

# Online and Offline Gendered Racial Microaggressions and Sleep Quality for Black Women

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**Objective:** Poor sleep quality affects Black women in the United States. Black young adult women experience stress from gendered racial microaggressions (i.e., subtle unfair treatment from being a Black woman). Studies of exposure to this stressor have focused on in-person contexts (i.e., offline). Yet Black young adults are nearly constantly online. The current study examines the associations between online and offline gendered racial microaggressions and sleep quality. **Method:** Data came from a convenience sample of Black young adult women ( $N = 478$ ; ages 18–35) and were collected online in the fall of 2021. Participants completed an online survey in which they self-reported demographics and COVID-19 stress covariates, online and offline exposure to gendered racial microaggressions, and sleep quality. Utilizing linear (outcome: continuous sleep quality score) and logistic (outcome: dichotomized clinically significant poor sleep quality) regression models, we examined direct and vicarious online gendered racial microaggressions. **Results:** Most participants (67.2%) reported poor sleep quality. More offline gendered racism ( $\beta = .14$ ) and vicarious online gendered racism ( $\beta = .14$ ) were each uniquely associated with poorer sleep quality. However, only exposure to vicarious online gendered racism was uniquely associated with a 33% increased odds of clinically relevant poor sleep quality (95% confidence interval [1.09, 1.63]). **Conclusions:** Offline and online gendered racial microaggressions are stressors with sleep quality implications. Vicarious online gendered racial microaggressions are uniquely associated with lower sleep quality and therefore may be a new avenue for future research and intervention.

## Public Significance Statement

This research suggests that vicarious exposure to being treated unfairly because of being a Black woman in online contexts is an important stressor that erodes sleep quality, above and beyond offline exposures. Prevention efforts focused on helping Black young adult women cope with vicarious racism and structural social media content moderation policies may be prime targets for improving health for this population.

**Keywords:** online gendered racial microaggressions, offline gendered racial microaggressions, sleep quality, vicarious racism, Black women

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race, three authors self-identified as Black, one author self-identified as White, and one self-identified as Asian.

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Sleep quality describes an individual's subjective experience of their sleep beyond purely objective assessments of specific sleep parameters, such as total sleep duration (Krystal & Edinger, 2008). Poor sleep quality is associated with long-term health consequences (McKinnon et al., 2022; Ramar et al., 2021; N. J. Williams et al., 2015). Specifically, sleep quality has been associated with everything from an individual's academic and work performance (Ahrberg et al., 2012; Litwiller et al., 2017) to depression (Becker et al., 2017) and cardiovascular disease (Hoevenaer-Blom et al., 2011), and even mortality risk (Del Brutto et al., 2024).

Sleep health disparities exist in the United States, with Black individuals consistently reporting worse quality sleep than White individuals (Petrov & Lichstein, 2016; Pigeon et al., 2011). Black young adult women may be a subgroup at especially high risk for poor sleep. Young adults experience residential, employment, and educational transitions that can disrupt sleep routines (Park et al., 2019), with data suggesting that Black young adults have significantly worse sleep quality than their White peers (Fuller-Rowell et al., 2017). Exposure to stress can contribute to worse sleep quality (Johnson et al., 2016; Martire et al., 2020), and for Black women, this association is more pronounced with women reporting shorter sleep duration, poorer sleep quality, and longer periods of wakefulness following sleep onset (McKinnon et al., 2022; McLaurin-Jones et al., 2021).

One of the most significant chronic stressors for this population is exposure to racism (Hope et al., 2015). Racism can take many forms (Jones, 1997). One form of racism that has been studied extensively is interpersonal racial discrimination, defined as unfair treatment based on race (D. R. Williams et al., 2003). Interpersonal racial discrimination can be direct (i.e., the person is directly targeted) or vicarious (i.e., observed by others). It can also be either blatant or subtle (i.e., microaggressions; Sue et al., 2007). Most investigations with Black populations have focused on how direct and more blatant experiences of racial discrimination decrement sleep quality (e.g., Hicken et al., 2013; T. T. Lewis & McKinnon, 2019; Slopen et al., 2016). Exposure to racial discrimination lowers sleep quality for pregnant Black women (M. F. Cohen et al., 2022), increases the risk of insomnia disorder among middle-aged and older Black women (Bethea et al., 2020), and impacts sleep quality through increases in rumination for Black young adult women (Hoggard & Hill, 2018). Some research has found that vicarious exposure to racial discrimination is also associated with poor sleep in Black women (Davenport et al., 2021; McKinnon et al., 2022).

Racial discrimination is an important stressor for Black women, yet Black women are members of two marginalized social identity positions in U.S. society—being Black and being a woman. Black women experience stress from mistreatment at the dynamic intersection of both racism and sexism (Crenshaw, 1989), but studies of racial discrimination do not fully capture this intersection. As with racial discrimination, mistreatment at the intersection of both racism and sexism can be subtle. The subtle, accruing, interpersonal form of this intersectional mistreatment is called gendered racial microaggressions (J. A. Lewis & Neville, 2015). Black women particularly experience being mocked or ridiculed for the ways they look or act (e.g., comments about their buttocks), being silenced and marginalized (e.g., having their knowledge or authority questioned at work), being simultaneously expected to be strong and criticized for being too strong (e.g., “too” independent or being called “sassy”), and being seen as angry Black women (e.g., being accused of being angry when speaking calmly). Microaggressions are more frequent

and may be more taxing on cognitive resources because the attribution for being targeted (e.g., dislike of me as an individual person vs. dislike of Black women) may be more subtle, and therefore more ambiguous (Sue et al., 2007). The increased cognitive demands of making sense of a more ambiguous situation may make it challenging to cope with or calm the heightened physiological stress response to the situation, which could have implications for being able to sleep. Yet few studies of health behaviors currently examine microaggressions, and fewer examine gendered racial microaggressions. In the only study of gendered racial microaggressions and sleep quality to our knowledge, Black adult women who experienced more gendered racial microaggressions had worse overall sleep quality (Erving et al., 2023), suggesting that exposure to gendered racial microaggressions is a potent stressor that can impact sleep health. However, measures of gendered racial microaggressions largely focus on in-person (i.e., offline) experiences.

One place where young adults are very likely to be exposed to gendered racial microaggressions is on the Internet (Noble & Tynes, 2016). Young adults report being nearly constantly online (Pew Research Center, 2021). Black older adolescents and young adults report exposure to online racism at least multiple times per week and up to 5 times per day (English et al., 2020; Maxie-Moreman & Tynes, 2022). This exposure is most frequently vicarious, with Black young adults writ large (Maxie-Moreman & Tynes, 2022; Volpe, Benson, et al., 2023) and Black young adult women specifically (Matsuzaka et al., 2022) witnessing negative messages or content about Black people online more frequently than being directly targeted. One study suggests that Black women are 84% more likely than White women to be mentioned in social media posts that are hostile and promote identity-based violence (Amnesty International, 2018).

Just like offline exposures, the types of online gendered racism to which Black women are exposed can vary from interpersonal direct (e.g., being called a slur in a comment on one's social media post) and vicarious (e.g., seeing negative comments about Black women's natural hair texture underneath a YouTube video on natural hair care) exposure to structural exposure (e.g., automated features of online algorithms that generate and perpetuate harmful stereotypes of Black women and govern disproportionate access to information resources; Volpe, Hoggard, et al., 2021). The different contexts in which online gendered racism occurs are wide-ranging. These can include viewing or engaging in interactions on social media or websites for leisure, work, or school (Madden et al., 2018), such as online dating website profiles and interactions (Narr, 2021) and online search results automatically generating images of hypersexualized Black women (Noble, 2018). In the current study, we focus on direct and vicarious interpersonal types of online gendered racism exposure specifically. Unlike offline exposure, the online context is one in which stressful online gendered racism can be perpetuated anonymously, easily and rapidly shared with others for large-scale exposure via online platforms (e.g., one-click “share” or “repost” features), and permanently accessed and recirculated (Volpe, Hoggard, et al., 2021). Initial research suggests that exposure to online racism is a potent stressor associated with worse sleep quality among young adults (Volpe, Benson, et al., 2023).

To our knowledge, the unique intersectional impact of online gendered racial microaggressions on sleep quality is unexamined. Our study aims to make two central contributions to the scientific understanding of stress and sleep quality for Black young adult women. First, we extend the research on online identity-based stress to

consider online gendered racial microaggressions, thereby answering the call to conduct more intersectional research to understand unique gendered racial stressors for Black women (T. T. Lewis & Van Dyke, 2018). Second, the relative contributions of online stressors above and beyond offline stressors to sleep quality is currently unclear but may be especially important for targeted opportunities for clinical intervention. Therefore, we examine the unique impact of online gendered racial microaggressions on sleep quality, above and beyond offline gendered racial microaggressions.

## Method

This study design, sampling plan, and statistical analysis plan were not preregistered. Deidentified data and analysis code may be made available for research purposes by contacting Vanessa V. Volpe via email and completing a data use agreement. This study uses established self-report questionnaire materials, for which citations are provided below.

## Participants and Procedure

Data come from a study of 504 Black young adult women from across the United States (Volpe et al., 2024). Participants were recruited on Prolific, a recruitment platform that maintains a diverse pool of potential participants for research (Peer et al., 2017). We collected data from an online sample via Prolific to intentionally sample a chronically online population. Study inclusion criteria were: (a) identifying as Black (inclusive of ethnicities across the African diaspora), (b) identifying as a woman (inclusive of cisgender, transgender, and gender nonbinary individuals who identified as women), (c) being between the ages of 18 and 35, and (d) residing in the United States. Eligible and interested participants accessed a link to an online Qualtrics survey via Prolific, where they first completed electronic informed consent. They then completed eligibility check questions, standardized questionnaires to assess key study variables presented in a randomized order, and sociodemographic information. The survey also employed a bot check (i.e., Completely Automated Public Turing test to tell Computers and Humans Apart) and two attention check questions to ensure participant attention and data quality. Those who failed the bot check (<0.5% of original responses) or attention check (<0.8% of original responses) questions, as well as those who had discrepancies between their sociodemographic Prolific screener questions and our sociodemographic screener questions (<0.2% of original responses), had their submissions returned without pay and were not included in the study. Participants were compensated \$9.50 per hour for study completion. The study was approved by the North Carolina State University Institutional Review Board (Protocol 24110). Data were collected between September and November 2021.

Twenty-six participants' sleep quality responses were incomplete or contained obvious errors (e.g., indicating a wake time that was earlier than a sleep time). There were no significant differences between those with or without missing data on sociodemographics or frequency of reported exposure to offline and online gendered racial microaggressions. Therefore, as data were missing at random, we listwise deleted these participants from the analytic sample. Sensitivity analyses with and without those with missing data generated equivalent results. The final sample for the current investigation (see Table 1) comprised 478 Black young adult women ( $M_{\text{age}} = 24.71$ ,  $SD_{\text{age}} = 4.91$ ). Young adults ages 18–29 comprised the

majority of the sample (78.2%), compared to those between the ages of 30 and 35 (21.8% of sample). The majority of participants were African American (74.3%), cisgender (98.5%), came from the southern region of the United States (61.1%), had earned a bachelor's degree or higher (52.3%), and were not students (54.2%).

## Measures

### Offline Gendered Racial Microaggressions

The frequency subscale of the Gendered Racial Microaggressions Scale (J. A. Lewis & Neville, 2015) was used to measure the frequency of exposure to offline gendered racial microaggressions. Participants responded to 26 items about their exposure to gendered racial microaggressions on a Likert-type scale from 0 (*never*) to 5 (*once a week or more*). Items focused on direct offline experiences. Examples include “I have felt someone has tried” to “put me in my place” in a work, school, or other professional setting” and “Someone made a negative comment to me about my skin color/skin tone.” Items were summed to create a total gendered racial microaggressions score. Higher scores represent more exposure to offline gendered racial microaggressions. The internal consistency of the items in the current sample was excellent ( $\alpha = .95$ ).

### Online Gendered Racial Microaggressions

Two types of online gendered racial microaggressions were measured by adapting two subscales of the Online Victimization Scale (OVS; Tynes et al., 2010). The four-item individual subscale captures experiences directed at the individual and the three-item vicarious subscale captures experiences that are observed but not directed at the individual. We examine both forms of online gendered racial microaggressions separately in the current investigation because there is mounting evidence that vicarious identity-based online stressors are more frequently experienced and may be differentially impactful compared to those that are directly experienced (English et al., 2020; Matsuzaka et al., 2022; Maxie-Moreman & Tynes, 2022). Both direct and vicarious subscales of the OVS were adapted to ask about the frequency of experiencing gendered racial microaggressions specific to being a Black woman. Example items included “People have said mean or rude things about me online because I'm a Black woman” (direct) and “I have witnessed people saying mean or rude things online about Black women” (vicarious). Participants responded to all items on a Likert-type scale from 0 (*never*) to 5 (*every day*). Mean scores were calculated for each subscale, such that higher scores represented more frequent exposure to direct and vicarious online gendered racial microaggressions. The internal consistency of the items on each subscale in the current sample was adequate (direct  $\alpha = .78$ ; vicarious  $\alpha = .89$ ).

### Sleep Quality

A 13-item version of the Pittsburgh Sleep Quality Index (PSQI-short; Famodu et al., 2018) was utilized to measure self-reported global sleep quality. Famodu et al.'s (2018) PSQI-short was developed by using a large sample of young adults to derive key factors of the original PSQI (Buysse et al., 1989). As the scoring for the PSQI-short is different than the original PSQI, we provide details about each component, the global sleep quality continuous score, and the global sleep quality clinical cutoff score. The shortened measure generates a global

**Table 1**  
*Sample Characteristics (N = 478)*

Variable	M (SD)	Range	%
Age	24.71 (4.91)	18–35	
Ethnicity			
African American			74.3
Caribbean Black			11.7
African			7.3
Bi-/multiracial			5
Afro-Latinx			1.7
Region of the United States			
South			61.1
Northeast			16.3
Midwest			13.4
West			9.2
Gender			
Cisgender women			98.5
Nonbinary			1.5
Parental education: bachelor's degree or higher			52.3
Household income	\$45,000–\$54,999	<\$25,000–>\$100,000	
Student status			
No			54.2
College student			36.8
Graduate student			9.0
COVID-19 stress	3.14 (1.69)	1–6	
Offline GRM	1.66 (1.02)	0–5	
Online GRM			
Direct	.97 (0.97)	0–4.67	
Vicarious	3.07 (1.15)	0–5	
PSQI			
Component 1: latency	1.41 (1.11)	0–3	
Component 2: duration	1.13 (0.95)	0–3	
Component 3: efficiency	.67 (1.00)	0–3	
Component 4: disturbances	1.31 (0.63)	0–3	
Component 5: daytime dysfunction	1.41 (0.93)	0–3	
Global score (scale ranging 0–15)	5.88 (2.95)	0–14	
Global score cutoff (>4 inadequate)			67.2

*Note.* Range is observed range. The short version of the PSQI utilized in the current study only assessed five components of sleep quality. The sleep quality global clinical cutoff using this short form is four rather than five. GRM = gendered racial microaggressions; PSQI-short = Pittsburgh Sleep Quality Index-short form.

sleep quality score from five clinically determined components that are similar to the original PSQI: sleep latency, sleep duration, sleep efficiency, sleep disturbances, and daytime dysfunction. Sleep latency is calculated from how long participants report it takes them to fall asleep (in minutes) and how often they report not being able to get to sleep within 30 min on a Likert-type scale from 0 (*not during the past month*) to 3 (*3 or more times a week*). Sleep duration is calculated from participants' self-reported number of hours of actual sleep they got each night. Sleep disturbance is calculated from participants' reports of how often they experience trouble sleeping because of waking up in the middle of the night or early morning, not being able to breathe comfortably, coughing or snoring loudly, feeling too hot, having bad dreams, or having pain on a Likert-type scale from 0 (*not during the past month*) to 3 (*3 or more times a week*). Daytime dysfunction is calculated from two items which ask how often during the past month participants (a) have trouble staying awake while driving, eating meals, or engaging in social activity and (b) have a problem keeping up enthusiasm to get things done.

Each of these five components is separately scored from 0 to 3, based on established cutoffs. Two potential total scores can be calculated for each participant—a continuous score and a cutoff score (i.e., categorical). A higher PSQI-short global continuous score

indicates worse sleep quality (possible range 0–15). A sleep quality global clinical cutoff score was also calculated such that a continuous score >4 was coded as 1, indicating clinically relevant poor sleep quality in accordance with the established cutoff from the measure development paper. In validation studies, the PSQI-short global score total and clinical cutoffs demonstrated strong agreement with the original PSQI global score total and clinical cutoffs (Famodu et al., 2018).

### ***Sociodemographic and Stress Covariates***

Participants self-reported several potential sociodemographic and stress covariates, including age, gender, ethnicity, region of the United States, parental education, income, student status, and COVID-19 stress. Age was reported as a number. After affirming that they identified as women, participants selected cisgender woman, transgender woman, or gender nonbinary/fluid. Participants reported their ethnic background as African American, Caribbean Black, African, Bi-/multiracial, or Afro-Latinx. They selected region of residence (south, northeast, midwest, and west). As a proxy for socioeconomic status, participants reported the highest level of education earned by a parent, which was recoded into 0 (*less than a Bachelor's degree*) and

1 (*Bachelor's degree or higher*). They also reported their total annual household income in \$10,000 increments from “under \$25,000” to “Over \$100,000.” Participants indicated if they were currently a student (“No I am not a student,” “Yes I am an undergraduate student,” “Yes I am a graduate student”). We aimed to investigate if associations between online and offline gendered racial microaggressions could be disentangled from another prominent type of stressor—COVID-19 stress—because the data were collected during COVID-19 and Black adults in the United States were disproportionately impacted (Bowleg, 2020). This was measured using a single item that asked participants how stressful COVID-19 had been in their life in the past month from 1 (*not at all stressful*) to 5 (*extremely stressful*).

## Statistical Analysis

Analytic sample size ( $N=478$ ) for the current investigation achieved 1.00 power to detect a small effect size ( $f^2 = .15$ ) with an alpha adjusted for multiple comparisons ( $\alpha = .0125$ ). We first described the sample in terms of exposure to offline and online gendered racial microaggressions and sleep quality using descriptive statistics. Next, we tested potential sociodemographic and stress covariates (age, gender, ethnicity, region of the United States, parental education, income, student status, and COVID-19 stress) for inclusion in our analyses using independent samples  $t$ -tests (associations between dichotomous variables and continuous variables), analyses of variance (associations between categorical variables and continuous variables), chi-squares (associations between categorical variables), and Pearson correlations (associations between continuous variables). Following Bernerth and Auginis (2016), we only retained covariates that were significantly associated with at least one central predictor (offline gendered racial microaggressions, direct online and vicarious online gendered racial microaggressions) and an outcome variable (sleep quality global score, sleep quality global clinical cutoff).

We ran regression models to address our primary research questions. Two multivariate regression models were run—one linear regression with sleep quality continuous score as an outcome and one binary logistic regression with sleep quality global clinical cutoff as an outcome. In previous research on sleep quality with Black women, global sleep quality continuous score is often used as the primary outcome (Erving et al., 2023; McKinnon et al., 2022). However, we wanted to examine both global sleep quality continuous scores as well as categories of sleep quality via a sleep quality global clinical cutoff score to improve rigor and reproducibility. Each model included covariates (sociodemographic, COVID-19 stress) that met the criteria for

inclusion, to understand the robustness of any associations between online and offline gendered racial microaggressions.

## Results

Black young adult women in our sample had relatively poor overall sleep quality according to the global PSQI-short score (PSQI-short [possible range = 0–15]:  $M = 5.9$ ,  $SD = 3.0$ ), with 67.2% of the sample meeting the sleep quality global clinical cutoff for classification as a poor sleeper (see Table 1). The average reported sleep duration was 6.78 hr ( $SD = 1.49$ ). Vicarious online gendered racial microaggressions were experienced most frequently “a few times a month” on average ( $M = 3.07$ ,  $SD = 1.15$ ). Offline gendered racial microaggressions were experienced between “once” and “a few times a year” ( $M = 1.66$ ,  $SD = 1.48$ ), and direct online gendered racial microaggressions were experienced about “once a year” ( $M = 0.97$ ,  $SD = 0.97$ ).

Parental education and COVID-19 stress met the a priori threshold for inclusion in the model and were retained in subsequent analyses. Bivariate correlations (see Table 2) indicated that greater exposure to offline and direct online and vicarious online gendered racial microaggressions were each significantly associated with worse global sleep quality scores. Effect sizes ranged from medium–large ( $r = .23$ ) for vicarious online to small ( $r = .14$ ) for direct online gendered racial microaggressions. However, exposure to direct online gendered racial microaggressions was not associated with the sleep quality global clinical cutoff.

Regression analyses indicated that more exposure to offline gendered racial microaggressions was associated with worse overall global sleep quality continuous score ( $\beta = .14$ ,  $p = .018$ , 95% confidence interval [CI] [0.07, 0.75]), as seen in Table 3). More exposure to vicarious online gendered racism ( $\beta = .14$ ,  $p = .007$ , 95% CI [0.09, 0.60]) was also uniquely associated with worse global sleep quality continuous score. Direct online gendered racism was not associated with continuous sleep quality scores above and beyond offline gendered racism and vicarious online gendered racism. However, vicarious online gendered racism was associated with clinically relevant sleep quality, after accounting for offline gendered racism. A one-unit increase in exposure to vicarious online gendered racism was associated with a 33% increased odds of clinically relevant poor sleep quality ( $p = .005$ , 95% CI OR: [1.09, 1.63]). These associations were robust to sociodemographic and COVID-19 stress covariate inclusion.

## Discussion

Young adulthood is an important developmental period for Black women (Volpe et al., 2024), during which time exposure to

**Table 2**  
Intercorrelations Among Study Variables ( $N = 478$ )

Variable	1	2	3	4	5	6	7
1. Parental education	—						
2. COVID-19 stress	-.01	—					
3. Offline GRM	-.05	.29**	—				
4. Direct online GRM	-.07	.22**	.63**	—			
5. Vicarious online GRM	-.12*	.16**	.49**	.43**	—		
6. Global PSQI	-.18**	.21**	.23**	.14*	.23**	—	
7. Global PSQI cutoff	-.13*	.14*	.14*	.04	.18**	.78**	—

Note. Reference categories include: parental education (0 = less than bachelor's degree), global PSQI cutoff (0 = sufficient sleeper). GRM = gendered racial microaggressions; PSQI = Pittsburgh Sleep Quality Index.

\*  $p < .01$ . \*\*  $p < .001$ .

**Table 3**

*Regression Models for Associations Between Offline and Online Gendered Racial Microaggressions and Sleep Quality (N = 478)*

Predictor	$\beta$ [95% CI]
Outcome: sleep quality global score	
Parental education	-.16 [-1.46, -0.45]*
COVID-19 stress	.15 [0.11, 0.42]*
Offline GRM	.14 [0.07, 0.75]*
Direct online GRM	-.05 [-0.50, 0.18]
Vicarious online GRM	.14 [0.09, 0.60]*
Predictor	OR [95% CI]
Outcome: sleep quality cutoff	
Parental education	0.58 [3.89, 0.87]*
COVID-19 stress	1.17 [1.03, 1.32]*
Offline GRM	1.30 [0.99, 1.72]
Direct online GRM	1.73 [0.56, 1.96]
Vicarious online GRM	1.33 [1.09, 1.63]*

Note. CI = confidence interval around unstandardized estimates; GRM = gendered racial microaggressions.

\*  $p < .05$ .

microaggressions online may be particularly impactful for sleep quality (Volpe, Benson, et al., 2023). Our work demonstrates that vicarious online gendered racial microaggressions, above and beyond offline gendered racial microaggressions, is a unique stressor that may erode sleep quality for Black young adult women. Interventionists and clinicians working with Black young adult women should screen for stress exposure from gendered racial microaggressions online as one potential threat to sleep. Our findings affirm that addressing sleep quality challenges of Black women early during young adulthood must be a priority for the field of sleep medicine.

The central contribution of the current study is that it compares the relative associations between offline and online gendered racial microaggressions and sleep quality for Black young adult women. This nuance is important because questions about the relative health-related impact of online stress beyond any offline stress already experienced have been raised (e.g., Lozada et al., 2021). Our results suggest that both contexts are important, such that online exposure should not be assumed to be less salient or important for stress exposure for Black young adult women. Furthermore, more frequent exposure to offline gendered racial microaggressions was associated with poorer sleep quality, replicating the results of previous research with Black women (Erving et al., 2023). However, exposure to direct online gendered racial microaggressions was not associated with sleep quality above and beyond offline and vicarious online gendered racial microaggressions. In one previous study of exposure to racism for Black women that separated the effects of direct and vicarious exposures, direct exposure was associated with poorer sleep quality (McKinnon et al., 2022). However, this past study did not examine gendered racism, did not disentangle direct online and offline exposure, and focused on lifetime exposure to more extreme violent experiences of racism rather than microaggressions. It may be that direct online gendered racial microaggressions, as a distinct subtle form of microaggressions, targets more than one identity, which makes it more difficult to detect the dually racist and sexist act, evaluate its relevance to both social identity aspects (i.e., being Black and being a woman) at the same time, and appraise it as a stressor (Ozier et al., 2019).

In contrast to direct online gendered racial microaggressions, exposure to vicarious online gendered racial microaggressions was uniquely

associated with worse sleep quality above and beyond offline exposure. However, only exposure to vicarious online gendered racial microaggressions, but not offline exposure, significantly increased the odds of clinically significant inadequate sleep quality. It may be that both online and offline gendered racial microaggressions contribute to relative decrements in sleep quality, but only that vicarious gendered racial microaggressions is important for significantly decremented sleep quality that would merit clinical significance. Drawing from stress and coping literature, young adults may use online spaces such as social media to find community and social support in the face of stressful experiences (Volpe, Buhrman, et al., 2023). Yet, among Black individuals, online affinity spaces that are often used for support and community building (e.g., Black Twitter) are often compromised by indirect exposure to postings, videos, or other content that may reinforce the ubiquity of racism and sexism (Matsuzaka et al., 2022, 2023). This may contribute to feelings of hopelessness, mood changes, and other negative reactions that may hinder sleep (A. Cohen et al., 2021). Future research should directly address these propositions by using longitudinal designs to determine if mood or psychological distress explain associations between online vicarious gendered racial microaggressions and sleep. Our finding was in contrast to the findings of one study of Black adult women ages 30–45, for whom vicarious offline exposure to racism was associated with poorer sleep quality, but vicarious online exposure to racism was not (McKinnon et al., 2022). This may reflect developmental differences in the samples used, as younger adults (less than 30 years of age) have used social media more frequently and for different purposes (e.g., recreation vs. professional networking) than their older counterparts (Auxier & Anderson, 2021).

Our study also contributes to a more nuanced understanding of the frequency of gendered racial microaggressions in different contexts. In the current study, Black young adult women reported moderately frequent exposure to offline gendered racial microaggressions between once and a few times a year, which was similar to other investigations of offline gendered racial microaggressions with Black women (Erving et al., 2023; Moody & Lewis, 2019). We contribute to the literature by capturing the frequency of two different forms of online gendered racial microaggressions—direct and vicarious. Reports of vicarious online gendered racial microaggressions were even more frequent than offline gendered racial microaggressions, average exposure to which was reported to occur a few times a month. Conversely, direct online gendered racial microaggressions were least frequent, occurring about once a year. These results align with previous research on vicarious online exposure to racism among Black women (McKinnon et al., 2022). Our study extends this work, providing evidence that vicarious exposure to gendered racial microaggressions is also more frequent online.

Results suggest that even relatively infrequently self-reported gendered racial microaggression exposures are moderately associated with lower sleep quality scores for Black young adult women. Given the identity-focused nature of exposures, some Black women may ruminate about such events. This rumination can lead to sustained psychobiological disruption from one event that compromises sleep, as the exposure continues to disrupt emotions, cognitions, and activate stress physiology (Keum & Li, 2023). Similarly, exposure may increase vigilance and anticipatory stress and worry for new exposures, prolonging stress system activation which “get under the skin” to cause sleep disruptions (Hicken et al., 2013). In this way, the effects of even relatively infrequent exposures may be amplified and multiplied over time, with implications for significant sleep debt and concomitant health challenges.

In the current study, bivariate associations yielded insights into the context of gendered racial microaggressions for Black young adult women. Reports of all types of gendered racial microaggressions (offline, direct online, vicarious online) were positively associated. Evidence from a longitudinal investigation of bidirectionality of offline and online exposures with Black adolescents indicated that more offline experiences of racism predicted more online experiences of racism over time, but not the reverse (Lozada et al., 2021). The authors suggested that the physical format of offline experiences which make them so potent may engender an increased consciousness of racism, which in turn promotes racial identity development that translates into the way that online experiences are interpreted as significant to the self and subsequently reported (Lozada et al., 2021). In the same way, it may be that reporting of experiences of gendered racial microaggressions—both online and offline—are connected because they rely on a similar interpretation of gendered racial identity-salient exposures for Black young adult women. Reporting more stress from COVID-19 was also associated with reporting more offline and online gendered racial microaggressions. During COVID-19, many Black women still faced experiences of marginalization in physical contexts ranging from work to healthcare settings (Bowleg, 2020), such that COVID-19 stress may be inextricably linked to stress from experiences of marginalization from being Black women. Black women spent more time online looking for COVID-19 information which further amplified their stress (Chandler et al., 2021), which may have also resulted in encountering more forms of online gendered racism. Finally, in the current study, having a higher level of parental education was associated with fewer reports of vicarious online gendered racial microaggressions. Black young adult women with higher levels of parental education may have higher levels of critical media literacy (Volpe, Willis, et al., 2021) that allows them to recognize vicarious online gendered racial microaggressions online, or may have more resources or knowledge that allow them to curate their online presence to prevent vicarious exposure. Such propositions require additional research.

Several limitations of the current study should be noted. First, we assessed sleep quality only, using a self-report measure. Subjective measures of sleep quality are subject to recall bias and do not provide clear information regarding other important sleep metrics that are associated with health outcomes. Future studies could consider including objective sleep monitoring (e.g., actigraphy) in addition to self-report measures. Second, although research on intersectionality and stress indicates that gendered racial microaggressions are unique stressors for Black women (e.g., Crenshaw, 1989; J. A. Lewis & Neville, 2015), we did not have data to compare offline and online gendered racial microaggressions with offline and online exposure to racism, sexism, and other identity-related stressors. Research could next consider the relative impact of different forms of stressors on sleep quality for Black young adult women, and how the impact of these stressors may be modified by identity variables (i.e., racial centrality, gendered racial identity). Third, we adapted an existing measure of online racism to measure online gendered racial microaggressions. However, this measure had fewer items and may potentially have been less able to capture the breadth of gendered racial microaggressions online than our measure of gendered racial microaggressions in offline contexts. Although this measure was selected because it maps onto the main concept of online gendered racial microaggressions, additional measurement development should capture how gendered racial microaggressions appear in online settings.

This cross-sectional investigation is a first step toward understanding the role of online gendered racial microaggressions as a unique stressor that impacts sleep quality. It remains important to not proceed forward toward experimental or longitudinal work on gendered racial microaggressions and sleep quality that may pose risks of greater harm or place unnecessary burdens on participants if such basic associations are not supported. However, our current investigation cannot establish temporal precedence in the association between gendered microaggressions and sleep. Now that such cross-sectional self-report associations have been established, the pursuit of additional investigations utilizing both objective and subjective indicators of sleep quality over time is needed to clarify their directionality and specificity.

Despite these limitations, the current investigation answers the call to conduct intersectional research to understand the unique gendered racial stressors that Black women face and how these may disproportionately impact sleep quality. Both offline and vicarious online gendered racial microaggressions may be stressors that pose sleep quality risks. However, only vicarious online gendered racial microaggressions may be uniquely important for clinically significant poor sleep quality. These results were robust to sociodemographic covariates and COVID-19 stress. Our results affirm that vicarious online gendered racial microaggression exposure may be an especially frequent and pervasive psychosocial stressor with sleep health impacts. If these findings are robust in future longitudinal research, priority can be placed on adapting current stress management interventions for sleep quality for Black young adult women to acknowledge the ways in which both offline and online environments contribute to emotional arousal and rumination that may interfere with sleep (e.g., taking “social media breaks” or employing critical media literacy, see Volpe, Willis, et al., 2021). At the same time, we must prioritize structural changes to online platforms that protect individuals from vicarious exposure to microaggressions and subsequently damage their health in the first place (Volpe, Willis, et al., 2021).

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## Resumen

**Objetivo:** La mala calidad del sueño afecta a las mujeres Negras en los Estados Unidos. Las mujeres adultas jóvenes Negras experimentan estrés debido a microagresiones raciales de género (es decir, un trato sutil injusto por ser mujer Negra). Los estudios sobre la exposición a este factor estresante se han centrado en contextos presenciales (es decir, fuera de línea). Sin embargo, los adultos jóvenes Negros están casi constantemente en línea. El estudio actual examina las asociaciones entre las microagresiones raciales de género en línea y fuera de línea y la calidad del sueño. **Métodos:** Los datos provienen de una muestra de conveniencia de mujeres adultas jóvenes Negras ( $N = 478$ ; de 18 a 35 años) y se recopilaron en línea en el otoño de 2021. Las participantes completaron una encuesta en línea en la que auto informaron datos demográficos y covariables de estrés de COVID-19, exposición en línea y fuera de línea a microagresiones raciales de género, y calidad del sueño. Utilizando modelos de regresión lineal (puntuación continua de la calidad del sueño) y logística (mala calidad del sueño clínicamente significativa dicotomizada), examinamos microagresiones raciales de género directas e indirectas en línea. **Resultados:** La mayoría de los participantes (67.2%) informaron mala calidad del sueño. Un mayor racismo de género fuera de línea ( $\beta = .14$ ) y un racismo indirecto de género en línea ( $\beta = .14$ ) se asociaron de manera única con una peor calidad

del sueño. Sin embargo, sólo la exposición al racismo indirecto de género en línea se asoció de manera única con un aumento del 33% en las probabilidades de una mala calidad del sueño clínicamente relevante (IC del 95% = 1.09, 1.63). **Conclusiones:** Las microagresiones raciales de género fuera de línea y en línea son factores estresantes, cada uno de los cuales tiene implicaciones en la calidad del sueño. Las microagresiones indirectas raciales de género en línea se asocian de manera única con una menor calidad del sueño y, por lo tanto, pueden ser una nueva vía para futuras investigaciones e intervenciones.

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