.g., witnessing or hearing about discrimination directed at others) was also associated with shorter sleep duration, longer latency to sleep onset (i.e., taking longer to fall asleep), and more sleep disruption.

Longitudinal approaches

Pathways from cross-sectional exposures to developmental patterns and ultimately population-level phenomenon require investigation of cumulative exposures. These studies are supported by shorter-term (e.g., days, weeks) and longer-term (e.g., months, years) longitudinal designs that illuminate temporal associations in which discrimination stress precedes disturbances in sleep.

Shorter-term longitudinal designs

Experience sampling approaches such as daily diary studies involve intensive, repeated assessments of the same individual over a short period (e.g., days, weeks) to elucidate micro-level, temporal associations between discrimination and sleep. In studies using self-reported sleep measures, on days when ethnically and racially diverse adolescents encountered discrimination, they reported shorter sleep duration (Chen et al., 2022), more sleep/wake problems (e.g., daytime sleepiness; Xie et al., 2021), and more sleep disturbance that night (Yip, Cham, et al., 2020; Yip, Cheon, Wang, Cham, et al., 2020). Moreover, this trend was particularly pronounced for multi-ethnic and multiracial adolescents, compared with mono-ethnic and monoracial adolescents (Xie et al., 2021). Multi-ethnic and multiracial adolescents are often exposed to multiple forms of discrimination related to diverse ethnic/racial backgrounds as they navigate multiple ethnic/racial heritages (Johnston & Nadal, 2010). The intersection of multiple forms of discrimination may exacerbate the adverse impact of discrimination on sleep, leading multi-ethnic and multiracial adolescents to report stronger ethnicity/race-related stress responses (Albuja et al., 2019).

Researchers have found similar results for Black (Fuller-Rowell et al., 2021) and Asian college students (Ong et al., 2017), linking ethnic and racial discrimination and microaggressions to self-reported nighttime sleep problems. Black undergraduate students $(M_{\rm age} = 20.1, \, {\rm SD_{age}} = 1.6; \, 74\%$ female) from a university in the northern United States who experienced higher levels of race-based discrimination reported poorer sleep quality the next day (Fuller-Rowell et al., 2021); similarly, Asian American first-year college students ($M_{age} = 18.1$, SD_{age}=0.55; 43% female) from a university in the eastern United States who reported higher levels of racial microaggressions on a given day were more likely to report poorer sleep quality and shorter sleep duration the next day (Ong et al., 2017). Similar temporal patterns between discrimination and next-day sleep problems have been found among ethnically and racially minoritized adolescents (22% Black, 41% Asian, 37% Latine, $M_{age} = 14.29$, SD_{age}=0.65, 67% female, 33% male, 76% U.S.-born, 23% parental high school attainment), for whom unspecified discrimination on a given day was associated with higher levels of next-day self-reported daytime dysfunction and daytime sleepiness (Yip, Cheon, Wang, Cham, et al., 2020).

Adding to the growing evidence from studies that used self-reported sleep metrics, a parallel body of literature has investigated the associations between discrimination and sleep using objective indicators of sleep, most commonly collected using wrist actigraphy. For example, daily unspecified discrimination was linked to 1.16-min shorter same-night sleep onset latency (i.e., falling asleep faster) among ethnically and racially diverse minoritized adolescents (22% Black, 41% Asian, 37% Latine; Yip, Cheon, Wang, Cham, et al., 2020). Although we lack national benchmarks for what is considered optimal sleep onset latency, clinical literature considers healthy sleep onset latency as falling asleep within 30min (Edinger et al., 2004; Lichstein et al., 2003). In a study of firstyear high school students ($M_{\text{age}} = 16.38$, $SD_{\text{age}} = 0.48$; Saxvig et al., 2020), sleep onset latency was 32 min on school nights and 24min on nonschool nights. In a study of Flemish adolescents ($M_{\text{age}} = 15.01$, $SD_{\text{age}} = 0.65$; Delfmann et al., 2023), sleep onset latency was 26 min on school nights and 20 min on nonschool nights.

Shorter sleep onset latency (i.e., falling asleep faster) may be interpreted as exhaustion related to discrimination stress. In another study of diverse adolescents (i.e., White, Black, biracial/one Black parent; $M_{\rm age} = 13.7$, SD $_{\rm age} = 1.1$; 55% female; Goosby et al., 2018) using wrist actigraphy, a different pattern emerged: On days when adolescents experienced unspecified discriminatory events, they had better sleep efficiency (i.e., fewer wake minutes after sleep onset) and longer sleep duration. However, in the same study, daily

patterns were aggregated over 14 days, and retrospective reports of everyday unspecified discrimination were associated with indicators of poorer sleep quality (e.g., shorter sleep onset latency, less efficient sleep, and more wake minutes after sleep onset—an indicator of sleep disruption).

These seemingly conflicting data patterns raise the possibility that while discrimination stress may result in sleep disturbances, sleep may also serve as a coping resource to aid physiological recovery from the biological wear and tear of discrimination stress (Das, 2013; Forde et al., 2019; Simons et al., 2021; Yip, 2015). Indeed, longer sleep duration and higher-quality sleep on a given night facilitated more active coping strategies among adolescents on days when they experienced higher levels of discrimination the following day ($M_{\rm age}$ =14.72, SD_{age}=0.54, 40% Asian, 22% Black, 38% Latine, 73% female, 27% male, 76% U.S.-born, 34% parental high school attainment; Wang & Yip, 2020).

Longer-term longitudinal designs

To elucidate how short-term processes are implicated in development over time, researchers have also investigated longer-term associations between discrimination and sleep (i.e., over several months or years). In one study, ethnic and racial discrimination was prospectively linked to self-reported sleep problems (e.g., disturbance) in Black adolescents ($M_{\rm age} = 10.9$, SD $_{\rm age} = 0.90$; 46% female) and their parents (Hart et al., 2021). Black adolescents and their mothers who reported racial discrimination were more likely to report poorer sleep quality 8 months later. Similarly, in another study, unspecified discrimination was associated with more frequent sleep variability (calculated across 7 days of self-reported sleep duration) 2 years later in a study of Mexican-origin young adults ($M_{\rm age} = 21.1$, SD $_{\rm age} = 1.52$; 50% female; Zeiders, 2017).

Bidirectional associations

Two studies have identified possible reciprocal associations between discrimination stress and sleep. In one, researchers initially sought to investigate how sleep was affected by discrimination, but as a test of alternative possibilities, they considered whether sleep predicted next-day discrimination. While actigraphy-collected sleep indicators did not predict next-day reports of unspecified discrimination, self-reported sleep disturbance, daytime dysfunction, and daytime sleepiness were associated with an increased likelihood of reporting unspecified discrimination the next day (Yip, Cheon, Wang, Cham, et al., 2020). In the second study, ethnic and racial discrimination was associated bidirectionally with self-reported sleep quality in first-year Latine college students (70.8% female and 64.4% first-generation

college students; range_{age} = 18–20; Gordon et al., 2020) from one academic year to the next. While earlier experiences of ethnic and racial discrimination were related to subsequent levels of poor sleep, poor sleep quality also predicted subsequent levels of ethnic and racial discrimination experiences. Poor sleep could result in negative mood, strain interpersonal relationships, and heighten reactivity to threatening stimuli and rejection (Gordon et al., 2020; Gordon & Chen, 2014; Killgore et al., 2017), which may, in turn, amplify people's perceptions of ethnic and racial discrimination from others.

SLEEP DISTURBANCES AS MEDIATING PATHWAYS

Research on the direct associations between discrimination and sleep has been extended in systematic ways to investigate sleep disturbances as a physiological pathway through which discrimination leads to downstream developmental outcomes. In fact, according to the racebased disparities in stress and sleep in context model, the stress of ethnic and racial discrimination leads to sleep disturbances, which in turn lead to disparities in health and educational outcomes (Levy et al., 2016). Broadly, research supports theorized pathways that sleep disturbances may explain links between discrimination and disparities. For example, in one study in which adolescents provided daily reports for 14 days, researchers investigated whether sleep disturbances mediated the link between ethnic and racial discrimination and mental health outcomes. On days when ethnically and racially minoritized adolescents ($M_{\rm age}$ =14.27, SD $_{\rm age}$ =0.61; 69% female; 21.7% Black, 41.4% Åsian, 36.9% Latine) experienced ethnic and racial discrimination, they also reported higher levels of nighttime sleep disturbance. In turn, increases in nighttime sleep disturbance predicted higher levels of negative mood, anxiety, rumination, and somatic symptoms the next day (Yip et al., 2022). Similar mediating patterns were found for daytime dysfunction and daytime sleepiness, indicators of sleep-wake problems (Yip et al., 2022). Investigating cumulative experiences of ethnic and racial discrimination over a 6-month period, discrimination was associated with higher daily levels of nighttime sleep disturbance, daytime dysfunction, and daytime sleepiness, which in turn was associated with higher levels of cumulative negative mood, anxious mood, rumination, and somatic symptoms at the end of 2 weeks (Yip et al., 2022).

Researchers have also conducted less direct investigations of explanatory processes using self-reported sleep in cross-sectional designs. For example, in one study, researchers investigated the extent to which the link between ethnic and racial discrimination and internalizing symptoms in Black adolescents ($M_{\rm age} = 14.36$, SD $_{\rm age} = 1.70$; 49.5% female) could be explained by higher levels of sleep disturbance (Shipman-Lacewell et al., 2023). Ethnic and

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racial discrimination was associated with retrospective reports of elevated sleep disturbance in the prior week, which explained higher levels of anxiety during the same period.

JOINT ASSOCIATIONS OF DISCRIMINATION AND SLEEP WITH DEVELOPMENTAL OUTCOMES

A third way developmental scientists have considered the association between discrimination and sleep is as interacting influences on developmental outcomes. Adopting an additive stress framework (Monroe & Simons, 1991), the negative effects of discrimination are hypothesized to be exacerbated for young people who also suffer from sleep disturbances (while youth who do not suffer from sleep disturbances may be protected). A review of the literature finds evidence for both possibilities. In a crosssectional study of socioeconomically diverse Black and non-Hispanic White adolescents from small cities in the southeastern United States ($M_{\rm age}$ = 17.30, SD $_{\rm age}$ = 0.76, 49% female, 51% male, 41% Black, 59% White), the associations between ethnic and racial and unspecified discrimination and anxiety and depression were exacerbated for adolescents who had shorter actigraphy-measured sleep duration and poor sleep quality (El-Sheikh et al., 2022). Similarly, lower levels of sleep regularity (i.e., highly variable sleep onset and offset times) were associated with increased rule-breaking behaviors among adolescents experiencing unspecified discrimination. Conversely, greater sleep efficiency conferred protection for symptoms of depression and anxiety, especially for female (compared to male) adolescents (El-Sheikh et al., 2022).

Beyond cross-sectional research, longitudinal associations have supported both the exacerbating and protective roles of sleep. Two studies of the same sample of ethnically and racially diverse 13- to 16-year-olds $(M_{\rm age} = 14.18, {\rm SD}_{\rm age} = 0.46, 70\%$ female, 30% male, 82% U.S.-born, 9% Black, 25% Latine, 42% Asian, 25% White) investigated how discrimination and sleep jointly predicted mental health and academic outcomes over 3 years. Adolescents who reported low levels of discrimination and high levels of sleep quality also experienced increases in self-esteem and school engagement (Dunbar et al., 2017; Yip, 2015). Conversely, poor sleep quality exacerbated the negative impact of discrimination on academic outcomes: Adolescents with low levels of sleep quality who also reported more discrimination experiences had declining levels of school engagement and lower grades over time (Dunbar et al., 2017). In a different study of ethnically and racially diverse adolescents ($M_{\rm age}$ =14.26, SD_{age}=0.61, 21% Black 37% Latine, 41% Asian, 71% female, 29% male), ethnic and racial discrimination was associated with lower grades. However, for adolescents

whose actigraphs recorded higher levels of sleep regularity, experiences of discrimination were not associated with grades, providing additional support for the protective role of sleep regularity (Yip et al., 2023).

THE POTENTIAL FOR INTERVENTIONS FOCUSED ON SLEEP TO MITIGATE NEGATIVE EFFECTS OF DISCRIMINATION

Characterizing the ways in which discrimination stress is associated with sleep through direct effects, explanatory pathways, or stress amplification matters because identifying the exact nature of these associations can inform policies and practices related to sleep-focused interventions. In addition to being a biological need, science suggests that sleep is also a promotive developmental resource. Moreover, sleep is also a modifiable health behavior with documented health benefits (Schwecherl, 2021). Therefore, improving sleep can disrupt temporal associations between racism and development.

Intervention programs have proven successful in improving various aspects of sleep and sleep behavior in adolescents and young adults. Efficacy studies show that sleep interventions have the power to improve important components of sleep, such as total sleep time/duration (Crowley et al., 2022), sleep quality (Garbers et al., 2021), and sleep efficiency (Blake et al., 2018). Meta-analyses confirm these findings (Blake et al., 2017). For example, a meta-review of interventions and lifestyle factors of sleep in adolescents and young adults (Olaithe et al., 2024) found that sleep interventions have both short-term and long-term effects on sleep quality.

Examples of sleep interventions include school-based sleep hygiene education programs. Implemented primarily in K-12 schools, these programs teach students about behaviors related to sleep hygiene that are conducive to proper sleep, including appropriate sleep schedules, healthy sleep habits, environments that support sleep, and physiological practices that aid sleep (e.g. relaxation exercises). Sometimes, these interventions are offered to the legal guardians of children. For example, one U.S. intervention randomized parents and their children to three groups that each provided one of three messages to promote sleep: no caffeine, no bedroom electronics, bed before 9 p.m. At other times, interventions are taught directly to students. For example, in a Hong Kong study $(M_{\text{age}} = 14.70, \text{ SD}_{\text{age}} = 1.50, 60\% \text{ female}, 40\% \text{ male}), ado$ lescents attended seminars about sleep, read printed material with sleep information, and viewed a sleep-related website. Studies of school-based sleep hygiene education programs have found a small short-term impact for participants of increased total sleep time/duration (Chung et al., 2017; Hall & Nethery, 2019).

Other types of sleep interventions include cognitive behavioral sleep interventions. For example, cognitive

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behavioral therapy for insomnia targets cognitive (e.g., relaxation) and behavioral (e.g., sleep restriction and stimulus control) components. These types of programs are implemented in a variety of ways: in face-to-face meetings individually or in small groups, via a website, or in schools. Cognitive behavioral sleep interventions have had long-term impacts: In one study, between 4 and 8 weeks after treatment, improvements for sleep onset latency (how long it takes to transition from wake to sleep) and wake minutes after sleep onset (but not total sleep time) remained (Åslund et al., 2018). Sleep interventions with components such as sleep scheduling, personalized bedtimes, relaxation, and mindfulness had stronger efficacy.

Sleep interventions also capitalize on different methods of delivery based on which modality the group of focus is likely to follow. For example, some interventions harness the power of smartphone applications, which may be more attractive to adolescents and young adults. A randomized controlled trial of Sleep Ninja, a smartphone application-based cognitive behavioral therapy sleep intervention for 12- to 16-year-olds in Australia, yielded promising results (Werner-Seidler et al., 2023). The intervention group participated in six, 5- to 10-min sessions administered via the application in a gamification style with different levels and opportunities to earn rewards. Sessions covered topics such as psychoeducation, sleep hygiene, stimulus control, and cognitive therapy (e.g., how to deal with thoughts that can prevent sleep onset). Participants in the intervention group self-reported greater reduction in insomnia than did participants in the control group. Furthermore, changes in insomnia mediated changes in depression, and no adverse effects were reported. The wide array of efficacious sleep interventions tailored to adolescents and young adults provides both researchers and practitioners opportunities to interrupt the effects of ethnic and racial discrimination on sleep and broaden developmental outcomes through mediated pathways.

Despite the strong promise of low-cost, high-efficacy sleep intervention programs, we know little about whether the results of interventions, programs, and structures generalize to ethnically and racially minoritized youth, and in our review, we did not find evidence of programs targeting these groups. Among existing interventions, a few efficacy studies reported the ethnic and racial composition of their sample, used stratified random sampling by race, or reported across-group differences by race (Crowley et al., 2022). Considering race disparities in sleep and the links between discrimination and sleep, a colorblind approach to both intervention implementation and efficacy studies is inadequate (El-Sheikh et al., 2022; Johnson et al., 2018). Truly understanding the universality of these interventions, programs, and structures requires a rigorous culturally cognizant analysis.

CONCLUSION

Science demonstrates that sleep and sleep behaviors are consequential for adolescent and young adult development. To this discussion, we have added ethnic and racial discrimination as both a precursor to sleep problems and other developmental concerns and an added stressor that can exacerbate existing sleep difficulties. Taken together, this body of evidence suggests that sleep is yet another area of functioning and development that is affected by racism in complex and multidirectional ways. Therefore, investigations of racism and youth development must consider sleep health. A focus on sleep health also holds promise for mitigating the negative developmental effects of ethnic and racial discrimination on mental health, physical health, and academic outcomes. Improving sleep, a developmental resource, may improve health for all youth, but especially for those who are affected by racism. Indeed, interventions developed to improve sleep are low-cost and effective, with promising potential, especially with further investigation into how sleep interventions are received by minoritized young people. We do not propose asking young people to "sleep off" racism; instead, we advocate for the creation of sleep-promoting programs that have a direct benefit for developmental outcomes, as well as indirect benefits by disrupting the negative effects of racism.

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