



Examining the Relationship between Discrimination and Prescription Drug Misuse: Findings from a National Survey of Black Americans

Harvey L. Nicholson Jr., Paris B. Wheeler, Nicholas C. Smith & Oluwatobi A. Alawode

To cite this article: Harvey L. Nicholson Jr., Paris B. Wheeler, Nicholas C. Smith & Oluwatobi A. Alawode (2022) Examining the Relationship between Discrimination and Prescription Drug Misuse: Findings from a National Survey of Black Americans, Substance Use & Misuse, 57:7, 1014-1021, DOI: [10.1080/10826084.2022.2052096](https://doi.org/10.1080/10826084.2022.2052096)

To link to this article: <https://doi.org/10.1080/10826084.2022.2052096>



Published online: 08 Apr 2022.



Submit your article to this journal [↗](#)



Article views: 83



View related articles [↗](#)



View Crossmark data [↗](#)

ORIGINAL ARTICLE



Examining the Relationship between Discrimination and Prescription Drug Misuse: Findings from a National Survey of Black Americans

Harvey L. Nicholson Jr.^a, Paris B. Wheeler^b, Nicholas C. Smith^c and Oluwatobi A. Alawode^a

^aDepartment of Sociology and Criminology & Law, University of Florida, Gainesville, Florida, USA; ^bDepartment of Educational, School, and Counseling Psychology, University of Kentucky, Lexington, Kentucky, USA; ^cDepartment of Sociology, Indiana University, Bloomington, Indiana, USA

ABSTRACT

Background: Research shows that substance use may be a way individuals cope with psychosocial stressors. Less is known about whether discrimination contributes to prescription drug misuse. **Methods:** Using a national sample of Black Americans, we examined whether two psychosocial stressors (i.e., everyday and lifetime major discrimination) were associated with lifetime prescription drug misuse (i.e., opioids, tranquilizers, sedatives, or stimulants). **Results:** Our logistic regression models separately examining the influence of everyday and major discrimination controlling for relevant demographic, health, and other drug use variables showed that only everyday discrimination was associated with higher odds of prescription drug misuse. In the model simultaneously considering both types of discrimination, only unit increases in everyday discrimination were associated with higher odds of prescription drug misuse. **Conclusions:** Encounters with everyday discrimination may be an important psychosocial stressor linked to prescription drug misuse in Black adults and possibly other racial-ethnic minorities. Intervention strategies aiming to reduce prescription drug misuse should consider developing ways to curb the negative health-related consequences of discriminatory experiences. Strategies to combat discrimination-related prescription drug misuse and limitations of this study are discussed.

KEYWORDS

Discrimination; prescription drug misuse; substance use; stress; coping responses; Black American

Introduction

Black people in the U.S. have not been shielded from the prescription drug crisis (James & Jordan, 2018). In 2019, 1.4 million Black people reported past-year misuse of a psychotherapeutic drug (e.g., opioids, sedatives); of that total, 1.1 million reported misusing a prescription opioid (Center for Behavioral Health Statistics and Quality, 2020). This is consistent with the overall trend in the prescription drug crisis, which has largely been driven by prescription opioids (Ford, 2020). Prescription drug misuse (PDM) has produced numerous health-related consequences for the U.S. Black population, including increases in hospitalizations, substance use disorders, and overdose deaths (Center for Behavioral Health Statistics and Quality, 2013; Drake et al., 2020). For example, from 2014 to 2017, overdose deaths involving prescription opioids increased by 140% among Black people (Substance Abuse and Mental Health Services Administration, 2020). Moreover, in 2017 alone, there were a total of 1,508 overdose deaths involving prescription opioids within the U.S. Black population (Substance Abuse and Mental Health Services Administration, 2020).

In response to these trends, researchers have attempted to identify social determinants and psychosocial stressors associated with PDM among Black people. Findings from

recent studies indicate that several factors such as socioeconomic status, neighborhood drug exposure, gender, arrest history, employment status, and urban-rural status are associated with PDM among Black people (Ford & Rigg, 2015; Harrell & Broman, 2009; Nicholson & Ford, 2018; Nicholson & Vincent, 2019; Nicholson & Wheeler, 2021; Rigg & Nicholson, 2019; Wheeler et al., 2019). Notably, however, very few studies have examined associations between perceived discrimination – that is, perceptions of prejudicial or unfair treatment because of one's status characteristic(s) (e.g., race, gender) or membership in a social group (Hausmann et al., 2011; Thoits, 2010) – and PDM. The existing literature, which has used community-based samples of LGB adolescents (Barnaby, 2018), Native American children (Garrett et al., 2017), a multiracial sample of Chicago residents (Hunte & Finlayson, 2013) and Black medical patients (Swift et al., 2019), shows that exposure to discrimination is associated with increased odds of PDM. The overall lack of research on discrimination's role on PDM constitutes a major gap in our understanding of critical social determinants of PDM among the non-Hispanic Black population. Further study is needed, as Black people report the highest levels of discrimination across all racial-ethnic groups in the U.S. (Bleich et al., 2019; Gong et al., 2017) and as subjective experiences of discrimination have been

linked to a host of physical, mental, and behavioral health outcomes (Lewis et al., 2015; Pascoe & Smart Richman, 2009). To address this gap, this study draws on stress-coping models and investigates associations between perceptions of discrimination and PDM among a nationally representative sample of Black people in the U.S.

Stress, Discrimination, and Substance Use among Black Americans

The stress process model is a useful conceptual framework for understanding the processes through which stress exposure influences health outcomes (Pearlin & Bierman, 2013). The model posits that individuals' social characteristics and locations (e.g., race, socioeconomic position) shape exposure and response to stressful life events (McLeod, 2012; Pearlin & Bierman, 2013). In the stress process framework, discrimination is conceptualized as a psychosocial stressor that takes two general forms: (1) repeated, micro-instances of harassment or unfair treatment – referred to as *everyday discrimination*; and (2) major events, such as being refused a loan or fired from a job – referred to as *major lifetime discrimination* (Lewis et al., 2015; Pascoe & Smart Richman, 2009). Encounters with everyday and major lifetime discrimination events pose a “social threat,” activating an individual's stress response system and increasing “wear and tear” on the body (Goosby et al., 2018; Pascoe & Smart Richman, 2009). The physical and mental toll exacted by subjective experiences of discrimination may lead individuals to engage in negative health behaviors (e.g., substance use) as a coping mechanism (Hunte & Barry, 2012). According to the self-medication hypothesis, individuals may attempt to alleviate stressors through various behavioral strategies, including substance use, under times of emotional stress resulting from psychosocial stressors (Turner et al., 2018).

Some empirical evidence suggests that subjective experiences of discrimination are associated with PDM among the Black population in the U.S. For example, Clark and colleagues (2015) find that Black/African Americans and Afro-Caribbeans who perceive high levels of general and chronic discrimination have higher odds of meeting DSM-IV criteria for substance use disorders (i.e., alcohol and illicit drug abuse/dependence) compared to Black/African Americans and Afro-Caribbeans who perceive low levels of discrimination. Moreover, Borrell et al. (2007) find more frequent perceptions of racial discrimination to be associated with higher odds of cocaine and marijuana use among Black/African Americans. Previous studies using community-based samples demonstrate similar consequences of discrimination on PDM among Black adults. For example, using data from the 2001 Chicago Community Adult Health Study, Hunte and Finlayson (2013) find that higher levels of lifetime major discrimination were associated with increased odds of PDM. Using data from the Coronary Artery Risk Development in Young Adults, Swift et al. (2019) show that perceived racial discrimination in medical settings was associated with PDM among Black participants. Although there are few existing studies

examining PDM among Black people in the U.S., these studies provide suggestive evidence that there is a link between perceptions of everyday and major lifetime discrimination and PDM among Black people; however, we are unaware of any studies that have explicitly examined the relationship between perceived discrimination and PDM among the U.S. Black population more broadly.

Rationale and study aims

To date, there remains very limited research exploring associations between perceived discrimination and PDM, specifically among Black people. This lack of research is concerning and surprising given the high prevalence of discriminatory events reported by Black people and substantial empirical evidence linking perceptions of discrimination to other forms of substance use (e.g., marijuana, alcohol) among the U.S. Black population (Clark, 2014; Clark et al., 2015; Parker et al., 2017; Tran et al., 2010). To fill this gap in the literature, we examine independent and simultaneous associations between everyday and major lifetime discrimination and PDM among non-Hispanic Black people in the U.S. We hypothesize that more frequent perceptions of everyday and major lifetime discrimination will be associated with higher odds of lifetime PDM. Findings of this study will help inform intervention strategies to combat PDM within this demographic group. We aim to disentangle effects of everyday and major discrimination for several reasons. First, encounters with major lifetime discrimination events constrain an individual's ability to improve his or her socioeconomic position, which has been identified as a fundamental cause of health inequalities (Link & Phelan, 1995). Second, everyday discrimination events are known to greatly influence health outcomes, given their daily nature and ability to “get under the skin” (Lewis et al., 2015). Third, prior research demonstrates that everyday and major lifetime discrimination have differential associations with health, depending on whether their effects are assessed independently or concurrently (Nicholson, 2020; Parker et al., 2017). Given the dearth of research specifically examining the influence of perceived discrimination on PDM among Black people, the current study makes a unique contribution to the literature by identifying whether discrimination, a common theme in the lived experiences of Black people, influences PDM.

Data and methods

We use data from the National Survey of American Life (NSAL), a national household probability sample of African Americans and Afro-Caribbeans in the U.S. The NSAL is one part of the Collaborative Psychiatric Epidemiology Study (CPES), which includes two additional nationally representative surveys. The NSAL contains data on Black/African Americans ($n = 3,750$), Afro-Caribbeans, ($n = 1,438$), Spanish-speaking individuals ($n = 183$), and non-Hispanic White people ($n = 891$) aged 18 and older. The African

American and Afro-Caribbean sample was the focus of the current analysis. Data in the NSAL were collected using a face-to-face interviewing process between February 2001 and March 2003 with an overall response rate of 72.3%. In the current study, we conducted a subpopulation analysis of Black/African Americans and Afro Caribbean non-Hispanic Black adults. After using listwise deletion on missing values for the study variables (Allison, 2014; Erving et al., 2021), the overwhelmingly majority (85 percent) of the non-Hispanic Black sample was retained ($n=4,276$), consisting of 3,063 African Americans and 1,213 Afro Caribbeans. Additional information concerning the sampling design of the NSAL can be found elsewhere (Heeringa et al., 2004).

Prescription drug misuse. Lifetime prescription drug misuse was the dependent variable in our analysis. The following survey question was used to gauge lifetime misuse: “Have you ever used tranquilizers, stimulants, pain killers, or other prescription drugs either without the recommendation of a health professional, or for any reason other than a health professional said you should use them?” Responses were coded as 1=yes and 0=no.

Perceived discrimination. Everyday and major lifetime experiences of discrimination were used in this analysis (Williams, 1997). Everyday discrimination was measured using Williams et al.’s (1997) 10-item Everyday Discrimination Scale. Major lifetime discrimination was assessed using Williams et al.’s (1997) nine-item Major Discrimination Scale. The Everyday Discrimination Scale asks respondents to indicate how often they have experienced various discrimination events (0 – never to 5 – almost every day). Example scale items include, “being treated with less respect than others,” “people act like they are better than you,” and “being followed in stores more than others.” The Everyday Discrimination Scale ranged from 0 to 50 (Cronbach’s $\alpha = 0.88$). The Major Discrimination Scale assesses whether respondents have ever encountered unfair treatment in various life domains (e.g., housing, employment). Example scale items include, “being treated unfairly or abused by the police,” “being unfairly fired,” and “being denied a promotion.” The Major Discrimination Scale ranged from 0 to 9 (Cronbach’s $\alpha = 0.55$). For both scales, higher scores indicate more frequent perceptions of discrimination. Previous research examining associations between everyday and major discrimination and substance use and other health-related outcomes using the NSAL utilized similar survey items and had comparable degrees of internal consistency (Erving, 2021; Parker et al., 2017).

All regression models controlled for age (in years), gender, income (1=below \$30,442; 0=above \$30,442), nativity status (1=foreign born; 0=U.S. born), ethnicity (1=Afro Caribbean; 0=African American), educational attainment (1=some college or more; 0=HS graduate or less), lifetime endorsement of DSM-IV major depressive episode (1=yes; 0=no), health insurance status (1=yes; 0=no), lifetime marijuana use (1=yes; 0=no), arrest history (1=yes; 0=no), church attendance after 18 years of age (1=yes; 0=no), overall physical health status (1=fair or poor; 0=good, very good, and excellent), and marital status (1=married; 0=not

married). Previous studies have identified such variables as predictors of substance use and identified these variables as confounders of substance use among Black adults (Broman et al., 2008; Nicholson & Ford, 2018; Nicholson & Vincent, 2019; Parker et al., 2017).

Analytical approach

First, we ran descriptive statistics on the full sample. Using a similar strategy seen in other research (Parker et al., 2017), we conducted three separate logistic regression models to assess the independent and simultaneous effects of everyday and major discrimination on PDM. Model 1 examined the independent effect of major discrimination; Model 2 examined the independent effect of everyday discrimination; and Model 3 examined the influence of everyday and major discrimination. All analyses were weighted using the SVY commands in STATA (Heeringa et al., 2017).

Results

Weighted descriptive results showed a mean score of 1.42 on the major discrimination scale and a 12.47 mean score on the everyday discrimination scale. Additional information about the sample can be found in Table 1. Table 2 displays results from logistic regression models examining the relationships between everyday and major discrimination and lifetime PDM, adjusting for demographic, health, and substance use variables. Model 1 shows that higher levels of major discrimination are not associated with higher odds of lifetime PDM. Model 2 finds that higher levels of encounters with everyday discrimination are associated with higher odds of lifetime PDM (OR = 1.02, 95% CI [1.00–1.04]). Model 3 examined both everyday and major discrimination within the same model. Only higher levels of experiences of everyday discrimination are associated with higher odds of lifetime PDM (OR = 1.02, 95% CI [1.00–1.04]). Several control variables predicted PDM, including lifetime major depressive episodes (OR = 1.72, 95% CI [1.11–2.68]), lifetime marijuana use (OR = 6.97, 95% CI [3.93–12.35]), being employed (OR = 1.80, 95% CI [1.09–2.97], and arrest history (OR = 1.75, 95% CI [1.20–2.55]).

Discussion

In this study, we examined independent and concurrent associations between everyday and major lifetime discrimination and lifetime PDM among a national probability sample of U.S. Black adults. Before this study, there was a surprising lack of research exploring the relationship between perceived discrimination and PDM among Black adults. This has remained true despite Black people reporting disturbingly high levels of discrimination and even though they have not been shielded from the prescription drug crisis. Our findings showed that perceptions of everyday discrimination were associated with increased odds of lifetime PDM. Greater levels of major discrimination, however, were not linked with higher

Table 1. Weighted descriptive statistics ($n=4276$ non-Hispanic Black Adults in the U.S.).

Lifetime Prescription Drug Misuse (yes)	6.0%
Everyday discrimination	12.47 (0.30)
Lifetime major discrimination	1.42 (.04)
Age	41.71 (.52)
Ethnicity (Afro-Caribbean)	5.9%
Gender (female)	56.0%
Education level (1–4)	2.3(.04)
Health insurance (yes)	81.0%
Employment status (employed)	68.5%
Income (below \$30,442)	54.0%
Nativity status (foreign-born)	6.2%
Lifetime DSM-IV Major Depressive Episode (yes)	11.7%
Marital status (married)	43.0%
Self-rated physical health (fair/poor)	19.2%
Church attendance since age 18 (yes)	91.8%
Lifetime marijuana use (yes)	45.8%
Lifetime Arrest history (yes)	34.3%

Note. Standard errors in parentheses.

Table 2. Associations between discrimination and prescription drug misuse ($n=4276$ non-Hispanic Black Adults in the U.S.).

	Model 1	Model 2	Model 3
Lifetime major discrimination	1.03(0.93–1.15)	–	0.99(0.87–1.11)
Everyday discrimination	–	1.02(1.00–1.04)*	1.02(1.00–1.04)*
Age	1.01(1.00–1.03)	1.01(1.00–1.03)	1.01(1.00–1.03)
Afro-Caribbean	1.42(0.66–3.03)	1.39(0.64–3.04)	1.39(0.64–3.03)
Female	1.13(0.71–1.78)	1.17(0.74–1.85)	1.16(0.73–1.85)
Education level (1–4)	1.02(0.79–1.31)	1.03(0.79–1.32)	1.03(0.89–1.33)
Health insurance (yes)	0.94(0.60–1.47)	0.96(0.61–1.52)	0.96(0.61–1.51)
Employment status (employed)	1.80(1.09–2.99)*	1.80(1.09–2.96)*	1.80(1.09–2.97)*
Income below \$30,442	1.06(0.67–1.69)	1.07(0.67–1.71)	1.07(0.67–1.70)
Foreign-born	0.74(0.25–2.18)	0.74(0.24–2.22)	0.74(0.25–2.23)
Lifetime major depressive episode (yes)	1.79(1.16–2.77)**	1.72(1.11–2.65)*	1.72(1.11–2.68)*
Married (yes)	0.98(0.61–1.57)	1.00(0.62–1.59)	1.00(0.63–1.60)
Fair/poor self-rated physical health	1.14(0.68–1.91)	1.12(0.67–1.88)	1.13(0.67–1.89)
Church attendance since age 18 (yes)	1.55(0.67–3.57)	1.51(0.66–3.49)	1.52(0.66–3.49)
Lifetime marijuana use (yes)	6.98(3.95–12.35)***	6.93(3.89–12.36)***	6.97(3.93–12.35)***
Arrest history (yes)	1.78(1.22–2.60)**	1.74(1.20–2.52)**	1.75(1.20–2.55)**

Model 1 examines the relationship between major discrimination and prescription drug misuse, with controls.

Model 2 examines the relationship between everyday discrimination and prescription drug misuse, with controls.

Model 3 examines the concurrent relationship between major and everyday discrimination and prescription drug misuse, with controls.

Odds ratios and 95% confidence intervals reported.

* $p < 0.05$ for the null hypothesis that the odds ratio is one.

** $p < 0.01$ for the null hypothesis that the odds ratio is one.

*** $p < 0.001$ for the null hypothesis that the odds ratio is one.

odds of lifetime PDM. In the model examining both types of discrimination, everyday discrimination emerged as the most salient discriminatory experience in Black adult's PDM. This differs from previous research showing that both everyday and major discrimination are related to increased risk of drug use in Black adults (Hunte & Barry, 2012; Sartor et al., 2020) and that only major discrimination is related to a higher risk of marijuana use (Parker et al., 2017). It also differs from previous research examining the relationship between discrimination and PDM among a multiracial sample of Chicago residents, which found that only major discrimination was associated with PDM (Hunte & Finlayson, 2013). We believe our findings may differ from past research on the role of discrimination on PDM among adults for several reasons. First, previous studies have not focused specifically on a national sample of Black adults aged 18 and older as was done in the present study. To date, the existing research has primarily used community-based samples of Black and non-Black individuals. Second, although our measure of

lifetime major discrimination has been used in previous studies using the NSAL (Parker et al., 2017), our null results concerning this measure on PDM may possibly be driven by the slightly lower internal consistency for the Major Discrimination Scale in our sample of Black adults. However, our findings may be indicative of the fact that everyday exposure to discrimination may be more stressful than lifetime exposure to major discrimination given its more chronic nature, resulting in a greater vulnerability to PDM for the U.S. Black population more broadly. As this is the first study to examine how exposure to both everyday and major discrimination impacts PDM among a national sample of Black adults aged 18 and older, we believe our findings are rather novel and important.

Black people report disturbingly high levels of discrimination in everyday social interactions, ranging from experiences such as being perceived as unintelligent, being treated with less respect or courtesy compared to others to being called racial slurs (Bleich et al., 2019). The accumulation of

these types of blatant forms of disrespect on a daily basis triggers a constant stress response, leading to mental distress and a desire to relieve such symptoms (Pascoe & Smart Richman, 2009). Because of their oppressed and stigmatized status, it is highly difficult for Black people to fully escape these experiences, and, as a result, they must employ coping strategies in order to continue to move throughout their lives. Due to the stress response activated by everyday discrimination, PDM appears to be an avenue through which they temporarily cope and reduce negative emotions; although, additional research is needed to explore this possibility or other motives for PDM under times of distress.

Our findings not only offer insight into the adverse effects of everyday discrimination on PDM in Black adults, they also disclose important information to inform intervention efforts to combat PDM in this population. For example, health care providers and mental health clinicians could screen Black adult patients for perceived discrimination related distress and offer appropriate interventions to reduce the risk to use prescription drugs as a coping mechanism. Experiences of everyday discrimination can also lead to a heightened state of vigilance and chronic stress (American Psychological Association, 2019), highlighting the importance of coping mechanisms. Clinicians who serve Black clients that report PDM and experiences of discrimination can intervene through teaching alternative coping strategies to deal with discrimination as part of substance use treatment. Screening measures such as the Everyday Discrimination Scale (Williams, 1997) can serve as a clinical tool to facilitate discussion on client's perceptions of racial discrimination and the extent to which these stressors impact substance use. Clinicians can also encourage clients to employ the use of coping strategies specific to racial discrimination as a part of substance use treatment. For example, clinicians can teach mindfulness and deep breathing techniques to help clients relieve emotional distress when discriminatory events happen and to prevent rumination, which can exacerbate the effect of race related stress (American Psychological Association, 2019). Clinicians can also encourage radical healing, or engaging in cultural practices that promote resilience, pride, and wellbeing as a way to heal from racial trauma (Neville et al., 2019). Radical healing practices could include storytelling, advocacy work, and self-care (Neville et al., 2019). In addition, everyday discrimination often occurs in the form of microaggressions, which can be subtle slights that invalidates one's lived experience (American Psychological Association, 2019; Sue et al., 2007). For instances where clients feel safe to address microaggressions, clinicians can practice with clients the use of microinterventions, as bringing the microaggression to the perpetrator's awareness, disarming harmful statements through deflection or disagreement, and seeking support from others (Sue et al., 2019). While these individual level approaches do not tackle the overarching racist systems and institutions that create discrimination, they can help bolster individuals' ability to cope with racism.

Importantly, the most critical way to address discrimination is with the perpetrators – that is, individuals and institutions that enact discriminatory practices. One

particularly relevant institution is healthcare. Prescription drugs originate from medical sources and experiencing discrimination in medical settings is associated with misuse of prescription drugs among Black people (Swift et al., 2019). Racial discrimination in medical settings is common (Benjamins & Middleton, 2019), and often results in misdiagnosis and improper treatment, such as under or over-prescribing (Grady & Edgar, 2003). Medical professionals often hold stereotypical beliefs about Black people's health needs, such as that Black people are more likely to be drug-seeking and have a higher pain tolerance (Hoffman et al., 2016; Moskowitz et al., 2012). As a result, Black people are also less likely to be prescribed pain medication or treated for pain across various settings (Meghani et al., 2012), which may lead them to seek prescription drugs outside of medical settings to manage symptoms (McCabe et al., 2017). Further, perceiving discrimination in medical settings can result in medical mistrust (Bazargan et al., 2021) and is associated with poor medication adherence or forgoing medical care altogether (Alcalá & Cook, 2018). Therefore, discrimination in healthcare settings creates an unmet health need among Black patients, which can increase the likelihood of self-medication of both mental and physical health symptoms via PDM.

Several institutional changes should be made to reduce discrimination against Black people in healthcare settings, including improved data monitoring for quality of care across races, revising so-called “neutral” policies regarding who receives care that are more likely to impact racial minorities (Williams & Rucker, 2000; Noah, 1998), and increasing the diversity of healthcare professionals (Williams & Cooper, 2019). Psychosocial interventions targeting implicit and explicit biases of healthcare professionals can also help improve the health needs of Black Americans (Williams & Cooper, 2019). For example, Burgess and colleagues (2007) propose a conceptual framework for reducing racial bias among healthcare professionals in which we encourage internal motivation to reduce bias, enhance understanding of racial bias and confidence to interact with patients from different backgrounds than themselves, increase emotion regulation and empathy, and ability to work collaboratively with patients (Burgess et al., 2007). Further research is needed to determine the extent to which these approaches create lasting impacts on implicit bias among healthcare providers.

Although not central to our analysis, we also found that several other variables such as lifetime major depressive episode, marijuana use, employment status, and arrest history were associated with PDM. These findings are quite similar to the results in previous studies (Ford & Wright, 2017; Nicholson & Vincent, 2019) and are worth mentioning for several reasons. First, consistent with the stress process framework, it is possible that PDM serves as a coping mechanism for those with arrest history who may struggle to obtain housing or employment as a consequence of involvement in the criminal justice system. Due to the overrepresentation of Black people in the criminal justice system, sentencing alternatives for arrestees such as drug treatment and other diversion programs should be prioritized. Further, policy changes

to reduce disproportionate police targeting of Black populations may help decrease the burden of arrest history on Black communities. Based on the current findings, such changes may be helpful in reducing risk of PDM among adults. This is especially important given the high prevalence of PDM among Black adults with a history of incarceration (Wheeler et al., 2018). Future research should continue to investigate other possible risk and protective factors for PDM among Black adults involved with the criminal justice system, including community-level factors and peer influences.

Secondly, results showed major depressive disorder is associated with increased likelihood of PDM. There are important clinical implications of this finding given the high prevalence of major depressive disorder among Black adults (Breslau et al., 2005; Flores et al., 2021) and a strong association between mental health and PDM in general populations (Fordet et al., 2014). It is possible that participants in the current sample may engage in PDM to self-medicate depressive symptoms. Clinicians providing substance use treatment for PDM among Black populations must be aware of possible psychiatric comorbidities and attend to depressive symptoms as part of treatment.

Marijuana use was also associated with a significantly increased likelihood of PDM, consistent with previous research (Nicholson & Vincent, 2019), and providing further support that PDM commonly co-occurs with other forms of illicit drug use among Black adults. However, current employment was positively associated with PDM, contrary to previous research (Perlmutter et al., 2017). Given that employment is traditionally considered a protective factor against substance use, future studies should investigate possible reasons for PDM among Black adults who are employed, such as workplace discrimination or burnout. Importantly, everyday discrimination retained statistical significance with the inclusion of employment status, lifetime marijuana use, lifetime major depressive episode, and arrest history. These findings indicate the salience of everyday discrimination in the lived experience of Black people living in the U.S. and highlights its impact on PDM.

While our findings address an important gap and help inform intervention among health providers, there are several limitations of this study. First, the data used for this study are over a decade old. Second, because longitudinal data were not available for the purpose of this type of research, the relationships uncovered in this research cannot be seen as causally related. Third, we used a measure of lifetime PDM, which may suffer from recall and social desirability biases. Indeed, a more recent measure of PDM (i.e., past-year) may reveal different associations other than the ones identified in this study; however, the NSAL does not include measures of past-year or past-month PDM. Because of our use of a lifetime measure of PDM, PDM reported in this study may possibly be underreported. Fourth, due to data limitations, we were unable to account for other structural forms of discrimination known to influence health-related outcomes (e.g., residential segregation, proximity to alcohol outlets). Fifth, it is necessary to rely on self-report measures of discrimination because it is not possible to verify the pervasive instances of discrimination Black

people experience using objective reports. Therefore, it is important to consider how social and recall biases in reporting these experiences may also influence our findings. Finally, the Major Discrimination Scale suffered from slightly reduced internal consistency, which may have affected the findings presented in this research. Despite these limitations, this study reveals that perceptions of everyday discrimination may influence PDM in Black adults. This study also indicates future research directions to explore factors that may buffer the negative effects of everyday discrimination (e.g., self-esteem, social support) on PDM as well as how PDM among Black men vs. Black women are differentially affected by experiences of discrimination.

Funding

Paris B. Wheeler was supported by the National Institute Drug Abuse (T32-DA035200; PI: Rush).

References

- Alcalá, H. E., & Cook, D. M. (2018). Racial discrimination in health care and utilization of health care: A cross-sectional study of California adults. *Journal of General Internal Medicine*, 33(10), 1760–1767. <https://doi.org/10.1007/s11606-018-4614-4>
- Allison, P. (2014). *Listwise deletion: It's NOT evil*. Statistical Horizons; Retrieved December 14, 2021, from <https://statisticalhorizons.com/listwise-deletion-its-not-evil>
- American Psychological Association. (2019, October 31). *Discrimination: What it is, and how to cope*. <http://www.apa.org/topics/racism-bias-discrimination/types-stress>
- Barnaby, C. (2018). *Discrimination, prescription drug misuse and heroin use in adolescent LGB populations* [Doctoral dissertation]. Harvard University.
- Bazargan, M., Cobb, S., & Assari, S. (2021). Discrimination and medical mistrust in a racially and ethnically diverse sample of California adults. *The Annals of Family Medicine*, 19(1), 4–15. <https://doi.org/10.1370/afm.2632>
- Benjamins, M. R., & Middleton, M. (2019). Perceived discrimination in medical settings and perceived quality of care: A population-based study in Chicago. *Plos One*, 14(4), e0215976. <https://doi.org/10.1371/journal.pone.0215976>
- Bleich, S. N., Findling, M. G., Casey, L. S., Blendon, R. J., Benson, J. M., SteelFisher, G. K., Sayde, J. M., & Miller, C. (2019). Discrimination in the United States: Experiences of black Americans. *Health Services Research*, 54(S2), 1399–1408. <https://doi.org/10.1111/1475-6773.13220>
- Borrell, L. N., Jacobs, D. R., Jr., Williams, D. R., Pletcher, M. J., Houston, T. K., & Kiefe, C. I. (2007). Self-reported racial discrimination and substance use in the coronary artery risk development in adults study. *American Journal of Epidemiology*, 166(9), 1068–1079. <https://doi.org/10.1093/aje/kwm180>
- Breslau, J., Kendler, K. S., Su, M., Gaxiola-Aguilar, S., & Kessler, R. C. (2005). Lifetime risk and persistence of psychiatric disorders across ethnic groups in the United States. *Psychological Medicine*, 35(3), 317–327. <https://doi.org/10.1017/s0033291704003514>
- Broman, C. L., Neighbors, H. W., Delva, J., Torres, M., & Jackson, J. S. (2008). Prevalence of substance use disorders among African Americans and Caribbean Blacks in the National Survey of American Life. *American Journal of Public Health*, 98(6), 1107–1114. <https://doi.org/10.2105/AJPH.2006.100727>
- Burgess, D., Van Ryn, M., Dovidio, J., & Saha, S. (2007). Reducing racial bias among health care providers: lessons from social-cognitive psychology. *Journal of General Internal Medicine*, 22(6), 882–887.
- Center for Behavioral Health Statistics and Quality. (2020). *Key substance use and mental health indicators in the United States. Results from the 2019 National Survey on Drug Use and Health*.

- Center for Behavioral Health Statistics and Quality. (2013). *The DAWN Report: Highlights of the 2011 Drug Abuse Warning Network (DAWN) findings on drug-related emergency department visits*. Substance Abuse and Mental Health Services Administration, Rockville, MD. <https://www.samhsa.gov/data/.../DAWN127/DAWN127/sr127-DAWN-highlights.pdf>
- Clark, T. T. (2014). Perceived discrimination, depressive symptoms, and substance use in young adulthood. *Addictive Behaviors*, 39(6), 1021–1025. <https://doi.org/10.1016/j.addbeh.2014.01.013>
- Clark, T. T., Salas-Wright, C. P., Vaughn, M. G., & Whitfield, K. E. (2015). Everyday discrimination and mood and substance use disorders: A latent profile analysis with African Americans and Caribbean Blacks. *Addictive Behaviors*, 40, 119–125. <https://doi.org/10.1016/j.addbeh.2014.08.006>
- Drake, J., Charles, C., Bourgeois, J. W., Daniel, E. S., & Kwen-de, M. (2020). Exploring the impact of the opioid epidemic in Black and Hispanic communities in the United States. *Drug Science Policy and Law*, 6, 2050324520940428.
- Erving, C. L. (2021). The effect of stress exposure on depressive symptoms and major depressive episode among US Afro-Caribbean women. *Social Psychiatry and Psychiatric Epidemiology*, 56(12), 2227–2232. <https://doi.org/10.1007/s00127-021-02096-8>
- Erving, C. L., Satcher, L. A., & Chen, Y. (2021). Psychologically resilient, but physically vulnerable? Exploring the psychosocial determinants of African American women's mental and physical health. *Sociology of Race and Ethnicity*, 7(1), 116–133. <https://doi.org/10.1177/2332649219900284>
- Flores, M. W., Moyer, M., Rodgers, C. R. R., & Cook, B. L. (2021). Major depressive episode severity among adults from marginalized racial and ethnic backgrounds in the US. *JAMA Psychiatry*, 78(11), 1279. <https://doi.org/10.1001/jamapsychiatry.2021.2485>
- Ford, J. A., Reckdenwald, A., & Marquardt, B. (2014). Prescription drug misuse and gender. *Substance use & misuse*, 49(7), 842–851.
- Ford, J. A. (2020). 13 The prescription drug crisis. *Deviance today* (ch. 13).
- Ford, J. A., & Rigg, K. K. (2015). Racial/ethnic differences in factors that place adolescents at risk for prescription opioid misuse. *Prevention Science: The Official Journal of the Society for Prevention Research*, 16(5), 633–641.
- Ford, J., & Wright, L. (2017). Prescription drug misuse and arrest history. *Substance Use & Misuse*, 52(13), 1772–1777. <https://doi.org/10.1080/10826084.2017.1311348>
- Garrett, B. A., Livingston, B. J., Livingston, M. D., & Komro, K. A. (2017). The effects of perceived discrimination racial/ethnic discrimination on substance use among youths living in the Cherokee Nation. *Journal of Child & Adolescent Substance Abuse*, 26(3), 242–249. <https://doi.org/10.1080/1067828X.2017.1299656>
- Gong, F., Xu, J., & Takeuchi, D. T. (2017). Racial and ethnic differences in perceptions of everyday discrimination. *Sociology of Race and Ethnicity*, 3(4), 506–521. <https://doi.org/10.1177/2332649216681587>
- Goosby, B. J., Cheadle, J. E., & Colter, M. (2018). Stress-related bio-social mechanisms of discrimination and African American health inequities. *Annual Review of Sociology*, 44(1), 319–340. <https://doi.org/10.1146/annurev-soc-060116-053403>
- Grady, M., & Edgar, T. (2003). Appendix D: Racial disparities in health care: Highlights from focus group findings. In B. D. Smedley, A. Y. Stith, & A. R. Nelson (Eds.), *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care* (Appendix D). Institute of Medicine (US) Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care. National Academies Press (US). <https://www.ncbi.nlm.nih.gov/books/NBK220347/>
- Harrell, Z. A., & Broman, C. L. (2009). Racial/ethnic differences in correlates of prescription drug misuse among young adults. *Drug and Alcohol Dependence*, 104(3), 268–271.
- Hausmann, L. R. M., Hannon, M. J., Kresevic, D. M., Hanusa, B. H., Kwok, C. K., & Ibrahim, S. A. (2011). Impact of perceived discrimination in healthcare on patient-provider communication. *Medical Care*, 49(7), 626–633. <https://doi.org/10.1097/MLR.0b013e318215d93c>
- Heeringa, S. G., Wagner, J., Torres, M., Duan, N., Adams, T., & Berglund, P. (2004). Sample designs and sampling methods for the Collaborative Psychiatric Epidemiology Studies (CPES). *International Journal of Methods in Psychiatric Research*, 13(4), 221–240.
- Heeringa, S. G., West, B. T., & Berglund, P. A. (2017). *Applied survey data analysis* (2nd ed.). CRC Press.
- Hoffman, K. M., Trawalter, S., Axt, J. R., & Oliver, M. N. (2016). Racial bias in pain assessment and treatment recommendations, and false beliefs about biological differences between blacks and whites. *Proceedings of the National Academy of Sciences of the United States of America*, 113(16), 4296–4301. <https://doi.org/10.1073/pnas.1516047113>
- Hunte, H. E., & Barry, A. E. (2012). Perceived discrimination and DSM-IV-based alcohol and illicit drug use disorders. *American Journal of Public Health*, 102(12), e111–e117.
- Hunte, H. E., & Finlayson, T. L. (2013). The relationship between perceived discrimination and psychotherapeutic and illicit drug misuse in Chicago, IL, USA. *Journal of Urban Health*, 90(6), 1112–1129. <https://doi.org/10.1007/s11524-013-9822-y>
- James, K., & Jordan, A. (2018). The opioid crisis in black communities. *The Journal of Law, Medicine & Ethics: A Journal of the American Society of Law, Medicine & Ethics*, 46(2), 404–421. <https://doi.org/10.1177/1073110518782949>
- Lewis, T. T., Cogburn, C. D., & Williams, D. R. (2015). Self-reported experiences of discrimination and health: scientific Advances, ongoing controversies, and emerging issues. *Annual Review of Clinical Psychology*, 11, 407–440.
- Link, B. G., & Phelan, J. (1995). Social conditions as fundamental causes of disease. *Journal of health and social behavior*, 80–94.
- McCabe, S. E., West, B. T., Veliz, P., Vita, V., McCabe, V. V., Stoddard, S. A., & Boyd, C. J. (2017). Trends in medical and nonmedical use of prescription opioids among US adolescents: 1976–2015. *Pediatrics*, 139(4), e20162387. <https://doi.org/10.1542/peds.2016-2387>
- McLeod, J. D. (2012). The meanings of stress: expanding the stress process model. *Society and Mental Health*, 2(3), 172–186. <https://doi.org/10.1177/2156869312452877>
- Meghani, S. H., Byun, E., & Gallagher, R. M. (2012). Time to take stock: a meta-analysis and systematic review of analgesic treatment disparities for pain in the United States. *Pain Medicine* (Malden, Mass.), 13(2), 150–174. <https://doi.org/10.1111/j.1526-4637.2011.01310.x>
- Moskowitz, G. B., Stone, J., & Childs, A. (2012). Implicit stereotyping and medical decisions: unconscious stereotype activation in practitioners' thoughts about African Americans. *American Journal of Public Health*, 102(5), 996–1001. <https://doi.org/10.2105/AJPH.2011.300591>
- Neville, H. A., Adames, H. Y., Chavez-Dueñas, N. Y., Chen, G. A., French, B. H., Lewis, J. A., & Mosley, D. V. (2019, March 5). *The psychology of radical healing: What can psychology tell us about healing from racial and ethnic trauma?* Psychology Today. <https://www.psychologytoday.com/us/blog/healing-through-social-justice/201903/the-psychology-radical-healing>
- Nicholson, H. L. (2020). Associations between major and everyday discrimination and self-rated health among US Asians and Asian Americans. *Journal of Racial and Ethnic Health Disparities*, 7(2), 262–268. <https://doi.org/10.1007/s40615-019-00654-0>
- Nicholson, H. L., & Ford, J. A. (2018). Correlates of prescription opioid misuse among Black adults: Findings from the 2015 National Survey on Drug Use and Health. *Drug and Alcohol Dependence*, 186, 264–267. <https://doi.org/10.1016/j.drugalcdep.2017.12.006>
- Nicholson, H. L., & Vincent, J. (2019). Gender differences in prescription opioid misuse among US Black adults. *Substance Use & Misuse*, 54(4), 639–650. <https://doi.org/10.1080/10826084.2018.1531427>
- Nicholson, H. L., Jr., & Wheeler, P. B. (2021). Prescription drug misuse among African Americans and Afro Caribbeans: Results from the National Survey of American Life. *Substance Use & Misuse*, 56(7), 962–970.
- Noah B. A. (1998). Racial disparities in the delivery of health care. *The San Diego law review*, 35(1), 135–178.
- Parker, L. J., Benjamin, T., Archibald, P., & Thorpe, R. J. (2017). The association between marijuana usage and discrimination among adult Black men. *American Journal of Men's Health*, 11(2), 435–442.

- Pascoe, E. A., & Smart Richman, L. (2009). Perceived discrimination and health: A meta-analytic review. *Psychological Bulletin*, 135(4), 531–554.
- Perlmutter, A. S., Conner, S. C., Savone, M., Kim, J. H., Segura, L. E., & Martins, S. S. (2017). Is employment status in adults over 25 years old associated with nonmedical prescription opioid and stimulant use? *Social Psychiatry and Psychiatric Epidemiology*, 52(3), 291–298.
- Pearlin, L. I., & Bierman, A. (2013). Current issues and future directions in research into the stress process. In *Handbook of the sociology of mental health* (pp. 325–340). Springer, Dordrecht.
- Rigg, K. K., & Nicholson, H. L. (2019). Prescription opioid misuse among African-American adults: A rural-urban comparison of prevalence and risk. *Drug and Alcohol Dependence*, 197, 191–196.
- Sartor, C. E., Woerner, J., & Haeny, A. M. (2020). The contributions of everyday and major experiences of racial discrimination to current alcohol use and regular smoking in Black adults: Considering variation by demographic characteristics and family history. *Addictive Behaviors*, 106711.
- Substance Abuse and Mental Health Services Administration. (2020). *The opioid crisis and the Black/African American population: An urgent issue*. Publication No. PEP20-05-02-001. Office of Behavioral Health Equity. Substance Abuse and Mental Health Services Administration.
- Sue, D., Capodilupo, C., Torino, G., Bucceri, J., Holder, A., Nadal, K., & Esquilin, M. (2007). Racial Microaggressions in Everyday life: Implications for clinical practice. *The American Psychologist*, 62(4), 271–286. <https://doi.org/10.1037/0003-066X.62.4.271>
- Sue, D. W., Sue, D., Neville, H. A., & Smith, L. (2019). *Counseling the culturally diverse: Theory and practice*. John Wiley & Sons.
- Swift, S. L., Glymour, M. M., Elfassy, T., Lewis, C., Kiefe, C. I., Sidney, S., Calonic, S., Feaster, D., Bailey, Z., & Hazzouri, A. Z. (2019). Racial discrimination in medical care settings and opioid pain reliever misuse in a U.S. cohort: 1992 to 2015. *Plos One*, 14(12), e0226490. <https://doi.org/10.1371/journal.pone.0226490>
- Thoits, P. A. (2010). Stress and health: Major findings and policy implications. *Journal of Health and Social Behavior*, 51(1_suppl), S41–S53. <https://doi.org/10.1177/0022146510383499>
- Tran, A. G., Lee, R. M., & Burgess, D. J. (2010). Perceived discrimination and substance use in Hispanic/Latino, African-born Black, and Southeast Asian immigrants. *Cultural Diversity & Ethnic Minority Psychology*, 16(2), 226–236.
- Turner, S., Mota, N., Bolton, J., & Sareen, J. (2018). Self-medication with alcohol or drugs for mood and anxiety disorders: A narrative review of the epidemiological literature. *Depression and Anxiety*, 35(9), 851–860. <https://doi.org/10.1002/da.22771>
- Wheeler, P., Stevens-Watkins, D., Knighton, J.-S., Mahaffey, C., & Lewis, D. (2018). Pre-incarceration rates of nonmedical use of prescription drugs among Black men from urban counties. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 95(4), 444–453.
- Wheeler, P. B., Stevens-Watkins, D., Moody, M., Dogan, J., & Lewis, D. (2019). Culturally relevant risk and protective factors for non-medical use of prescription opioids among incarcerated African American men. *Addictive Behaviors*, 93, 46–51. <https://doi.org/10.1016/j.addbeh.2019.01.014>
- Williams, D. R. (1997). Measuring discrimination resource. *Psychology*, 2(3), 335–351.
- Williams, D. R., & Rucker, T. D. (2000). Understanding and addressing racial disparities in health care. *Health care financing review*, 21(4), 75–90.
- Williams, D. R., & Cooper, L. A. (2019). Reducing racial inequities in health: using what we already know to take action. *International journal of environmental research and public health*, 16(4), 606.