BIPOC PERSPECTIVES OF BEHAVIORAL SLEEP TREATMENT: A MIXED-METHODS EXAMINATION OF WAYS TO BETTER ADDRESS SLEEP HEALTH DISPARITIES

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by
JASMINE R. BERRY

Dr. Debora J. Bell, Dissertation Chair
Dr. Christina S. McCrae, Dissertation Co-Chair

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The undersigned, appointed by the Dean of the Graduate School, have examined the dissertation entitled

BIPOC PERSPECTIVES OF BEHAVIORAL SLEEP TREATMENT: A MIXED-METHODS EXAMINATION OF WAYS TO BETTER ADDRESS SLEEP HEALTH DISPARITIES

Presented by Jasmine R. Berry,

a candidate for the degree of Doctor of Philosophy,

and hereby certify that, in their opinion, it is worthy of their acceptance.

_ Dr. Debora Bell

_ Dr. Christina McCrae

Dr. Kristin Hawley

Dr. Amanda Rose

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ABSTRACT

Growing evidence suggests that there are sleep health disparities in the United States that disadvantage Black, Indigenous, Persons of Color (BIPoC), and other socioeconomically marginalized groups in medical and mental health settings. It is paramount that we focus research in areas that help reduce those disparities. We conducted 12 semi-structured qualitative focus groups with 35 individuals who identified as members of BIPoC groups about their awareness, perception, access to, and recommendations for behavioral sleep treatment in healthcare settings. Transcripts were coded using the Rapid and Rigorous Qualitative Data Analysis method for themes relevant to the guiding question, '*What are BIPoC experiences and perspectives of sleep, and specific areas of improvement to increase BIPoC groups' utilization of behavioral sleep services?'*. Behavioral sleep treatment was perceived as a favorable option both over and in conjunction with pharmacological options. Respondents particularly valued collaborative care with their primary care providers and expressed the need for increased education and awareness of efficacious behavioral health options introduced through primary care relationships. After a brief period of education about cognitive-behavioral therapy for insomnia (CBTi), respondents unanimously viewed the treatment favorably, and unanimously agreed it would be beneficial to include ways to address SES-Based and Race-Based stressors into CBTi, especially when working with members of BIPoC groups. These findings can help to inform future work in reducing sleep health disparities both at the community, provider, and the broader healthcare system levels.

INTRODUCTION

Despite tremendous strides in healthcare over the past century, Black, Indigenous, and Persons of Color (BIPoC) populations have experienced striking health disparities and worse health outcomes than Dominant or more advantaged populations (CDC, 2011; Adler & Rehkopf, 2008; Smedley et al., 2003). The past few decades have shown that these disparities even extend to sleep health, with research consistently demonstrating significant disparities in sleep quality, duration, and onset latency for racial/ethnic marginalized groups (Grandner et al., 2013; Ruiter et al., 2011; Hayes et al., 2009; Hale & Do, 2007; Whinnery et al., 2014; Jackson et al., 2013). Sleep disparities are important to highlight when discussing health outcomes for disadvantaged populations because insufficient sleep, poor sleep quality, and the increased occurrence of other sleep issues (e.g., insomnia, obstructive sleep apnea) have been associated with, and considered a risk factor, for broader health disparities. Many studies have shown a connection between sleep disturbances and increased rates of cardiometabolic issues such as diabetes, obesity, and hypertension (Covassin, Greene, Singh, & Somers, 2018; Jackson, 2017; Jike, Watanabe, Buysse, & Kaneita, 2018), psychiatric illness (Sutton, 2014), substance abuse (Conroy & Arnedt, 2014), and neurobehavioral and cognitive impairment (Goel, Basner, Rao, & Dinges, 2013). In fact, insomnia, in particular, is associated with psychiatric disorders more frequently than any other medical illness (Benca, 2001). Indeed, poor sleep health is a significant concern that is closely linked to many other negative health outcomes. However, that also suggests that *addressing* poor sleep health may be an effective avenue of intervention for reducing broader health disparities.

Sleep Health Disparities (Defining the Problem). "Disparity" is a term that refers to inequality that stems from an unequal or unfair system (Smedley et al., 2003). An "unfair system" can be a system in which certain groups receive unequal treatment, unequal access to resources (e.g., food or healthcare), unequal access to education, and so forth. "Sleep disparities", more specifically, refers to worse sleep health and sleep health outcomes experienced by BIPoC and other disadvantaged groups as a result of unfairness or unequal access to resources. Addressing disparities in health, particularly sleep health, is an ever-growing focus in the current literature. It has thus far been found that sleep health disparities are impacted by socioeconomic status, racism, discrimination, neighborhood segregation, geography, social patterns, access to healthcare, access to private insurance, food insecurity, and cultural beliefs (Billings et al., 2020; Grandner et al., 2013; Johnson et al., 2018; Reitzel et al., 2017). This list is not exhaustive, but it emphasizes the need for interventions that address broader sociocultural factors, or factors that go beyond the individual's physiology, immediate environment, and sleep habits. Thus, it is paramount that the field begins to examine: 1) ways to adapt and improve the ability of treatments to address concerns specific to BIPoC groups (i.e., assessing the relevance and accessibility of current treatment options), and 2) ways behavioral sleep medicine, and the healthcare system more broadly, can be more accessible and inclusive to BIPoC groups.

Etiology of Sleep Problems in BIPoC Groups. The etiology of sleep problems among BIPoC groups are multifactorial, and include a multitude of psychosocial, sociocultural, and environmental factors (Fuller-Rowell, Curtis, El-Sheikh, Duke, Ryff, & Zgierska, 2017; Grandner, Williams, Knutson, Roberts, & Jean-Louis, 2016; Slopen, Lewis, & Williams, 2016; Tomfohr, Pung, Edwards, & Dimsdale, 2012; Garcini, Chirinos, Murdock, Seiler, LeRoy, Peek, & Fagundes, 2018). Broadly, existing research has found that higher rates of sleep health disparities in BIPoC groups are related to disproportionately experiencing a number of socioeconomic-based and race-based stressors.

Several studies with participants from BIPoC groups have shown relationships between sleeping difficulties and factors such as financial strain, (Johnson, Lisabeth, Lewis, Sims, Hickson, Samdarshi, & Roux, 2016), poor mental health (Johnson, Billings, & Hale, 2018), and environmental stressors (Beatty, Hall, Kamarck, Buysse, Owens, Reis, & Matthews, 2011) using quantitative (e.g., correlational and regression) analyses between various sleep factors (e.g., sleep quality, sleep duration), and reports of other factors (e.g., income, mental health). However, there also exists significant qualitative data that support results found in these studies. In a recent qualitative study directly asking individuals from a BIPoC group, specifically Black individuals from a community setting, about the reasons or causes of poor sleep, five major themes emerged: economic insecurity, safety insecurity, future insecurity, hecticness in daily life, and the area immediately surrounding the individual as they try to sleep (Sonnega, Sonnega, & Kruger, 2019). These themes all align with findings that quantitative studies have presented, and further support the theory that factors that disproportionately impact BIPoC groups also contribute to, and serve as maintenance factors, for sleep health disparities.

Socioeconomic and Neighborhood Factors. As mentioned previously, sleep health is impacted by both socioeconomic (SES) and neighborhood factors. More specifically, studies have shown that neighborhood ambient features such as bright lights, loud noises, and radiant heat—features found more often in urban areas, or areas with dominant BIPoC populations—contribute to melatonin inhibition and circadian phase delay (Ohayon & Milesi, 2016). Studies have also shown that living in disadvantaged neighborhoods (e.g., high rates of poverty and unemployment, low rates of home ownership and college education), is associated with increased insomnia symptoms such as difficulties initiating and maintaining sleep, as well as longer wake after sleep onset (Johnson et al., 2018). Even more, those who reside in urban areas with dense populations are more likely to have shorter sleep duration (Johnson, Hirsch, et al., 2018). An additional neighborhood factor that contributes to poor sleep health is *safety*. In fact, studies have shown that perception of neighborhood safety and social cohesion are associated with sleep quality (Johnson, Simonelli, et al., 2017). Individuals that live in more social adverse neighborhoods, such as neighborhoods with lower social cohesion and higher exposure to violence, tend to experience shorter sleep and lower quality sleep than those living in safer, more cohesive neighborhoods (Johnson, Simonelli et al., 2017; Simonelli, Dudley et al., 2017). In a study of adults older than age 50 in the United States, it was found that living in more disordered neighborhoods was associated with more difficulty falling asleep and more periods of being awake after going to sleep (Chen-Edinboro, et al., 2014).

Other socioeconomic factors also play a large role in contributing to sleep health disparities. For example, shift work requirements are more common in non-white and low SES employment (Reid et al., 2018), and studies have shown that rotating and night shiftwork lead to reduced sleep duration, reduced sleep efficiency, mistimed rhythms, and irregular schedules (Johnson, Simonelli, et al., 2017; Simonelli, Dudley, et al., 2017; Reid et al., 2018). Taken together, with the knowledge that historically disadvantaged groups (e.g., Blacks, immigrants) are more likely to live in disadvantaged neighborhoods (Casey, Morello-Frosch et al., 2017), it becomes clear that these factors put—these populations, in particular—at greater risk for sleep issues, and contribute to a greater burden of poor sleep health.

Race-Based Factors. Race-based factors are another element of sleep health disparities that are disproportionately experienced by BIPoC groups. Research has demonstrated that systemic racism has effects on sleep health through the consequences of psychosocial trauma, discrimination, micro-aggressions, and stereotype threats (Bailey, Krieger et al., 2017). Experiences of systemic racism serve as external threats and impair the ability to be vulnerable during sleep, as well as increase stress—which adversely impacts sleep (Alcantara, Patel et al., 2017). Studies have shown that Black women experience shorter sleep duration as a result of discrimination (when compared to white women; Gaston, Feinstein et al., 2020), and that greater racism-related vigilance mediates the association of difficulty falling asleep or maintaining sleep with Black race. Racism-related vigilance refers to the inability to set aside worry and stress due to lifelong experiences with discrimination (Billings, Cohen, et al., 2020), thus being a unique/disproportionately experienced stressor for BIPoC and socioeconomically disadvantaged populations.

Behavioral Sleep Medicine to Address Sleep Concerns. Behavioral sleep medicine takes principles from classical and operant conditioning and uses them to address behaviors that are either causing or perpetuating sleep problems. The most widely used and well-established evidence-based intervention within this framework for treating sleep problems is cognitive behavioral therapy for insomnia (CBTi; Irwin, Cole, & Nicassio, 2006; Morin, Culbert, & Schwartz, 1994; Murtagh & Greenwood, 1995; Smith, Perlis, Park, et al., 1995). Importantly, this treatment, as indicated by the name, is efficacious for treating insomnia (i.e.., difficulty falling asleep, maintaining sleep, or difficulties with early awakening), which is well-documented as the most common sleep disorder (Pigeon, Crabtree, & Scherer, 2006). Furthermore, other sleep related issues and disorders, such as restless leg syndrome, periodic limb movement disorders, and sleep related breathing disorders (snoring, dyspnea, sleep apnea) often present with an insomnia symptom (Ancoli-Israel, 2006). Thus, CBTi has proven to be an excellent treatment for addressing a multitude of sleep concerns, and has even proven to be superior in safety and efficacy, as compared with pharmacotherapy alone (Jacobs, Pace-Schott, Stickgold, & Otto, 2004; Sivertsen, Omvik, Pallesen, et al., 2006).

Pathways for Tailoring Treatment. The current delivery of CBTi requires for researchers and clinicians to 1) assess how individuals conceptualize their sleep problems, 2) understand their awareness of non-pharmaceutical treatments, and 3) know where they seek assistance. This excellent framework provides multiple opportunities for adaptation. CBTi does not typically address factors that significantly interfere with sleep and commonly impact BIPoC groups (e.g., discrimination, microaggressions, financial worries, etc.). However, CBTi often includes cognitive coping, relaxation techniques, and other behavioral strategies that could be modified to appropriately address the individualized needs of BIPoC groups. Adapting treatment could indeed be an excellent step in the right direction, but adaptations alone may not be sufficient. It is also important to attend to other systemic issues, such as access to sleep healthcare treatments and adherence to treatment recommendations, that have historically presented challenges for augmenting positive sleep outcomes among BIPoC groups (Sonnega et al., 2019; Jean-Louis, Newsome, Williams, Zizi, Ravenell, & Ogedegbe, 2017; Jean-Louis & Grandner, 2016; Williams, Grandner, Snipes, Rogers, Williams, Airhihenbuwa, & Jean-Louis, 2015).

Cultural Adaptations of CBTi. Within the current literature, there exists one study that has attempted a racial/ethnic cultural adaptation of CBTi (e.g., Zhou, Ritterband, & Bethea, 2022). In this study, the researchers utilized an internet-based, automated CBTi intervention with culturally adapted elements (e.g., using demonstration videos that included culturally relevant representation, culturally similar physicians in content videos, and didactic content that spoke to culturally and socially relevant contexts) to treat insomnia in a population of Black women (Zhou et al., 2022). The primary outcome measure for this study was the Insomnia Severity Index, and the researchers found significant decreases in insomnia symptoms in the treatment group as compared to an education control group. They also found increased retention rates in the culturally adapted internet-based CBTi group as compared to both an education control group, and a non-culturally adapted internet-based CBTi (Zhou et al., 2022). The results of this study are promising and indicate that culturally adapting current treatment approaches proves to be a useful avenue for better addressing sleep concerns with BIPoC groups. However, there still remain many limitations with the treatment approach deployed in the study, and many avenues for further investigation.

One limitation of this study is that it did not address the common concern of 'medical mistrust' in BIPoC communities, which can lead to poorer management of health conditions (Jaiswal & Halkitis, 2019). Another limitation is that this study was done in a completely online automated format, with individuals in an established cohort with a history of engagement with the research team (i.e., participants had participated in prior research projects with the research team; Zhou et al., 2022). The online format of the treatment is an excellent approach for increasing accessibility, but the selected sample may explain the elevated retention rate across all intervention groups, compared to a recent, similar study of an online CBTi intervention (see Cheng, Luik, Fellman-Couture, et al., 2019). Future research would benefit from addressing medical mistrust with members of BIPoC groups, as well as looking at ways to adapt therapist-driven treatment both in telehealth and in-person formats. While the online, automated treatment increases accessibility, it is unclear whether this treatment route is preferable or the most beneficial for members of BIPoC groups.

Accessibility Adaptations of CBTi. Recent studies have begun to employ new approaches to reduce barriers to clinical services for sleep apnea among underserved and disadvantaged populations, such as remote web-based resources or community-based strategies (Robbins et al., 2019; Robbins et al., 2019; Williams et al., 2016), and have seen positive outcomes. For example, one study used an online website to disseminate information about obstructive sleep apnea (a sleep disorder that racial/ethnic marginalized groups are at higher risk for) to a group of community-dwelling black individuals, and the participants provided very high ratings of usefulness, user friendliness, and attractiveness (i.e., 4.9/5, 4.9/5, and 4.3/5, respectively; Robbins et al., 2019). Furthermore, web-based interventions, such as web-tailored CBTi—although not specifically studied with racial/ethnic marginalized groups—have also demonstrated great efficacy as an online or telehealth treatment (Taylor, Peterson, Pruiksma, Young-McCaughan, Nicholson, & Mintz, 2017). In a clinical trial with military personnel, it was found that both Internet and In-Person delivery of CBTi performed better than a control condition, with both forms of treatment significantly improving sleep efficiency, as well as reducing sleep onset latency (i.e., the amount of time it takes to fall asleep), wake time after sleep onset (i.e., the amount of time spent awake after initially falling asleep), and number of nightly awakenings (Taylor et al., 2017). As such, tailoring cognitive-behavioral sleep supports for web-based delivery could potentially help to both better disseminate treatment, as well as address chronic stress and sleep disturbances among racial/ethnic marginalized groups.

Although web-based delivery of CBTi seems promising, it is still important to gain insight into 1) how unique or disproportionately experienced stressors impact BIPoC groups' personal experiences with sleep, 2) members of BIPoC groups' experiences with healthcare systems regarding sleep issues, 3) members of BIPoC groups' experiences with behavioral medicine or psychotherapy, 4) the accessibility and acceptability of current sleep treatments, and 5) ways to make current treatment better, both as a potential treatment option, as well as more inclusive in the strategies taught within the treatment. Examining these perceptions, experiences, and opinions may provide a valuable theoretical framework for increasing the accessibility, inclusivity, and cultural relevance of behavioral sleep treatment—specifically, CBTi.

Current Study

Aim 1. The primary aim of the current mixed-methods study was to examine BIPoC participants' beliefs about sleep and sleep related issues, sleep experiences, knowledge of treatment options, current barriers to treatment, views of the healthcare system, views of behavioral sleep treatment in its current form, and suggestions for improving treatment inclusivity, cultural relevance, and overall accessibility. The current study was carried out in a focus group format with members of BIPoC groups. Focus groups are extremely useful for intervention development, as they can offer insight into next steps for making treatment more inclusive, culturally relevant, and accessible, as well as foster engagement for efforts to promote better sleep. They are also a culturally sensitive and inviting way to interact with BIPoC groups, both because they can be an educational space and place to disseminate relevant information, and because they are a great format for making sure voices and concerns are heard (Sonnega et al., 2019). The focus groups conducted in this study provided participants with education about sleep, sleep issues, behavioral interventions, and the scope of non-pharmaceutical options available. Although we intended this work to be exploratory, with the aim to learn as much as possible to aid in reducing disparities, we did approach the focus groups with research questions guided by previous literature: would 1) logistical concerns (e.g., barriers to accessing treatment such as affordability, location, or lack of resources/clinics within the community), 2) cultural perceptions (e.g., community and cultural views on utilizing mental health care), and/or 3) SES-based and Race-based factors emerge as potential reasons for underutilization of behavioral health interventions with BIPoC groups? If these concerns emerged, would they be the driving factors for underutilization, or are there other factors contributing to the current disparities that exist for members of BIPoC groups?

Aim 2: Preliminary Examination of Education as a Factor in Changing Beliefs. One major benefit of employing a focus group research format within BIPoC communities is the opportunity to disseminate information to participants who may otherwise have little or no access to the resources (Sonnega et al., 2019). To begin to address whether educational supports at the community level may be useful in disseminating information about behavioral sleep treatments, the secondary aim of this study was to examine changes in beliefs about sleep, as well as changes in willingness to try behavioral sleep treatment pre- and post-focus groups. This information, while preliminary, aimed to offer insight into next steps for tailoring educational support—which can lead to an increase in treatment accessibility and awareness. We also approached this aim with research questions, including: 1) are individuals—specifically members of BIPoC groups—receptive of education about behavioral sleep options, 2) what would be the best format for delivering education about behavioral sleep options, and 3) are resources at the community level, such as focus groups and information sessions, a useful tool for disseminating information about behavioral sleep options?

METHODS

Participants

The researchers recruited 75 individuals who identified as Black, Indigenous, or a Person of Color (BIPoC). Of those 75 individuals, 35 individuals completed all 3 phases of the study (i.e., pre-group survey, focus group, post-group survey; Table 1 shows demographic data for all 75 pre-survey completers, as well as a comparison of individuals who only completed pre-survey and individuals who completed all 3 phases. Of note, there were no significant differences between the two groups in any of the identified categories. There was a range of reasons individuals did not participate, but the most common reason was scheduling conflicts, with failure to respond to scheduling or responding to scheduling after study completion/saturation being the second most common reason for not participating). Participants were recruited from Columbia, MO, and the surrounding Missouri cities (e.g., St. Louis, Kansas City, and Springfield), as well as Atlanta, GA and surrounding regions. In each location, participants were recruited through physicians, clinics, advertisements in local listservs (e.g., MU Info), online advertisements (e.g., FaceBook), and word of mouth. Participants were eligible if they were 18 years old and older, English speaking, and identified racially as Black, Indigenous, and/or a Person of Color.

Power

Power analyses for within subjects t-tests using G*Power suggested that a population of 35 (for large effects [e.g., .50]) or 110 (for medium effects [e.g., .30]) would be sufficient to adequately examine pre-post analyses.

Procedure

This study involved participants completing a pre-focus group survey, participating in a focus group, and then completing a post-focus group survey. The study protocol was approved by the Institutional Review Board (IRB) at the University of Missouri (2011835MU).

Pre- and Post-Focus Group Questionnaires

Prior to participating in the focus groups, participants completed a survey that included a brief demographic questionnaire, along with a number of sleep- and health-related questionnaires: *Dysfunctional Beliefs and Attitudes About Sleep-16*, *Perceived Stress Scale*, *Patient-Reported Outcomes Measurement Information System Global-10 Short Form*, *Sleep Quality Scale*, and an item inquiring which treatment options they would seek if they were currently experiencing sleep problems (e.g., medication, contacting a health care provider, behavioral sleep treatment, etc.). These measures are described in detail in the measures section below. Participants recruited via online format (e.g., MU Info and FaceBook) were linked directly to the online survey from the online platform. Participants recruited through physicians, clinics, and word of mouth were emailed a link after having their email address sent to the lead researcher. The beginning of the pre-group survey contained a consent form and waiver of documentation, as the entirety of the study would be conducted online due to COVID-19 restrictions.

After participating in the focus groups, participants were asked to complete a post-group survey that included the *Dysfunctional Beliefs and Attitudes About Sleep* measure again, as well as the question inquiring which treatment options they would seek if they were currently experiencing sleep problems. This survey was emailed to each participant immediately following participation in the focus group. They were also given the opportunity, within the post-group survey, to provide additional comments they felt they did not get a chance to bring up in the groups. There was no time limit on completion of the survey, although participants were informed they would receive compensation after completion of the post-group survey. All participants completed the post-group survey the same day they were emailed the post-group survey link.

Semi-Structured Focus Group Protocol

Following completion of the pre-group survey, participants were linked to a Doodle Poll of available focus groups times within the upcoming 4 weeks. Once a focus group date reached two or more participants, the participants were sent an email confirming their focus group date, and an additional email the day before the group as a reminder. Participants who signed up for dates with no other participants were informed their preferred time did not match with others, and sent a new link with updated available focus groups times. Focus groups were conducted until the study reached saturation (i.e., the point at which each newly conducted focus group only produced information that had already been mentioned). The average time between pre-group survey completion and focus group participation was approximately 18 days (range = 6 days to 38 days). Of note, some participants had a longer time between survey completion and focus group participation due to the holiday season (i.e. focus groups were not conducted during weeks of nationally celebrated holidays during the winter season).

A semi-structured focus group guide was constructed and utilized for all groups. The content and structure of the guide was developed through discussions with experts in sleep medicine concerning sleep problems and disparities. Discussion covered 9 global topic areas: (1) participant's beliefs about sleep, and their sleep experience, (2) what participants believe constitutes a sleep problem, (3) participant's personal stressors that contribute to their sleep issues, (4) participant's beliefs about appropriate ways to address sleep problems, (5) the facilitator providing education on behavioral sleep medicine, (6) participant's judgment if behavioral sleep medicine in its current form is a good option, (7) participant generated barriers to participating in behavioral sleep medicine, (8) participant suggestions for ways to increase accessibility to behavioral sleep medicine, and (9) participant suggestions for ways to increase inclusivity in behavioral sleep medicine. At the beginning of each focus group, participants had the time and opportunity to clarify any questions they may have had about the study protocol or consent form. The Focus Groups began with open-ended questions assessing participants knowledge and beliefs about sleep and sleep treatment options, with the latter half of the focus groups providing education about sleep and current behavioral sleep treatment options. The facilitators highlighted that different sleep disorders have different recommended treatments, but emphasized that many sleep disorders have a cross-over of symptoms that can all be treated with similar behavioral treatment approaches that were further discussed in the focus groups. All participants received a $40 Amazon gift card as compensation.

The focus groups lasted a range of approximately 60-90 minutes, and they each consisted of 2-5 participants, plus the facilitator. All focus groups were conducted securely via the Zoom telehealth platform. The lead researcher facilitated all focus groups and took notes following each group. The lead researcher reviewed the consent form, confidentiality, and gave an overview of the focus group topic at the start of each group. The lead researcher then invited participants to introduce themselves and briefly describe their sleep experience. Participants were encouraged to expand on responses and frequently exchanged opinions with each other in a respectful manner. An exploratory framework (Becker, 1992) was used throughout the process, aimed at gathering opinions, beliefs, and experiences from members of the group.

Measures

Dysfunctional Beliefs and Attitudes About Sleep-16 (DBAS-16; Morin, Vallieres, & Hans, 2007). The DBAS-16 was used to examine disordered cognitions about sleep. For each item, participants rated on a scale from "Strongly Disagree" to "Strongly Agree" for how much they agree or disagree with a specific cognition (e.g., *I need 8 hours of sleep to feel refreshed and function during the day*). A global score is found by summing scores across all 16 items, with higher scores indicating more dysfunctional attitudes and beliefs. In initial psychometric evaluation, the DBAS-16 was shown to have internal consistency ranging from .77 to .79 (Morin, Vallieres, & Hans, 2007). Furthermore, the DBAS total score has been shown to be significantly related to the Insomnia Severity Index, Beck Depression Inventory, and Beck Anxiety Inventory (Morin, Vallieres, & Hans, 2007).

Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983). The PSS was used to examine the degree to which situations in participants' lives were perceived as stressful. For each item, participants used Likert-type scales to indicate the severity of their stress (e.g., *Never* experiencing a situation, to experiencing a situation *Very Often*). Scores were summed across the 10 items, with higher scores indicating more stress. Evaluation of psychometric properties found an internal consistency ranging from .84 to .86, and test-retest reliability of .85 (Cohen et al., 1983). The PSS has also shown significant correlations with Stress Measures, Self-Reported Health and Health Service Measures, Health Behavior Measures, and Help Seeking Behavior (Cohen et al., 1988).

Patient-Reported Outcomes Measurement Information System Global-10 Short Form (PROMIS Global-10; Hays, Bjorner, Revicki, Spritzer, & Cella, 2009). The PROMIS Global-10 was used to examine participants' physical and mental health. The scale consists of 10 items that load onto two factors: global physical health (i.e., physical health, physical function, pain, and fatigue) and global mental health (i.e., quality of life, mental health, satisfaction with social activities, and emotional problems). For each item, participants used a Likert-type scale to indicate the severity of their problems, with higher scores indicating worse global functioning. Evaluation of psychometric properties found an internal consistency ranging from 0.81 to 0.86 (Hays et al., 2009). The PROMIS Global-10 has shown significant correlations with depressive symptomatology, and the EQ-5D (a measure of mobility, self-care, usual activities, pain/discomfort, and anxiety/depression; Hays et al., 2009).

Sleep Quality Scale (SQS; Snyder, Cai, DeMuro, Morrison, & Ball, 2018). The SQS is a single item measure of sleep quality. The participants were asked to rate their sleep on a Likert-type scale from 0 (*Terrible*) to 10 (*Excellent*), with higher scores indicating better sleep. Evaluation of psychometric properties found that the SQS showed good convergent and divergent validity with other sleep scales/constructs, and showed moderate test-retest reliability (i.e., .62; Snyder et al., 2018). The SQS also demonstrated criterion validity (correlation with measures of a similar construct), with strong correlations between the SQS and the Pittsburgh Sleep Quality Index, as well as with the Morning Questionnaire – Insomnia (Snyder et al., 2018).

Additional Items. An additional item asked participants which treatment options they would consider if they were currently experiencing sleep problems. Participants selected all options they would consider. Participants also filled out a brief demographic questionnaire to report age, gender identity, race, sexual orientation, income level, and relationship status.

RESULTS

Preliminary Analyses. Preliminary analyses involved examining quantitative data for normality, outliers, missing data, and calculating descriptive statistics. Descriptive statistics based on survey data are reported in Table 2 (e.g., group means and standard deviations for self-reported stress, sleep quality, and physical/mental health issues). Of note, correlation analyses did not reveal any significant relationships between self-reported sleep quality and 1) self-reported stress, 2) dysfunctional beliefs about sleep, 3) self-reported mental health, and 4) self-reported physical health (see Appendix B, Table 6 for correlations).

Primary Analyses.

Aim 1. All focus groups were audio recorded, professionally transcribed verbatim, and spot checked for accuracy. The researchers utilized the Rapid and Rigorous Qualitative Data Analysis (RADaR) technique as a quick and comprehensive qualitative analysis strategy (Watkins, 2017). The RADaR technique consists of 5 steps (see Table 3 for in depth review of steps): 1) Ensuring that all data transcripts are formatted similarly, 2) placing formatted data transcripts into an all-inclusive, phase 1 data table, and developing a guiding topic or question, 3) reducing the data in the all-inclusive data table, using the guiding topic or question as guidance, to produce a phase 2 data table that summarizes topical themes, 4) reducing the data in the phase 2 data table to produce additional data tables as needed to distill the data into final emergent themes, and 5) drafting the project using the final phase of the data table (Watkins, 2017). Transcripts were coded using the RADaR technique for topics relevant to the guiding question, " *What are BIPoC experiences and perspectives of sleep, and specific areas of* *improvement to increase BIPoC groups' utilization of behavioral sleep services?*" that was developed in step 2 after the creation of the phase 1 data table. Two coders independently coded all transcripts. A third coder independently reviewed the coding to identify questions and discrepancies, which were then resolved by consensus. All transcripts contained information relevant to the guiding question: '*What are BIPoC experiences and perspectives of sleep, and specific areas of improvement to increase BIPoC groups' utilization of behavioral sleep services?'*. Emergent themes are summarized in table 4.

Aim 2. To investigate changes in attitudes toward sleep and sleep treatments following focus group, pre- and post-focus group change on DBAS-16 scores was examined. Pre- and post-focus group change was also examined for the survey item inquiring which treatment option participants would seek if they were experiencing sleep problems. Because no comparison group data were available, these analyses were considered exploratory and as guidance for future avenues of research.

Analyses revealed significant changes for three options for treatment preferences (see Table 5), with a significant increase post-focus group in the percent of individuals who would consider the following treatment options for sleep problems: 1) behavioral health, or a psychological services option, 2) seeking advice from community leaders, and 3) speaking with their healthcare providers about sleep issues. There were no significant changes in pre- and post-focus group DBAS-16 scores ($t= -1.447, p= 0.1525$). As further exploratory analysis, we examined change scores for frequency of responses for DBAS-16 items (see Appendix C, Table 7). Several items showed significant changes in the expected direction following the focus groups (i.e., items relevant to information that was specifically discussed in groups showed shifts in frequency of endorsement in line with the focus group conversations). However, these results are exploratory and should be viewed with great caution. Nevertheless, this may prove a beneficial avenue to explore in the future.

DISCUSSION

This paper reports on a qualitative analysis of a BIPoC sample's experience and perceptions of sleep, as well as ways to improve utilization of behavioral sleep treatment by BIPoC groups to aid in reducing sleep health disparities. This paper also does a preliminary examination of community education to increase awareness and acceptability of behavioral health options for sleep and interaction with healthcare providers for sleep-related issues. For participants in the study, four major themes emerged for the guiding question, '*What are BIPoC experiences and perspectives of sleep, and specific areas of improvement to increase BIPoC groups' utilization of behavioral sleep services?'*. The themes were as follows: 1) Awareness and dissemination of information (i.e., increasing awareness through education and collaboration at the primary care/healthcare provider level), 2) access (i.e., addressing barriers that limit access to treatment, such as in-person format, cost of treatment, and length of treatment), 3) cultural and personal relevance (i.e., increasing cultural representation and overall relevance of treatment), and 4) personal, friend, and familial beliefs about sleep and acceptable approaches to sleep issues (i.e., currently held beliefs about sleep, beliefs about acceptable responses to experiences of sleep concerns, how sleep is viewed within friend and family groups and how that impacts the view of sleep and sleep problems).

Many participants had previously discussed sleep issues with their providers and had taken or been given a medication option. Although only 3 participants had experience with behavioral health services to aid with sleep issues, the majority of participants viewed behavioral sleep treatment as a favorable option over medication, said they wished the option had been made available to them when they were seeking services, and emphasized the need for more collaborative discussions between patient and provider at the primary care level. Several participants mentioned positive experiences with behavioral health treatment (for stressors both related to, and unrelated to sleep) and expressed appreciation for providers who provided education for non-pharmacological options. Following the focus groups, there was a significant increase in the percent of individuals willing to try behavioral health options and/or speak with a healthcare provider about sleep issues (compared to the pre-group survey). Overall, participants viewed behavioral health treatment of sleep favorably, but also had many suggestions for treatment (e.g., increasing telehealth options, increasing cultural representation, making a standardized referral system; see Table 4 for additional suggestions and direct quotes).

Study Contributions and Implications

These findings contribute significantly to the literature in several ways. Previous literature has done an excellent job starting to examine ways to adapt the delivery and content of CBTi to feel more accessible to different disadvantage groups. However, this study identifies barriers that exist at the healthcare provider and broader system levels that prevent individuals from actually making it into the available behavioral health treatment options. One such barrier, that appeared across multiple themes, was the underlying feeling of medical mistrust (i.e., distrust of medical organizations and personnel). For example, within the awareness theme, there were several participant responses endorsing the belief that providers withheld treatment options from BIPoC groups, and felt, from personal experience, that they were more likely to be offered medication options than be referred to behavioral health services. Many participants felt concerned about this, and wondered what other, potentially better, treatment options might be withheld from them with other health concerns. Another area of medical mistrust appeared within the cultural and personal relevance theme. Many participants felt they trusted racial/ethnic dissimilar providers—particularly white providers—less than they trusted racial/ethnic similar providers. Moreover, participants reported they were more likely to pursue behavioral health services when recommended by a racial/ethnic similar provider.

This finding is significant, as medical mistrust has been shown to impact many health-related behaviors, including participation in clinical trials, cancer screenings, organ donation, and utilization of healthcare services (Hammond, Matthews, Mohottige, Agyemang, & Corbie-Smith, 2010; Morgan, 2006; Thompson, Valdimarsdottir, Winkel, Jandorf, & Redd, 2004; Corbie-Smith, Thomas, & George, 2002). Even more, medical mistrust is more common within marginalized and BIPoC groups (Jaiswal, 2019). In fact, medical mistrust in BIPoC groups has gained increased interest in recent healthcare literature, with both a push toward structural competency over cultural competency, and toward placing the onus on the system rather than the patient (Jaiswal, 2019). Indeed, medical mistrust is important when considering ways to increase utilization of healthcare services by members of BIPoC groups. However, despite being well-documented, medical mistrust is still a prominent—and growing—issue today (Williamson & Bigman, 2018).

Participant responses from the current study help illuminate potential provider and system-level changes, as well as give a starting point for ways healthcare providers can begin to address medical mistrust, such as: 1) allotting more time for healthcare appointments at the primary care level to have in-depth conversations both to understand specific healthcare needs, and about different healthcare services and available treatment options to address such needs, 2) providers increasing their knowledge of sociocultural and socioeconomic factors that impact treatment, particularly with BIPoC groups, 3) primary care providers initiating and promoting treatment in a collaborative care framework, and 4) changes at the system-level to aid in standardizing the referral process for behavioral health services.

Another major take-away from the focus groups was the emphasis on treatment needing to be more culturally and personally aware/relevant. Participants unanimously felt the current form of CBTi was an acceptable treatment but expressed skepticism about its efficacy without a focus on addressing sociocultural, socioeconomic, and other relevant factors that contribute to sleep health concerns and disparities. Moreover, many individuals felt that treatment options needed to be presented to the community in a way that feels relatable (e.g., similar to medication commercials demonstrating every day, stressful life events), to increase interest, acceptability, and awareness of options outside of medication. This finding is supported by cultural adaptation research, with many cultural adaptation scholars arguing that the dissemination of evidence-based treatments to BIPoC groups should be preceded by a process of adaptation to increase the cultural relevance of interventions (Bernal, Cumba-Aviles, & Saenz-Santiago, 2006; Domenech Rodriguez, Baumann, & Schwartz, 2011; Kumpfer, Alvarado, Smith, & Bellamy, 2002; Smith, Domenech Rodriguez, & Bernal, 2011). The findings of this study add to the cultural adaptation of cognitive-behavioral sleep treatment literature because they highlight specific areas where members of BIPoC groups would like to see increased cultural relevance. For example, focus groups participants endorsed wanting: 1) an increased focus within treatment on SES-based and race-based stressors/ways of coping with these stressors, 2) increased representation among healthcare providers, and 3) access to members of BIPoC groups who had successfully completed the treatment. Moving forward, this information will be very useful when considering ways to bolster engagement with behavioral sleep services.

The final major contribution we want to highlight is the importance of primary care providers in facilitating referrals to behavioral health services. Many participants had very limited experiences with therapy or behavioral health options for concerns such as sleep, but the majority of participants interacted regularly with providers at the primary care level. Notably, although the majority of participants had previously discussed sleep issues with their primary care providers, only a few were made aware of behavioral health treatment options, and only one was made aware of behavioral health strategies for sleep other than surface-level sleep hygiene recommendations. This suggests there is a significant pipeline issue for BIPoC individuals from the primary care level to the behavioral health level. Primary care, however, was the most mentioned healthcare level where participants *wanted* increased education, awareness, and access, as it was the most common point of contact with medical care providers for participants. This has important implications for future interventions, as primary care providers may provide an excellent avenue for dissemination of information about behavioral health services, and an excellent point of reference for referrals and initiation of more collaborative care for patient concerns.

The concept of primary care providers aiding in behavioral health treatment engagement is well-supported in the literature. Maura, Maura & Weisman de Mamani (2017) provide excellent suggestions of strategies providers can employ to promote engagement in mental health services. Their strategies were aimed at individuals with serious mental illness, but these strategies may also be useful when considering ways to engage individuals in behavioral health treatment for sleep issues. Specifically, their recommended strategies at the provider level include: 1) promoting cultural competence in service providers, 2) employing multilingual and more racial/ethnic representative staff to address patient comfortability and perceived bias, 3) providing services in non-clinical settings (e.g., community centers, churches), and 4) engagement in outreach efforts at community events to help diminish stigma associated with mental health services. The findings from the current study provide additional support for these strategies and suggest they would be useful for increasing treatment engagement, access, and utilization for BIPoC groups for a number of health concerns where disparities are present. The findings from the present study also suggest additional adjustments at the primary care healthcare level may be useful, such as: 1) including behavioral health options as a more routine part of primary care education and training, 2) ensuring that primary care providers know how to adequately explain behavioral health options and understand the research and literature behind behavioral health evidence based treatments, 3) having primary care providers build additional time into appointments for more in-depth conversations with patients, including gaining a clear understanding of the sociocultural factors that may be impacting patients’ health, and finally 4) ensuring that primary care providers develop more standardized systems for treatment referrals to help reduce the impact of implicit and explicit bias on whether/how providers refer members of BIPoC groups to behavioral health services.

Study Limitations

There are several limitations to the current study that must be considered in interpreting findings and implementing future research. First, we use the terms BIPoC, racial/ethnic minority, and disadvantaged groups to describe minority or disadvantaged groups, but these are actually quite heterogeneous populations. We used these terms to highlight the overarching theme of health disparities in historically oppressed groups, but it should be noted that specific disparity and contributing factors may differ by group, and specific cultural considerations may vary. This was highlighted within the focus groups, particularly between Asian and Black individuals. While members of both groups tended to agree on many things, there were a few points of divergence, such as Asian individuals mentioning language barriers, and Black individuals emphasizing the importance of BIPoC providers whereas certain Asian individuals put less emphasis on BIPoC providers and more emphasis on recommendations coming from anyone with the title 'doctor'. These nuances are important, however, at the provider and treatment level, and should be taken into consideration when working with culturally different members of BIPoC groups.

Another consideration in interpreting findings for this study is the analysis method utilized. The RADaR approach is particularly useful for small qualitative data sets (similar to the data set utilized for the current study), and to answer specific questions for quick analysis with the goal of producing a deliverable that can be disseminated in a timely manner (Watkins, 2017). This suggests that examining the data using a different analysis method, or to address a different question, may produce different themes. Thus, although the current dataset can always be reexamined to explore other questions, the themes presented here are specifically relevant to the guiding question chosen in the second step of the RADaR analysis. Different themes might emerge if a different question was explored (e.g., questions about ways to engage younger populations versus older populations in sleep treatment, or how age impacts perception of sleep significance).

The final limitation of this study is the restricted nature of the quantitative data. We did not find a relationship between reported sleep quality and other measures of mental/physical health. However, the sample for the current study was not a clinical sample (e.g., lower means on reports of stress and mental/physical health), and it was only powered to detect medium-large effects. Additionally, while we did examine changes in pre- and post-focus group participants' willingness to consider behavioral health options, the lack of a control group does not allow us to draw firm conclusions about whether changes were a direct result of attending the focus group. Of note, the two areas of expected change from focus group content–willingness to talk to a provider and willingness to pursue behavioral health services – did show pre-post focus group changes, whereas questions where we would expect no change (e.g., preference for medication) showed a lack of pre-post change. Thus, the items themselves can be used as an informal control to suggest whether the changes were consistent with educational value of the group. Even so, future research looking into education as a way to increase awareness of, access, to and utilization of behavioral sleep services should use a control group to strengthen findings. One-time information sessions, such as focus groups, may not be a great tool for powerful change (e.g., directly increasing sleep quality and duration, directly increasing utilization of behavioral sleep services), however they can be a great tool for increasing curiosity and interest in services, as well as general awareness through providing useful education about treatment options.

Directions for Future Research, Education, and Application

This study suggests many potential avenues for future work. We want to highlight three key future suggestions that emerge most strongly from this study. First is the critical need for a larger effort to address research, provider education, and policies to reduce medical mistrust. This can be done at the community level with educational resources, at the provider level with increased cultural awareness, or at the system level with a variety of changes that aid in increasing engagement and access to different levels of treatment for BIPoC groups. Importantly, this is also something that needs to be further investigated in research. Medical mistrust, as mentioned previously, is a well-documented issue. Yet, despite this awareness, there still exists significant distrust within BIPoC communities—as highlighted by the current study—and minimal efforts to address this distrust in ways members of BIPoC groups find meaningful. More research in this area is much needed, as well as the implementation of interventions suggested by current and previous research, such as: 1) interfacing more at the community level to increase awareness an education, 2) better training of providers and broader healthcare systems to be more culturally competent and aware, and 3) increasing BIPoC visibility at the provider level by changing hiring practices to be more inclusive. Overall, medical mistrust is a key area for further investigation, as it is a crucial barrier to access, utilization, and retention in treatment for members of BIPoC groups.

A second key area of future work is the importance of culturally adapting our current treatment options, especially when it comes to addressing health disparities in sleep. As demonstrated in Figure 1, there are many additional factors impacting BIPoC and other socioeconomically disadvantaged groups that are necessary to address in treatment to fully target the issues that are contributing to insomnia. As it stands, current treatment approaches do very little to address things such as lack of resources, neighborhood violence, racism/discrimination related stress, and so forth. If these issues are not addressed, and treatment solely focuses on issues included in the original insomnia model (e.g., sleep related cognitions, poor sleep related consequences, current sleep environment; see Morin, 1993), it will not fully capture the perpetuating factors of insomnia for members of BIPoC and other socioeconomically disadvantage groups. Future research should further evaluate an extended sleep health disparities model of insomnia to identify particularly salient predictors and inform culturally relevant intervention.

A final takeaway, and important implication for future direction, is the significance of continuing efforts to increase access to behavioral health treatment options for sleep. Previously mentioned future directions aid with access in the form of engagement and cultural relevance, however physical access is also a significant barrier. Nearly every focus group participant in the current study endorsed the usefulness of telehealth options, and the access it affords when transportation, transportation times, and parking do not have to be factored into treatment. When working with disadvantaged groups, physical access barriers present a significant hurdle, and providing culturally aware, evidence-based telehealth options is an excellent alternative to in-person treatment. Many studies have already begun the work investigating the efficacy of treatment via telehealth format (e.g., Taylor et al., 2017), and even, specifically, the efficacy of culturally adapted CBTi via self-guided telehealth format (e.g., Zhou et al., 2022). While this is promising that the literature is headed in this direction, it is still an area that would benefit from further investigation. For example, studies evaluating different formats of telehealth treatment (e.g., self-guided, group, individual) and studies employing more culturally adapted approaches via telehealth format would greatly inform the literature on best treatment practices for working with and increasing access for members of BIPoC groups.

Conclusions

Behavioral health options have the potential to significantly reduce sleep health disparities, as they are uniquely equipped to address sociocultural factors that are key risk- and perpetuating factors of sleep health issues. The current study shows an overwhelmingly positive view of behavioral health services from members of BIPoC groups, and provides a useful steppingstone for future research aimed at increasing behavioral sleep treatment awareness, access and engagement for members of BIPoC groups. Even more, the current study highlights the powerful impact that micro-interventions, such as focus groups, can have on 1) addressing health inequities and disparities, 2) dissemination of knowledge to under-resourced communities, and 3) engaging individuals’ curiosity and willingness to participate in behavioral health services.

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APPENDIX A: TABLES

Table 1. Study Participant Demographics

Demographic	Focus Group Completers (*n=35*)	Focus Group Noncompleters (*n=40*)
Gender (%)		
Female	66.67	69.23
Male	27.87	30.77
Other	5.55	0.00
Sexuality (%)		
Heterosexual	69.44	76.92
Bisexual	13.89	17.94
Homosexual/Gay or Lesbian	2.78	0.00
Other	13.89	7.69
Race/Ethnicity (%)		
Black	55.56	51.28
Asian/Pacific Islander	38.89	33.33
Hispanic/Latino	22.22	20.51
Other	5.55	15.39
Age		
Mean	29.16	26.27
SD	10.33	6.07
Income (%)		
<$10,000	11.11	15.38
$10,000-$24,000	11.11	25.64
$25,000-$39,000	25.00	17.95
$40,000-$80,000	33.33	20.51
$81,000-$150,000	8.33	12.82
>$150,000	8.33	2.56
Prefer not to Answer	2.78	5.13

Table 2. Descriptive Statistics

Measure	*M*	σ	Scoring Interpretation
Perceived Stress Scale	18	6.67	Scores ranging from 0-13 are considered low stress; scores ranging from 14-26 are considered as moderate stress; and scores ranging from 27-40 are considered high stress.
Sleep Quality Scale	6.03	1.67	For the Sleep Quality Scale, there are the following 5 categories: 0=terrible, 1-3=poor, 4-6=fair, 7-9=good, and10=excellent.
PROMIS Mental Health	45.89	5.73	T-score distributions for the PROMIS Mental Health and Physical Health scales are standardized such that 50 represents the average, and the standard deviation is 10. Accordingly, a person with a t-score of 60 is one standard deviation better (more healthy) than the general population, and a person with a t-score of 40 is one standard deviation worse (less healthy) than the general population.
PROMIS Physical Health	44.59	5.79	
Dysfunctional Beliefs About Sleep-16	49.31	9.87	For the DBAS-SF, the maximum score is 80, with higher scores indicating more dysfunctional beliefs about sleep.

Note. These descriptive statistics were taken from the pre-survey of the 35 individuals who completed the study. The 35 individuals also completed a post-survey that included retaking the DBAS-16 ($M=45.23$, $\sigma=9.35$). Those scores are not included in this table for ease of presentation.

Table 3. RADaR Steps as Performed for the Current Study

RADaR Step	Current Study
Step 1: Ensuring that all data transcripts are formatted similarly	Similar formatting of transcript data can speed up the creation of the phase 1 data table, thus the lead researcher ensured all transcript data was formatted the same (i.e., focus group information at the top of the transcript, speaker information in column 1 with timestamps, and speakers' words in column 2). Participant responses were highlighted in green and facilitator questions were highlighted in yellow. Filler words, such as 'um' or 'uh' were also removed during this step.
Step 2: placing formatted data transcripts into an all-inclusive, phase 1 data table	This step involved the lead researcher copying/cutting and pasting information into an excel document with column headings for transcript number, question, participant response, notes, and theme. This data table was not reductive, but rather a reformation of the data for ease of producing later reduction tables. This data table was useful for developing the guiding question: '*What are BIPoC experiences and perspectives of sleep, and specific areas of improvement to increase BIPoC groups' utilization of behavioral sleep services?*' that was used to aid in data reduction in future tables.
Step 3: reducing the data in the all-inclusive data table to produce a phase 2 data table	The phase 2 data table involved 2 researchers working to reduce the phase 1 data table to only include data that was relevant to the proposed topic (see step 2), and data that was being considered for the final project. The researchers first looked at the table alone, then came to a consensus about discrepancies. The goal of the RADaR technique is to aid in producing a specified deliverable (e.g., a dissertation or manuscript), thus data reduction is done with the goal of the deliverable in mind. Information removed for this specific project can be reviewed in the future to address other topics/questions that may have come from the data.
Step 4: reducing the data in the phase 2 data table to produce more data tables	The researchers worked together to develop three additional reduction tables with 4 major themes emerging (see table 4). Exemplary quotes for each theme were highlighted in red in the reduction tables after discussion between the researchers. One additional researcher viewed the final reduction table and resulting themes, who had less familiarity with the project, and questions were discussed amongst the research team.
Step 5: Draft the deliverables using the final phase of the data table	The lead researcher took responsibility in drafting the project after gathering themes, quotes, and other notes from the data.

Table 4. Summary of Themes

Question: *What are BIPoC experiences and perspectives of sleep, and specific areas of improvement to increase BIPoC groups' utilization of behavioral sleep services?*		
Theme	Description	Key Points and Selected Quotes*
Awareness and Dissemination of Information	There was a unanimous endorsement from participants that both awareness and dissemination of information about behavioral health options for sleep treatment should be increased at the primary care level. Some participants recollected stories of negative experiences with sleep medications; others disclosed feelings of medical mistrust; and some participants recalled positive experiences they had with behavioral health referrals and recommendations at the primary care level.	***1. Many participants expressed negative experiences with medication*** - *"… and [the provider] told me, 'Oh, sleeping pills. We can give you sleeping pills, but they'll make you really sleepy. We try not to give them to you because too many side effects.' I'm just like, gotcha – so either I'm drugged or I'm not drugged. So, like, I feel like they couldn't really help me. They wanted to treat my other symptoms, which was like my depression and anxiety, but then the medication for that had even worse side effects."* - *"I prefer the non-medication route because I've had, I tried medication in the past, and the side effects were worse than just not being on the medication. I just couldn't handle it. Like I had to get medication for the side effects and then those side effects. So, it was just one cycle."* - *"I feel like maybe doctors are more, I don't know. Maybe it's, they're more worried about just prescribing the medication and getting it over with when they need to be more worried about what's going on with people mentally, physically to have that problem and kind of be more in tune with sleep therapists, like yourself, to prescribing them to go to a sleep therapist rather than just throwing them with medication. Cause I feel like with the medication, that's why I try not to take so much NyQuil and stuff like that because I feel like then you become dependent on it and it's not your sleep cycle making you go to sleep. It's the medication making you go to sleep, which isn't healthy."* ***2. Nearly every participant endorsed a positive view of behavioral health options being presented at the primary care level for sleep concerns*** - *"I think it's really strange that they don't offer like a behavioral program first before like going to medication. … I feel like they definitely should recommend a sleep therapist rather than, you know, just heavy handing it with the medication."* - *"Thinking about like my parents, I would probably say the physicians or healthcare providers don't really suggest like behavioral therapy when it comes to sleep issues. … Like my mom, instead of being recommended Ambien, I feel like that would be a great option, and I think my mom would participate in a sleep treatment cause she was struggling with it for so long. But that's something that my parents, I would really think don't even know exists. So, if they don't know, then they won't know to participate. So, and they trust their healthcare providers. So, if [healthcare providers] share that information with them, then that would allow them to sign up. But yeah, when I'm thinking about my parents, I would be thinking from like a healthcare provider to suggest that, yeah."* - *"And [my healthcare provider] actually told me she's first and foremost, focus on your sleep. I mean, that was really what her, where she started. And it wasn't, you know, eat better or get more exercise or, you know, find a better schedule or anything she really said prioritize your sleep. And that actually surprised me that that was actually her recommendation. And again, that's what I've been trying to work on is getting good, consistent sleep, trying to go to bed at a consistent time, wake up at a consistent time that does certainly help me. When I feel more rested, I'm more likely to make better decisions and not sort of fumble my way through*

some pretty critical decision-making as it relates to my health and stuff like that. But I also can tell I also have take medication for high blood pressure. And when I don't get enough sleep, my blood pressure does spike. And so, you know, there are, I can see that impact on myself personally. And so, I did appreciate that my doctor recommended that because I just, wasn't what I had expected."

- *"Me personally, I would want them to give me a combination of both [medication and behavioral health option] like, you know, assess my health, but I personally would not want to be put on like a sleep med pill or whatever, just only the fact that I think about how I would get used to it and then I would be dependent on it. And then when, you know, if I leave it somewhere, I forget to pack it with me. If I'm going out of town and I need it, then I'm gonna be dependent on it. I don't want my body to be dependent on any like quote-unquote meds or drugs."*

3. ***Many participants emphasized the need for dissemination of information and resources at the primary care level***
   - *"I wouldn't prefer being directed to online resources, no, because I like interaction. Then it would put me in the mindset that I'm back in school. Then I have to read everything on my own. I liked the, I liked the conversation. I'm more of an interaction type of person. … I'd be more likely to look up the information if my provider, or whoever was giving me the resources, didn't just give it to me and say, 'Hey, go look at this.' If they actually took the time to kind of explain it a little bit..."*
   - *"I mean, over the years I've been on and off different anti-anxiety medications and stuff like that. And there have been times where I have been prescribed sleep medication. And that's not always been the best option because I think it had made it worse. And, and actually maybe like too much sleep where I really couldn't function cause I was groggy all the time. So, I'm actually maybe less excited about that as an option, having gone through that experience previous, previously. And so, I think being presented multiple different options and considering what, and having some control, I guess, maybe in those decisions versus kind of medication being the first decision, I think for me at least I just find myself if I don't have to take the medication, I don't want to. So, I do like having the opportunity to be able to talk about the different possibilities and while medication might be one of those options, I just, I like having the options presented to me and maybe a little bit more education in that in those conversations with the healthcare provider. So, I can make a better-informed decision for myself rather than, you know, this is maybe the only option that's presented to me."*
4. ***Several participants endorsed a feeling of 'medical mistrust', and mentioned cultural factors that they felt influenced primary care providers to not provide education about behavioral health options and behavioral health referrals to members of BIPoC groups***
   - *"But it also gets back to the fact that, you know, there is a misconception, you know, even among the white healthcare providers that black people do not seek health services, especially when it comes to mental health issues or sleep issues. So even with the retraining of your actual doctors or whatever, they'll never say, 'Hey, this does exist,' or whatever, because they just figured that blacks in general do not seek like mental health services and different types of services or whatever. So that's the whole mindset change.*

		When you start looking at the medical providers or whatever, they have to change that to say, 'Hey, these are options that are out there.'" - *"I don't know some doctors just need the exclusion training. That's why [BIPoC individuals] like to see a double opinion, because even like, when you think about hysterectomies with black women. They are more prone to black women, that hysterectomy, than a white woman. So, I always ask what other treatments. I'm my own advocate. I'm like, 'so besides medicine, what else can you offer me? Like, what else is available?' You know, so even with pain management, I want to think like instead of, I hate taking medicine because my mom was an addict. And so, I went to this treatment for pain therapy where they massage you and they pop certain bones and stuff, like the pain specialist. And so, I always ask them, so I always ask, you know, try to advocate for myself for things besides medicine. What else can I do? Who else can I see? So, I'm, I'm so used to asking that question that I don't know the answer to [how things can be better]. Besides the doctors getting more equity in the schools and training and being culturally sensitive and offering everybody the same options and maybe somebody coming in - kind of, like how they do the liquor license. Like you send a white person there and a black person in there and have them go with the same issues. And just to see if everybody is being fair if there are some guidelines that should be done at each doctor office and each hospital to see if they adapt to offer you the same treatment. Because they offered me no behavioral sleep treatments."*
Access	Participants identified several key barriers to treatment access (e.g., cost, length, location, and transportation). Participants were generally able to see the drawbacks and benefits of both: 1) telehealth and in-person treatment, and 2) therapist guided and online, self-guided treatment.	***1. Barriers*** - *"I guess it sounds kind of bad, but first and foremost [a barrier] would be like the cost. Especially like, since I just graduated and I'm looking for a job I'm like on a budget and I'm trying to like save where I can. Yeah. But I think cost and like I'm not too familiar with therapy, but I guess it's like a schedule-based thing where you come in for like a few weeks or a few months or something. So yeah. Scheduling would also be something I would have to consider as well."* - *"It can be expensive. You have to see the doctor. Then you have to get a recommendation, like to see a specialist. And then when you stay in a specialist, it's a lot of paperwork and you got to wait to come in. Sometime on your insurance, seeing a specialist is like, it's really expensive, especially if you know the cost more your copayments. And so, you might miss appointments if it's not a payday or anything like that, because it takes a while to get in. And then you got to get your insurance to approve it, approve it to make sure you not coming out of pocket."* - *"A lot of the time [my providers] either try to get me on anti-depressants right away or recommend me to the therapist, but therapists are pretty expensive, especially because insurance doesn't cover them. I was lucky and I found one that's 35 for an hour, but average is 200/hour here. They recommended me sleep strategies, but it was hard for me to do that. Cause I have classes all the time and then on test days, I can't really follow it cause I'm studying constantly. My schedule is really erratic."* ***2. Telehealth vs. In-Person Treatment*** - *"Yeah, for sure. I feel like [being on Zoom] would be a lot easier than if I were to have to drive somewhere and then do*

		it in person and then drive back like 100%. It's a lot more feasible and it, I, to say it's easier technically. Yeah." - *"I would be fine with either zoom or in-person. Although, although with COVID going on a little bit, it kind of pushes me a little bit more to zoom. Like I wouldn't mind like in-person things, but just in, just in case for safety precautions."* - *"Yeah, I think that zoom has really and the whole telehealth has really, shown that we can make things convenient for people. And like, like [another participant] was saying, like not everyone is able to get, you know, to a certain place at a certain time, like things come up, we have to move things around, like being flexible with zoom, being able to do that from anywhere is helpful."* - *"I think it works. As far as like the conventional way that someone goes to see their therapist, they just, the way that it's on movies or TV shows, you'd go to an office, and you sit in a chair across from them and you talk. I don't see anything that requires both participants to physically be there, if that makes sense. So I think zoom is, has been definitely a permanent way, but I think one harmful side effect of doing it virtually from home—is not harmful, so to speak—but it could affect the treatment, is I guess, the ability to pay attention, because when you're at home, you've got a bunch of things that possibly distract you, as opposed to when you go to the office, it's a quote unquote controlled environment. And you know, that would be the only thing that I would see that could possibly affect."* ***3. Therapist Guided vs. Online, Self-Guided Treatment*** - *"I feel like it varies some people who really do want to change their sleep patterns. Having a self-guided means that, you know, they don't feel like someone's looking over their shoulder. They can kind of control their own, you know, sleep schedule a bit more and they might be, it might be more effective for them. But for people who, you know, their sleep patterns really are really bad and they're having trouble controlling it. Having it not be self-guided might be more beneficial."* - *"I think self-guided just takes discipline. So, if you're not going to have the discipline to do it, then you might need to go talk to somebody in person, have somebody tell you. So, I think it's just based on person by person, if they have the discipline to do it or not. Cause I know with me, maybe I, I probably wouldn't want to do self-guided and write down everything, even if it's just once or twice a day, once or twice a week. It's just about discipline and knowing if, whether you're going to do it for real or not."*
Cultural and Personal Relevance	Participants highlighted several factors related to cultural and personal relevance that would increase their likelihood of participating in behavioral sleep treatment.	*Cultural and Personal factors mentioned by participants included:* ***1. the treatment feeling personally relevant to their current situations (e.g., they see an advertisement of the treatment with individuals undergoing similar stressors)*** - *"You know, because with the sleep problem, people can attribute not being able to sleep to so many different things. You know what I'm saying? That there are so many triggers as far as stress. Like me, I'm going through menopause or whatever, or they're going through, you know, just different things. There's different types of triggers, you know? So, it's not necessarily one thing or whatever. So just looking at a particular treatment like a medication commercial, you might say, I don't really identify with that because I might attribute to my sleep issues to one thing. And I'm assuming that that*

can go away once that issue is resolved, we understand that not attributed to one particular thing or whatever. Yeah."

- *"Like right now teachers are under a lot of stress. You probably miss sleep. I'm like, that's me, that's me. That's me. When you start seeing videos, I'm going to take time, like if they did a video say for instance, like a commercial with 12-year-olds jumping around and moving and that can relate to you. Like I'm going to call in because I, my sleep pattern, it's off. Like how do I get my sleep pattern back? Like how do I get that energy back? So, when you hit the nail on the head, it's like, 'Oh, okay, I'm going to go see that office because they, they, they know exactly what I'm going through'. So, it makes you think like they know exactly what your problem is. And so, you're more prone to go into that clinic to see what's going on."*
- *"But when you make it relevant to somebody, cause I'm looking at this commercial, and I'm like, I'm seeing, you know, the correlation, I'm seeing a connection. So, you gotta make a connection. You know what I'm saying? Urban people need more sleep to do blah, blah, blah. And so, you make a connection to them. I'm like, 'Oh, I'm gonna try and go see if that's affecting me as a person of color too', even though I might not be used to too much sleep, but I want to know what's the long run. Me not sleeping or me working two jobs, what I'm doing to my body."*
- *"Cause you know, you get to the point where – I can retire in three years or whatever, but I don't want to be tired of sleep. You know, you want to enjoy your life. So, you may have to start appealing to when you start getting to that older age or whatever to say, 'you're not going to be sedentary, just laying in the bed or whatever, or playing a crossword or whatever.' I want to start traveling. I want to do X, Y, and Z. But if you're not taking care of your sleep or sleep, which in turns cause like a weight gain and stuff like that, you can start appealing to them because you want to start enjoying that next season in your life."*
- *"So, I think it's not, unfortunately the older generation is harder to kind of like convince or persuade them to like go see a doctor on certain things that they may think that is such a, like a lighthearted problem. Yeah. But I think in all honesty, if you were to sit down with some of them with some sincerity and like kind of like explain to them, like this is an underlying issue, I think some people like, especially the older generation may actually like as long as you, I think as long as you reach out to them with some sincerity on about an issue and about their health, I think some of them do will actually react to it."*

2. ***a unanimous endorsement by participants that treatment would be improved if there was a larger focus on strategies for race-based and SES-based stress/stressors that contribute to sleep concerns***
    - *"I would say [a larger focus on SES-based and race-based factors] would be good to implement because just like, knowing that you might not have a steady job or whatever might, it would definitely keep you up at night. If it was really something that was bothering you really bad, I would say that would be something good to implement."*
    - *"[In response to more SES-based and race-based factors being included in treatment] I think about the fact that when you look at marginalized groups versus the white population, we go through or suffer through more... I don't know how to say it. I'm trying to find the right word... like, life circumstances that [the white population] might not have*

    experienced. So, a lot of it could be the fact that a lot of these marginalized groups go through life or go to bed or can't sleep because they're worrying about life factors, matters of life, where this is going to come from, how am I going to do this? And, and, and I can see that a lot with those groups. So, and doctors tend to prescribe this medicine to help it go away, but really, it's not. And you know, I have never believed in sleeping the pain away because of course, when you wake up, it's still there. So, I think a lot of times in these marginalized groups, the worry is there, what I'm saying, and that tends to mess with sleep patterns as well."
    - *"I think that coping piece is going to be very beneficial because if they're coming to you, each session, and you ask, 'how did you sleep?' Well, it's like, 'I didn't sleep well because I'm still worried about losing my house. I'm still worried. If I'm going to be laid off.' And even with the onset of the pandemic, that was going on a lot, you know, right at the end of school last year, March, that's what a lot of people were worried about. If I'm worried about my job, about my car being taken. I'm not going to sleep regardless of, of the techniques that you have put before me, because I still have these external factors that's causing me not to sleep that have not been addressed."*
3. ***providers having the capability to explain the treatment in the patient's primary language for increased understanding***
    - *"The biggest thing I could say, especially for Indian people, if they're old fashioned like my mom or just older population, usually if you can get someone to speak the same language as them and explain it in their language and not as something scary in English they'll accept it and be open to try it. Like someone that speaks Hindi, get them to explain like why this is important. They'll be more open to it and then they'll actually listen, but there's some, no offense like a white doctor explaining to them, they're going to be like, 'Hmm. Okay. You don't know anything,' so yeah."*
4. ***having access to testimonials of treatment completers, particularly culturally similar treatment completers, or individuals who have participated in treatment***
    - *"I saw recently somebody made a comment on social media, not too long ago. And it was some younger people talking about therapy, which I thought was really inspiring. They said,' I have a therapist,' and a lot of people was catching on and saying, 'you know, I need to see one, too.' There's a lot of young black people just starting to see a need for it or whatever. And it wasn't anything with a negative connotation in regard to it. But someone said, 'I had a therapist,' and I know some other people started catching on to say, 'Hey, I need one too. Can you give me a recommendation?'"*
    - *"I mean, I think it's one of those cases where it'd be like, all it takes is one, right? Cause like if you just get one person of color in and you can give them an example and you can base the argument or like, you know, like convincing argument off that and you give them the best example and you'd be like, 'this is Edward'. Like, it relates more to them. The more relates to them and their problems with sleeping and like the easier it is to be convinced to do the research."*
    - *"Yeah, I would say word of mouth. So, this is for like for parents and family members, if, you know, if, for example, I went through the program and the treatment and I was able to find success from it or I was able to improve my health from it. Then I would, I would let them know about it. And*

  then that would kind of ease their mind into possibly considering it if they're having the same issues."

5. ***several participants noted that they would be more likely to participate in treatment if it was recommended by a provider of color, or one from the same/a similar cultural background.***
   - *"Well, I think there should be more providers that are minorities because it's proven that patients will listen to a healthcare provider that they can relate to. So definitely, yeah. I have more providers that are minorities, and I think that would also push patients. Cause I think the minority community, they don't really trust healthcare, which is understanding like when you're going and you're just getting medications – cause some people don't really believe in medication. Then there are a lot of illnesses that can be treated without medications. So instead of [healthcare providers] going that extra mile and having that extra conversation with their patient, they'll probably just look at it as minority patients being stubborn and not adhering to their treatment plan because they never took that extra step to have that conversation that [minority patients] probably would be willing to listen to. So, I think that's just an ongoing cycle, but I definitely think having more providers that look like you and you're able to relate to would definitely help that and have patients wanting to go to see their healthcare provider and actually listening and adhering to their treatment."*
   - *"I always try to go to somebody who looks like me. If not, then I go to like, a female doctor because they understand your body better than males. Or I go to a person, another minority."*
   - *"I am a social worker by trade and like I'll recommend therapy all day long, but like I'm still a black woman who like has biases deeply ingrained just from my own upbringing about the ineffectiveness of therapy. I still navigate the medical system as a fat black woman with like in a fat phobic medical paradigm that like, I was basically like, I knew going into it that, like, I have a lot of fear, you know, just being in a medical environment period, because I know some of the history of medicine, which doesn't turn out so great for people of color. And so, like just all of these barriers, knowing that there's systemic problems, knowing that like I'm one person in the system, but if I need to, like, I'm tired of living like this, I want to increase my quality of life. And so, it even, even then, like I had a year plus to prep myself for this, and it still feels so overwhelming and so impossible to get through. Like, I do not believe any one discipline is going to be tailored well, for me. Like even starting to see a therapist, I looked high and low so that I could find a black female therapist. I need somebody who's able to kind of match my worldview a little bit or challenge my worldview, but understand where I'm coming from and not have to do so much of the groundwork because like I'm doing groundwork for so many other things."*
   - *"Yeah, I would definitely say that I've heard a lot of people of color say that they like don't think therapy works or that it's too expensive. And the doctor that I go to right now, like she's a black woman. So just being able to hear that option from her, it's something that would kind of eliminate some of my skepticism. Like if I did have any, cause I'd hear it from someone who looks like me, like has my best interests in mind. So, I think being able to hear it, hear about that option, would probably make me like more likely to pursue it as well."*

Personal, Friend, and Familial Beliefs About Sleep and Acceptable Approaches to Sleep Issues	Participants mentioned several personal, familial, and friend-circle beliefs about sleep health and approaches to sleep concerns.	**1. *Personal, friend, and familial beliefs about and experiences with sleep*** - *[On the topic of speaking with family members about sleep]"My mom. She'd be like, 'Oh you stupid'. And then that's pretty much the end of the conversation. She'd just say 'why, you no sleep? You can't sleep, you dumb'. That's pretty much her."* - *"Almost all my friends are in med school, PA school and nursing school. That was really nice. We're all supportive. We're all like emphasizing sleep. But then at the end of the day we don't get sleep. Especially with my friends. We were like, okay, we're going to go to sleep. And then they forced me to stay up until two or 3:00 AM studying with them. And I'm like, why? I already read this. So, we emphasize the importance of sleep, but we don't follow those rules."* - *"I feel like it all depends upon like what you're going through in life at that moment. So, I know if I'm going through a lot of stressors, I might stay up later than what I normally would if things are kind of calm and copacetic and there's nothing really traumatic happening. So, it fluctuates with what I'm going through and my work schedule."* - *"We don't really talk about sleep. I mean, my mom will say something like I can't sleep properly, but she won't do anything about it cause she owns a business. So, she has to wake up constantly all the time anyway, so sleep, isn't a priority for her. It just tired as a normal state of mind for her. She'd rather take care of her business than herself. So, she's like, I didn't sleep well, but she's not going to do things to fix it."* - *"If anything, sleep is like a joke to me and my friends. Like they would be like, 'Oh, we're degenerates'.* - *"Sleep is kind of a serious concern of mine now that I'm older because I have to be at work. We were up because of COVID and we didn't have to be at work at eight o'clock. But our students came back to school recently. So now we have to be back at work at 6:30. So I had to kind of readjust myself. So I don't know if I'm having problems or not. I do get up on time, but I feel that I'm tired."* - *"I never knew how important sleep was until I had ovarian cancer. My hormones were all over, like if I had surgery and I couldn't go to sleep for like two weeks, like sleeping pills, wouldn't help me. And like I became like, I didn't even know how to spell, like the simplest words. I didn't know what day it was. I was really confused and all sorts of things, like, I think sleep is important, but I never knew how much it was. So, it wasn't until like, I kept getting sick after everything that went around. I got it. Cause I wasn't sleeping and I was so cranky. I was so moody."* - *"I would say probably when I was an undergraduate, like I said, that was probably true. I think I feel a lot differently about that now as I've gotten older that I don't sacrifice, I try not to sacrifice, sleep as much cause I know what it does to me personally. And it can take much longer, I think, many more days to recover than it did when I was younger. So, I would say really try not to sacrifice sleep and actually try to get more sleep now, and more consistently I should say than I did when I was younger."* - *"I definitely don't sacrifice sleep or I don't like to sacrifice sleep now. I think it's also you know, something where, I didn't really think about it as much cause I thought I could get away with, you know, six, maybe five hours of sleep. And*

now I know, you know, that's not the case I need at least seven, but otherwise yeah. I mean, I would say even until recently, obviously things have changed because of the pandemic. I would have sacrificed sleep maybe for going out time. But you know, at the same time it's like, you know, thinking about it more than now. It's like, I probably wouldn't do that anymore."

2. ***Personal, friends, and familial beliefs about acceptable approaches to sleep issues***
    - *"Before I jump on medication, I would probably try to do like natural, you know, to kinda see what they would recommend that would help fall asleep. I know some people say to turn the lights off or don't watch TV after a certain time."*
    - *"I prefer like natural remedies like tea, like you know. I think like exercising before you go to bed works you know, long showers. I'm more of a home remedy type of person then drugs."*
    - *"I'd probably say I wouldn't talk to anyone about my sleep just because, like I said, I'm not close with my family at all. And then the event that I was there, pretty stubborn and kind of my way or the highway."*
    - *"I think that, I would say in order for me to go to a healthcare provider, I would probably have to like, not be able to do any of my daily functions. So, if that means like having memory loss or something like that, or I'm trying to think, or like not being able to kind of control like my motor functions or ability like that. And I'd say like, those kinds of things would make me want to see a doctor, but if it was just me like wanting to fall asleep every now and then, or like always yawning, I, if that would necessarily like make me want to go see someone."*
    - *"I would say, like, the history of experiments, the black community is extremely hesitant in regard to, you know, healthcare in general. And I do think that people of color are more holistic in terms of taking care of certain elements. So, they'll try holistic treatments prior to, you know, seeking a healthcare professional's opinion. That's what I think."*

Note. This is not an exhaustive list of quotes, but rather exemplary quotes that best illustrate the different th

Table 5. Percent of Individuals Endorsing Sleep Treatment Preferences Pre- and Post-Focus Group

Treatment Option	Pre-Focus Group	Post-Focus Group
Psychological Services (e.g., cognitive-behavioral treatment)	54.84	**91.42****
Over-the-counter sleeping aids (e.g., Benadryl, Melatonin)	54.84	62.86
Prescription sleep medication (e.g., Ambien)	22.58	22.86
Seeking advice from family members	35.48	48.57
Seeking advice from community leaders (e.g., church or community center leaders)	6.45	**25.71***
Speaking with a healthcare provider about the issue	61.11	**80.00***
Other	22.58	14.28

*Note. *p<.05, **p<.001*

Table 6. Correlation Table Between Sleep Quality and Perceived Stress, Dysfunctional Beliefs, Mental Health, and Physical Health

Measure	Perceived Stress Scale	Dysfunctional Beliefs About Sleep-16	PROMIS-10 Mental Health Scale	PROMIS-10 Physical Health Scale
Sleep Quality Scale	r = .2058 p = .2350	r = .1493 p = .3921	r = .1150 p = .5073	r = .1058 p = .5301

Table 7. DBAS-16 Item Frequencies Pre- and Post-Group Participation

DBAS-16 Item	Response	Time 1	Time 2
I need 8 hours of sleep to feel refreshed and function well during the day.	Strongly Disagree	2.86	**17.14***
	Disagree	20.00	37.14
	Neutral	11.43	2.86
	Agree	22.86	22.86
	Strongly Agree	42.86	**20.00***
When I don't get the proper amount of sleep on a given night, I need to catch up the next day by napping or the next night by sleeping longer.	Strongly Disagree	5.71	**20.00***
	Disagree	20.00	25.71
	Neutral	17.14	**2.86***
	Agree	11.43	25.71
	Strongly Agree	45.71	**25.71***
I am concerned that chronic insomnia may have serious consequences on my physical health.	Strongly Disagree	14.29	11.43
	Disagree	2.86	8.57
	Neutral	31.43	**8.57****
	Agree	17.14	31.43
	Strongly Agree	34.29	40.00
I am worried that I may lose control over my abilities to sleep.	Strongly Disagree	28.57	40.00
	Disagree	34.29	17.14
	Neutral	17.14	25.71
	Agree	20.00	14.29
	Strongly Agree	0	2.86
After a poor night's sleep, I know it will interfere with my activities the next day.	Strongly Disagree	0	2.86
	Disagree	5.71	**22.86***
	Neutral	22.86	**0****
	Agree	34.29	45.71
	Strongly Agree	37.14	28.57
To be alert and function well during the day, I believe I would be better off taking a sleeping pill rather than having a poor night's sleep.	Strongly Disagree	25.71	**48.57***
	Disagree	14.29	11.43
	Neutral	17.14	14.29
	Agree	25.71	17.14
	Strongly Agree	17.14	8.57
When I feel irritable, depressed, or anxious during the day, it is mostly because I did not sleep well the night before.	Strongly Disagree	8.57	14.29
	Disagree	22.86	28.57
	Neutral	25.71	**2.86****
	Agree	22.86	**42.86***
	Strongly Agree	20.00	11.43
When I sleep poorly one night, I know it will disturb my sleep schedule for the whole week.	Strongly Disagree	37.14	34.29
	Disagree	22.86	25.71
	Neutral	17.14	14.29
	Agree	20.00	17.14
	Strongly Agree	2.86	8.57
Without an adequate night's sleep, I can hardly function the next day.	Strongly Disagree	22.86	28.57
	Disagree	31.43	25.71
	Neutral	20.00	**5.71***
	Agree	20.00	28.57
	Strongly Agree	5.71	11.43
I can't ever predict whether I'll have a good or poor night's sleep.	Strongly Disagree	5.71	**25.71***
	Disagree	20.00	20.00
	Neutral	17.14	**2.86***
	Agree	28.57	25.71
	Strongly Agree	28.57	25.71

I have a little ability to manage the negative consequences of disturbed sleep.	Strongly Disagree	14.29	**34.29***
	Disagree	31.43	**14.29***
	Neutral	22.86	11.43
	Agree	25.71	37.14
	Strongly Agree	5.71	2.86
When I feel tired, have no energy, or just seem not to function well during the day, it is generally because I did not sleep well the night before.	Strongly Disagree	2.86	11.43
	Disagree	14.29	**31.43***
	Neutral	25.71	**0****
	Agree	37.14	34.29
	Strongly Agree	20.00	22.86
I believe insomnia is essentially the result of a chemical imbalance.	Strongly Disagree	8.57	22.86
	Disagree	17.14	**42.86***
	Neutral	51.43	**11.43****
	Agree	20.00	22.86
	Strongly Agree	2.86	0
I feel insomnia is ruining my ability to enjoy life and prevents me from doing what I want.	Strongly Disagree	40.00	31.43
	Disagree	25.71	22.86
	Neutral	17.14	25.71
	Agree	17.14	20.00
	Strongly Agree	0	0
Medication is probably the only solution to sleeplessness.	Strongly Disagree	48.57	**22.86***
	Disagree	37.14	**11.43****
	Neutral	11.43	**65.71*****
	Agree	1.86	0
	Strongly Agree	0	0
I avoid or cancel obligations (social, family) after a poor night's sleep.	Strongly Disagree	2.86	**17.14***
	Disagree	22.86	25.71
	Neutral	31.43	17.14
	Agree	25.71	22.86
	Strongly Agree	17.14	17.14

Note. * $p < .05$, ** $p <.01$, *** $p <.0001$

APPENDIX B: Sample Data Reduction Table

<table>
<tr><th colspan="5">Research Question: <i>What are BIPoC experiences and perspectives of sleep, and specific areas of improvement to increase BIPoC groups' utilization of behavioral sleep services?</i></th></tr>
<tr><th>Question</th><th>Transcript #</th><th>Response</th><th>Notes</th><th>Keywords Identifiers Theme</th></tr>
<tr><td>11 [<i>how was it logging onto zoom today? How do you feel about telehealth options like Zoom?</i>]</td><td>10</td><td><i>I feel like [being on Zoom] would be a lot easier than if I were to have to drive somewhere and then do it in person and then drive back like 100%. It's a lot more feasible and it, I, to say it's easier technically.</i></td><td>Response speaking to accessibility, telehealth feels easier to access.</td><td>Access</td></tr>
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Note: This is an example of what the phase 1 reduction table looked like, as well as subsequent reduction tables, with data being moved, taken out, recategorized, etc.

VITA

Jasmine RaNeisha Berry was born in Centreville, Illinois, on November 28, 1993 to Dr. June E. Berry. She graduated from McKinley Classical Leadership Academy in 2012. Jasmine then studied psychology at the University of Chicago in Chicago, Illinois, and graduated with General Honors in Psychology in June, 2016. Jasmine earned her Master of Arts degree in clinical psychology in December 2018, from the University of Missouri – Columbia. Subsequently, she began work on her Doctor of Philosophy degree at the University of Missouri. She completed her predoctoral internship in Health Service Psychology at Emory University school of Medicine in June 2022. She will continue her career in child clinical psychology practice and research at Mayo Clinic in Rochester, MN as a post-doctoral fellow.