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Discrimination, Mental Health, and Cigarette Smoking Among African American Adults Experiencing Homelessness

DISSERTATION

submitted in partial satisfaction of the requirements

for the degree of

DOCTOR OF PHILOSOPHY

In Nursing Science

By

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DEDICATION

To

My parents, family and friends

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ABSTRACT OF THE DISSERTATION

Discrimination Experiences, Mental Health, and Cigarette Smoking Among African American Adults Experiencing Homelessness

By

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Doctor of Philosophy in Nursing Science

University of California, Irvine, 2022

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Discrimination is the unfair or unjust treatment of an individual, especially because of their age, race, gender, or disability. Discrimination may also occur in the housing sector, and have an adverse impact on housing status among disadvantaged groups. Among homeless populations, African Americans are more likely to report at least one discriminatory experience in their lifetime compared to Whites. Discrimination experiences may also impact mental health outcomes such as depression and anxiety. Coping mechanisms to combat discrimination among people experiencing homelessness may include cigarette smoking. To our knowledge, there is a dearth of literature exploring discrimination experiences and its impact on depression, anxiety, and cigarette smoking among African American homeless adult smokers. We conducted an explanatory sequential mixed methods study to explore the association between everyday discrimination and mental health outcomes depression and anxiety, and readiness to quit cigarette smoking. Our study examined this association among African American people experiencing homelessness who smoke cigarettes. Using a subset of this sample, we continued the exploration of discrimination experiences and cigarette smoking through the use of focus group discussions.

We found discrimination experiences were positively associated with depressive symptoms (b: 0.19; 95% CI: 0.01, 0.37; p=0.02). Though these associations did not reach statistical significance, we found everyday discrimination among our sample was associated with anxiety symptoms (b: 0.05; 95% CI: 0.03, 0.14; p=0.22), and readiness to quit cigarette smoking (b: 0.02; 95% CI: -0.04, 0.08 p=0.47). We also found that depressive and anxiety symptoms mediated the association between everyday discrimination and readiness to quit cigarette smoking (depression: b: 0.02; 95% CI: 0.01, 0.07; p=0.02), (anxiety: b: 0.03; 95% CI: 0.01, 0.05; p=0.04). Additionally, we also found everyday discrimination scores were higher among those who reported race (Yes-mean: 29.89; SD: 9.09 vs. No-mean: 36.42; SD: 12.02; p=0.003) or discrimination (Yes-mean: 34.68; SD: 10.7 vs. No-mean: 31.54; SD:11.7; p=0.18) as the main reasons for experiencing homelessness. These same reasons for discrimination experiences were also reported in the qualitative focus group discussions. Also in the focus groups, we found three common themes: "*Experiencing Discrimination while Black*", "*The Social Fabric - Why Quitting is a Challenge*", and "*The Lesser of Two Evils - Choosing to Smoke over more Harmful Options."* More work on creating tools to combat discrimination among people experiencing homelessness needs to occur. Additionally, smoking cessation programs that explore reasons for both continued smoking, mental health outcomes and discrimination experiences may be of benefit to people experiencing homelessness.

Chapter One: Introduction

Discrimination is reported by African Americans (AAs) in various settings including in employment, housing, and healthcare. The types of discrimination vary and are interconnected and may create pitfalls to adequately maintain housing. AAs largely overrepresent populations experiencing homelessness (PEH) in the United States. More than two-thirds of PEH smoke cigarettes, which may increase their risk for cardiovascular disease. Some PEH may engage in cigarette smoking to cope with stress and the experience of homelessness. Others may engage in cigarette smoking to manage mental health conditions, such as depression or anxiety. It is suggested that depression is more common among PEH than the general population (Ayano et al, 2021), while literature examining anxiety among this population is limited. Discrimination experiences may also adversely impact cigarette smoking, diminishing one's desire or readiness to quit cigarette smoking. In this introduction, I will examine everyday discrimination experienced by AAs, and how discrimination may be associated with readiness to quit cigarette smoking as well as mental health outcomes depression and anxiety among AA PEH.

Everyday Discrimination's Impact on Cigarette Smoking and Coping

Everyday discrimination includes subtle, yet frequent occurrences of discrimination throughout everyday activities including receiving service from a restaurant or store or encountering others who show less courtesy or respect than would be expected (Williams, et al, 1997). Everyday discrimination among AAs has been linked to impaired sleep (Johnson et al, 2021), mental health outcomes including anxiety and depressive symptoms (Mouzon et al, 2016), and current cigarette smoking (Forde et al, 2021). Among PEH, increases in everyday discrimination has been associated with past 30-day cannabis and cigarette use, and substance use disorder (Alexander,

2022). Further, PEH have reported the main reason for discrimination is because of their race, housing status, mental health problems or alcohol/drug use (Zerger et al, 2014). Additionally, AA PEH are more likely to report at least one or more experiences of discrimination in their lifetime compared to their White counterparts (Wrighting et al, 2019). Cigarette smoking may be a coping mechanism among this population. Coping may come in more complex forms among AAs. John Henryism is a form of active coping, and is the belief that if one is to overcome obstacles, they must make great effort to strive for success (Snowden et al, 2001). It includes being exposed to stressors for prolonged periods. John Henryism, coined by Sherman James, is named after John Henry, an AA steel driver in the 1800s. When Henry's job was threatened by a mechanical steam drill, he offered to race the machine to prove he could do a better job. While Henry won the race, he died soon after from physical and mental exhaustion (James, 1994).

Cigarette Smoking Among PEH

Approximately 40% of people experiencing homelessness (PEH) identify as AA (Henry et al, 2020). Approximately 70% of PEH report smoking cigarettes, and studies have shown that AAs are less successful than their White counterparts in smoking cessation programs (Nollen et al, 2019; Stevens et al, 2016). Cigarette smoking may they thought of as a harmless coping mechanism (Chen et al, 2016); however, the increased risk of cardiovascular disease (CVD) is three-fold higher in PEH compared to housed individuals (Al-Shakarchi et al, 2020). Contributing factors to this increased mortality include fragmented care and increased traditional risk factors, including cigarette smoking, hypertension, and substance use (Baggett et al, 2018). While barriers to smoking cessation among PEH have been explored (Paul Jr. et al, 2020; Vijayaraghavan et al, 2018), readiness to quit cigarette smoking among PEH is underreported.

Readiness to quit cigarette smoking measures one's readiness to consider smoking cessation (Beiner & Abrams, 1991). Behavior changes can come with challenges; assessing whether one believes they may be ready to potentially encounter barriers to making a behavior change may be beneficial for success of smoking cessation. The literature exploring the association between discrimination experiences and readiness to quit cigarette smoking is limited.

Discrimination and Mental Health Outcomes

Severe mental health issues, such as schizophrenia, reportedly occur in 25-30% of PEH (Tsai & Rosenheck, 2012). Research also suggests depression is more common among PEH than the general population, with approximately 46.72% (95% CI 37.77% to 55.90%) experiencing depressive symptoms (Ayano et al, 2021). Depression has also been associated with cravings to smoke more cigarettes perceived stress and hopelessness among homeless cigarette smokers (Robinson, Rogers, & Okuyemi, 2016). Cigarette smoking may be a coping mechanism for managing competing stressors while experiencing homelessness. Literature surrounding the prevalence of anxiety among PEH is less robust; however, anxiety among PEH has been associated with medication non-adherence (Eshtahardi et al, 2021), past-month pain (Reuven, et al, 2021) and social isolation during COVID-19 (Riley et al, 2021). The prevalence of depressive and anxiety symptoms specifically among AA PEH is unclear. Additionally, daily discrimination has been linked to depression and anxiety among AAs (Mouzon et al, 2016; Schuermann et al, 2020); however, to our knowledge, these associations have not yet been explored among AA PEH who smoke cigarettes.

The problems faced by PEH are multifactorial and include cigarette and other substance use, mental illness, and poor physical health. Discrimination experiences may impact housing status and mental health outcomes. Cigarette smoking may also be a coping mechanism among PEH. While the literature addresses cigarette smoking and certain mental health outcomes, this association should be explored further among AAs, as they largely overrepresent PEH in the United States. More research on discrimination and its association with readiness to engage in smoking cessation should also be explored because of the increased risk of mortality among PEH compared to housed individuals. Additionally, smoking cessation may be more effective if they included interventions to address mental health, discrimination experiences and coping mechanisms.

Conceptual frameworks

This research will use several models to unpack discrimination experiences and mental health outcomes and cigarette use. In our first model we address the potential association between everyday discrimination and depression and anxiety. The Psychosocial Stress Model (Taylor & Aspinwall, 1996) suggests that personality and environmental sources each impact psychological outcomes directly or indirectly through appraisal, coping, and one's vulnerability to stress. With this model in mind, we created a model including some of these variables to address discrimination and mental health outcomes. In our model, we included stressors, personal resources and psychological outcomes. The stressor is discrimination experiences. While we agree that stressors are associated with coping, we hypothesize that among AAs personal resources include coping (John Henryism), which may influence the impact of the stressor on the individual as well as the response to the stressor. Consistent with the Psychosocial

Stress Model, we hypothesize that stressors (discrimination experiences) are associated with psychological distress (depressive and anxiety symptoms).

Our second model addresses everyday discrimination and its association with readiness to quit cigarette smoking. The Transtheoretical Model guided the development of this framework. The Transtheoretical Model suggests that there are several stages of change one enters when actively attempting to make a behavior change. In our model (Figure 2), we hypothesized that as daily experiences of discrimination increase, readiness to quit cigarette smoking will decline. We also hypothesized this association would be mediated by depression and anxiety.

Study Overview

This sequential explanatory mixed methods research includes two phases and began with a quantitative cross-sectional study. We used a survey design to measure perceived discrimination, readiness to quit cigarette smoking, depression, anxiety, John Henyism active coping, heaviness of smoking, and substance use. In phase I data were collected about these concepts via surveys. In phase II, we used a qualitative descriptive study design to conduct focus groups with participants from phase I of the study. Using a semi-structured interview guide, we conducted focus groups of up to five participants each to explore discrimination experiences, responses to those experiences and how they have impacted smoking habits, and what participants felt would need to happen for them to abstain from cigarette smoking.

Chapter Two: Discrimination Experiences and Mental Health Outcomes Among African American Homeless Smokers

Abstract

Background:

Racial and daily discrimination experiences are associated with both the physical and psychological well-being of African Americans. Little is known about the impact of perceived discrimination on mental health among AA persons experiencing homelessness (AA PEH).

Methods:

This quantitative, cross-sectional research explored perceived discrimination and depression and anxiety symptoms among a convenience sample of AA PEH residing in Los Angeles homeless shelters. Inclusion criteria included: 1) identifying as AA, 2) at least 18 years of age or older at the time of the study, 3) self-reported being a current cigarette smoker, 4) experiencing homelessness for at least 30 days at the time of the study, and 5) provided verbal consent to participate. We measured perceived discrimination, readiness to quit cigarette smoking, depression, anxiety, John Henyism, and substance use using linear regression modeling. We used a change in estimate approach to select the variables included in the final models between everyday discrimination and mental health outcomes of depression and anxiety.

Results:

Of the 100 participants enrolled, 58 participants were male, and the mean age for all participants was 49.6 years (SD: 13.4). Participants reported homelessness (37%) and race (43%) as main

reasons for discrimination experience. After adjusting for anxiety, age, and education in the depression model, everyday discrimination was associated with depression scores (B= 0.187; CI: 0.01, 0.37; p=0.04). After adjusting for depression in the anxiety model, everyday discrimination was not significantly associated with anxiety scores (b= 0.054; CI: -0.03, 0.14; p=0.22).

Conclusion:

The association of everyday discrimination on mental health outcomes among vulnerable communities may impact housing status. Future research should further explore the association between discrimination and mental health outcomes and interventions to reduce the occurrence of discrimination experiences specific to minority populations, especially those experiencing homelessness.

Background

Discrimination and its Impact on Overall Health Among African Americans

Discrimination is defined as the unfair or unjust treatment of an individual, particularly because of one's age, race, sex, or disability (American Psychological Association, 2022). Discrimination experiences for African Americans (AAs) have reportedly occurred in many settings, including in institutions (Assari & Moghani Lankarani, 2018) and in healthcare facilities (Purnell et al, 2012). The effect of discrimination on physical health has been studied previously (Barajas et al, 2019; Hill et al, 2017; Nguyen et al, 2021). Literature has also demonstrated that there is a link between discrimination and psychological distress among AAs in the general population (Banks et al, 2006). Everyday discrimination experiences have been associated with impaired sleep (Johnson et al, 2021), alcohol and illicit drug use disorders (Clark et al, 2014), mood changes (Bello et al, 2020), anxiety (Mouzon et al, 2016), suicidal ideation among AA men (Goodwill, Taylor & Watkins, 2021), and current cigarette smoking (Forde et al, 2021). Among PEH, increased daily discrimination has been associated with past month cannabis and cigarette use, and substance use disorder (Alexander, 2022). Among AA adults experiencing homelessness (AA PEH), studies have found that AAs report more frequent episodes of perceived discrimination across the lifetime and in healthcare compared to their White counterparts (Wrighting et al, 2019; Skosireva et al, 2014). It's also reported that 68-80% of PEH smoke cigarettes and another one quarter report recent history of cocaine use (Baggett et al, 2018). Cigarettes are viewed as a harmless coping mechanism (Chen et al, 2016), but severely increase cardiovascular disease risk among PEH (Al-Shakarchi et al, 2020). Discriminatory experiences may influence smoking habits and mental health outcomes (Schuermann et al,

2020), especially for vulnerable populations such as those experiencing homelessness where limited resources exist to combat discrimination.

Depression and Anxiety among AAs

Depression can be the result of stress, substance use, trauma, and other life experiences. In 2019, 18.5% of adults experienced either mild, moderate or severe depressive symptoms, with Non-Hispanic Blacks (12.2%) being most likely to report mild depressive symptoms in the past two weeks, compared to 12% of non-Hispanic Whites, 10.2% Hispanics, and 7.9% non-Hispanic Asian Americans (CDC, 2020). It is likely that depression is as well underreported among AAs, as some may associate mental illness and stigma (Ward, Wiltshire, Detry, & Brown, 2013). A feasibility study explored depressive symptoms among participants of three predominantly AA churches in New York City. They found that nearly one-fifth (19.7%) of participants sampled were experiencing depressive symptoms, with men (22.5%) screening positive for depressive symptoms more often than women (17.7%), (Hankerson et al, 2015).

AAs may use substances to cope with mental health. In 2020, 26.4% of AAs had a mental illness and/or substance use disorder (Substance Abuse and Mental Health Administration, 2022). Among PEH, 46.72% (95% CI 37.77% to 55.90%) experiencing depressive symptoms (Ayano et al, 2021); less is known about depressive symptoms among AA PEH. Depression among PEH has been associated with poor physical health (Daundasekara et al. 2021; Nyamathi et al, 2012), substance use disorder (Alexander et al, 2022), and stressful life events (Irwin et al, 2008); yet some may not seek treatment in part because of a lack of trust toward providers and the stigma associated with being homeless while seeking medical treatment (O'Toole et al, 2015). Literature surrounding anxiety symptoms among AAs is less robust. Anxiety among PEH

has been linked with suicidal ideation and attempts (Lee et al, 2017), social isolation (Riley et al, 2021) and acute pain (Reuven et al, 2021); however, this literature is not specific to AA PEH.

John Henryism and Cigarette Smoking Among Homeless Adults

Coping with discrimination may come in many forms for AAs, regardless of housing status: prayer, turning to family and friends, activism, and John Henryism, a belief that if one is to overcome obstacles, they must make great effort to strive for success (Snowden et al, 2001). John Henryism is named after John Henry, an AA steel driver in the 1800s. When Henry's job was threatened by a mechanical steam drill, he offered to race the machine to prove he could do a better job. While Henry won the race, he died soon after from physical and mental exhaustion (James, 1994). This active coping concept may be present among AA PEH.

Study Purpose

Literature investigating discrimination experiences and psychological distress among PEH who smoke cigarette smokers is limited. Our study explored these associations among a sample of 100 AA PEH who currently report smoking cigarettes and reside in the Skid Row Los Angeles area. We hypothesized that (1) everyday discrimination will be positively associated with depression and anxiety, and (2) everyday discrimination will be positively associated with John Henryism.

Conceptual Framework

The psychosocial stress model (Taylor & Aspinwall, 1996) explores the impact of stress on psychological health. This model posits that personality and environmental sources

collectively impact psychological outcomes. This can occur directly or indirectly through appraisal, coping, and one's vulnerability to stress. Personality is thought to influence stress, coping, appraisal, and psychological outcomes. Social support is an individual resource that is also believed to impact appraisal and coping. Using this model to guide our work, we created a model specifically addressing discrimination experiences and psychological outcomes (Figure 1). In our model, we consider the stressor, discrimination, is associated with psychological outcomes (depressive and anxiety symptoms). We included coping (John Henyrism) in personal resources, as we believe this high effort coping is individualistic and may influence depressive or anxiety symptoms. Our model suggests that personal resources influence experiences of discrimination and psychological outcomes.

Methods

Study Design

This sequential explanatory mixed methods research explored perceived discrimination, mental health outcomes and readiness to quit smoking among AA PEH and includes two phases. In phase one, in a quantitative cross-sectional survey design, we measured perceived discrimination, readiness to quit cigarette smoking, depression, anxiety, John Henyism active coping, and substance use. This paper will focus on the exploration of perceived discrimination on depressive and anxiety symptoms on AA PEH who smoke cigarettes. John Henryism was explored as a potential confounder for everyday discrimination.

Setting & Participants

Using a convenience sample, we garnered study interest by disseminating flyers at one of the largest homeless shelters in the heart of Skid Row downtown Los Angeles, CA. Providing shelter for over 900 persons, the shelter offers a 24-hour emergency shelter for women and children, single men, single women, and fathers with children. Services include food and clothing services, mental health and legal aid clinics, life management classes, a dental clinic, and a medical clinic.

Inclusion and Exclusion Criteria

Participants were selected to participate in this study if they met the following inclusion criteria at the time of the study. This included: 1) being at least 18 years of age and identified as AA; 2) self-reported as a current smoker, 3) experiencing homelessness for at least 30 days and 4) provided verbal consent to participate. The most common definition of current smoking is defined as an adult who has smoked at least 100 cigarettes in his or her lifetime and who currently smoke (National Center for Health Statistics, 2017). Smoking cessation research experts suggest self-report measures, including number of cigarettes smoked in the last seven days, is a strong predictor of cigarette abstinence (Cheung et al, 2017). Participants were asked if they have smoked at least 100 cigarettes in their lifetime, and the follow-up question, "are you a current smoker?" was replaced with "how many cigarettes have you smoked in the last seven days?" Participants who reported smoking at least one cigarette within the last seven days were included in the study. Homelessness was defined as those lacking a fixed, regular, and adequate nighttime residence (Henry et al, 2020).

Exclusion criteria included those who did not identify as AA, did not speak English, and youth and teens under age 18 years. We also excluded those who were homeless for less than 30 days and those who may be impaired due to substance use or were experiencing psychological distress. Although the definition of homelessness doesn't include a time limit, this research focused on those who have experienced more chronic homelessness, as those chronically homeless more often experience mental illness and substance use disorders (National Alliance to End Homelessness, 2021). To evaluate for possible psychological impairment, a decision-making capacity tool was completed for each participant prior to enrollment in the study. Participants were required to read back the expectations, risks, benefits, and alternatives to participation in the study. If a participant expressed needing help with reading study details, the principal investigator provided assistance by reading the consent and stopping whenever participants had questions. Once all participant questions were answered, the principal investigator then completed the decision-making capacity tool to ensure the participant understood the study and their rights.

Data Collection

Upon IRB approval from the University of California, Irvine (IRB#224), data for the current study were collected. Data were collected from February - June 2022. Participants were screened in a private room. Interested participants were given a study information sheet and were allowed sufficient time for questions and concerns to be responded to by the lead author. Next, a screener questionnaire was completed by the lead author, who asked participant inclusion criteria questions. Participants received $3 for participation in the screener questionnaire. Additionally, contact information and verbal consent to participate were collected. Following the screener

questionnaire, a decision-making capacity tool was completed. Additional sociodemographic data not included in the screener questionnaire (education and employment) were also collected.

Next, survey questionnaires were administered by the lead author to consenting participants. These questionnaires included measurements for perceived discrimination, anxiety, depression, John Henryism, substance use, and smoking intensity. This survey was administered in a private, quiet location with the shelter to participants. Surveys were completed electronically with the lead author, who entered participant responses into REDCap using an iPad. Scores for each survey were collected and quantified here through the use of these scales. Data were collected and stored in Research Electronic Data Capture (REDCap). Following completion of the survey, participants were compensated with $15.

Measures

Dependent Variables

***Depression*:** The Centers for Epidemiologic Studies-Depression (CES-D) Scale is a 20-item survey. It uses a 4-point system to measure depressive symptoms over the previous seven days (Radloff, 1977). Example statements include: (a) In the last week, I felt everything I did was an effort, (b) I thought my life had been a failure and (c) I felt people disliked me. The response choices are 0 (rarely, or none of the time), 1 (some or a little of the time), 2 (occasionally or a moderate amount of the time), and 3 (most or all of the time). Scores range from 0-60, with scores greater than 15 indicating depressive symptomatology (Cronbach's alpha 0.88 for this study). Participants scoring 16 or greater were referred to mental health services. This scale has been validated in PEH, previously (Wong, 2000).

***Anxiety*:** The Generalized Anxiety Disorder Scale-7 (GAD-7) is a seven-item, self-rated scale assessing the severity of general anxiety disorder, which ranges from 0-21 (Spitzer et al, 2006). Survey questions include: Over the last two weeks, how often have you been bothered by the following: (a) feeling nervous, anxious or on edge, (b) trouble relaxing, and (c) being so restless that it's hard to sit still. Scores of 10 or greater indicate a moderate level of anxiety, in which participants were referred to the shelter's on-site mental health services. The scale's reliability in a sample of adult men and women has previously been reported (Cronbach's alpha: 0.85), (Rutter, 2017). In our study, Cronbach's alpha was 0.89.

Independent Variable

***Perceived discrimination*:** The Everyday Discrimination Scale is a nine-item instrument designed to measure day-to-day discrimination using a six-point Likert scale (Williams et al, 1997). Sample questions include "In your day-to-day life, how often have any of the following things happened to you? (a) You are treated with less courtesy than other people, (b) People act as if they are afraid of you, and (c) People act as if they are better than you." Responses range from "1" (never) to "6" (almost every day), with higher scores indicating greater perceived discrimination. A follow-up question, asked only of those answering "A few times a year" or more frequently to at least one question: What do you think is the main reason for these experiences? More than one option was checked if volunteered. Given the population's housing status, the authors added "homelessness" as an additional option to this unweighted follow-up question. This scale has demonstrated good internal consistency elsewhere (Williams et al, 1997). The Cronbach's alpha was 0.86 for this study.

Potential Confounders

Demographics. The following measures were collected to describe the sample and include as covariates: age, gender, education, and employment. Participants were asked how many years of education they had completed. Participants reporting less than 12 years were categorized as "Less than High School," while those reporting 12 years were categorized as "High School Completion." Participants reporting greater than 12 years of schooling were categorized as having Trade School experience, some college, or college completion. For employment, participants were asked to choose between "Employed Full-Time," "Employed Part-Time," "Seeking opportunities," "Retired," "Unemployed," or "Prefer not to say." The categories "Employed Full Time" and Employed "Part-Time" were combined to create a single "Employed" category.

John Henryism Active Coping Scale: The John Henryism Active Coping Scale-12 is a 12-item scale which incorporates themes symbolizing the legacy of John Henry: (1) atypical mental and physical vigor; (2) strong commitment to hard work; and (3) single-minded determination to succeed (James, 1994). Responses range from "1" (completely false) to "5" (completely true). Scores range from 12-60, with higher scores indicating high effort coping. The validity and reliability of this scale in African Americans have been previously addressed (Fernander, Duran, 2003). The Cronbach's alpha for this study was 0.77.

Texas Christian University Drug Screen V: To measure alcohol and other substance use, we used the 17-item Texas Christian University (TCU) Drug Screen V to identify and measure other substances, including how often (daily, weekly, monthly) substances are used (Knight et al,

2018). This scale is scored to produce a single total score which can range from 0 to 11. Items 12 through 17 are not included as part of the total score; but provide additional information about the participant's readiness to engage in treatment, if needed. For item 13, "How often did you use each type of drug in the last 12 months," there were five response options ("Daily", "1-5 times per week", "1-3 times per month", "Only a few times", and "Never"). We combined the "1-5 times per week", "1-3 times per month", and "Only a few times" options into one: "Some Use" (Table 1). The TCU Drug Screen V score can be used to measure mild to severe disorder, as it corresponds with the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) criteria: Mild disorder: 2-3 points, Moderate disorder: 4-5 points and Severe disorder: 6 or more points. The Cronbach's alpha for this study was 0.88.

Data Analysis

The primary independent variable (everyday discrimination scores) and each of the primary outcome variables (depression and anxiety scores) were analyzed as continuous variables. We estimated 84 people needed to be enrolled in the study, using a power of 80% and two-sided alpha at 5% to detect statistically significant correlation between independent and dependent variables, assuming r=0.3. Although we only needed 84 participants, we increased the sample size to 100 to ensure sufficient power for fitting multivariable linear regression modeling. Descriptive statistics included means and frequencies for everyday discrimination, anxiety scores, depression scores, John Henryism, and TCU Drug Screen V, demographic and other characteristics, such as age and education. Then linear regression modeling was used to identify associations between everyday discrimination scores and depression and anxiety scores, independently. Potential confounders included in this model were age, education, TCU Drug

Screen V scores, and John Henryism scores. We also conducted a t-test to compare those who reported “homelessness” or “race” as the main reason for experiencing discrimination using the everyday discrimination scale and those who did not report “homelessness” or “race” as the main reasons for experiencing discrimination.

We used a change in estimate approach to select the variables included in the final model (Greenland, 1989). In this method, we fitted a bivariate model for the outcome and the primary exposure. Next, we inserted one of the variables (order of insertion was based on bivariate p-values) into the model. The variable was kept in the model if the beta for the primary exposure changed by more than 10%. If the beta did not change by at least 10%, then the variable was deleted from the model and the next variable with the smallest p value was added. Our final model included only the variables that led to change in the beta estimate of 10% or greater for everyday discrimination score, regardless of the p-value for that variable. We used R version 4.2.0 (R Core Team, 2020) for statistical computation of data.

Results

Of the 100 participants enrolled, 58 participants were male, and the mean age for all participants was 49.6 years (SD: 13.4) (Table 1). Participants completed an average of 11.7 years of education, and 35% participants were seeking employment opportunities. On average, participants had been experiencing homelessness for greater than 12 months on average (mean: 376 days; SD: 612) at time of study.

Everyday Discrimination

Everyday discrimination scores for both men and women were similar (32.7 for both), with 43% (35.6% of women and 48.3% of men) reporting race as the main reason for being discriminated against. There was a statistically significant association in everyday discrimination scores between those reporting race as the main reason for discrimination (mean: 29.89; SD: 9.09) and those who did not report this (mean: 36.42; SD: 12.02), (p=0.003). Additionally, 37% (47.6% of women and 29.3% of men) reported homelessness as a reason they felt discriminated against. There were no statistically significant differences in discrimination scores between those reporting homelessness as the main reason for discrimination experiences (mean: 34.68; SD: 10.7) and those who didn't (mean: 31.54; SD:11.7), (p=0.18).

Substance Use and John Henryism

Men were more likely than women to engage in either some or daily use of alcohol in the last 12 months (43.1% vs. 40.5%). Compared to men, women had higher mean TCU drug scores (3.64 vs. 3.09). John Henryism scores averaged 49.04, with women demonstrating higher levels of active coping (49.74 vs. 48.53). In the unadjusted analysis, John Henryism was associated with depression (b=-0.40; p=0.017); however, when using the change in estimate approach, John Henryism scores changed the coefficient of the everyday discrimination scores by only 6.1%.

Depression

Compared to men, women had higher depression scores (30.09 vs. 25.60). In the unadjusted analysis (Table 2), compared to men, women had higher depression scores (b= 4.50; p=0.089). Everyday discrimination and anxiety had a statistically significant association with

depression. For every one unit increase in everyday discrimination, there was a 0.54 unit increase in depression scores ($p<0.001$). Additionally, for every one unit increase in anxiety, there was a 1.5 unit increase in depression scores ($p<0.001$). John Henryism had an inverse association with depression scores (b=- 0.40; p= 0.017). Additionally, compared to those with less than high school education depression scores were lower for those who completed high school (b= -5.70; p=0.08) and those with a college degree and/or college experience or trade school (b=-6.08; p=0.09). Using the change in estimate approach, we found that anxiety, age, and education each changed the beta value of everyday discrimination scores by more than 10%. In the final model, after adjusting for anxiety, age, and education, everyday discrimination (b= 0.19; p=0.04), anxiety (b= 1.38; $p<0.001$) and having a college degree/experience or trade school (b= -6.08; p=0.01) all remained significantly associated with depression scores.

Anxiety

Women also had higher anxiety scores than men (12.00 vs. 11.18). In the unadjusted analysis (Table 3), for every one unit increase in everyday discrimination, there was a 0.23 unit increase in anxiety scores ($p<0.001$). Depression scores were also associated with anxiety scores (b=0.34; $p<0.001$). John Henryism scores had an inverse association with anxiety scores, but this association was not significant (b=-0.13; p=0.10). Using the change in estimate approach here, we found depression was the only variable which made a 10% or greater change in the beta value for everyday discrimination. After adjusting for depression, everyday discrimination was no longer significant (b=0.05; p=0.22). However, depression remained significantly associated with anxiety (b=0.32; $p<0.001$).

Discussion

Our study explored the association between everyday discrimination and depression and anxiety. We found everyday discrimination was significantly associated with depression, but not anxiety. This is somewhat consistent with other literature. One study reviewed neighborhood experiences and everyday discrimination to explain the racial differences in depression and anxiety among AA and White low-income (household incomes < 400% of the Federal Poverty Level) smokers in a smoking cessation program. This study found that as frequency of discrimination increased, so did depressive symptoms (IRR = 1.02 [1.01–1.04], $p < 0.05$]) and anxiety symptoms (IRR = 1.06 [1.04–1.08], $p < 0.001$], (Schuermann et al, 2020). By including anxiety in the model between discrimination and depression, we saw that anxiety remained a significant variable in this association.

The psychosocial stress model suggests that personality and one's environment influences stress and coping, and as well psychological outcomes. We theorized that personal resources (education, employment, active coping) could influence discrimination experiences and psychological outcomes. We found that age and education influenced discrimination experiences in the depression model. Our findings regarding higher levels of depression among those with less than a high school education is consistent with other literature (Bazargan & Galvan, 2012). Indeed, those from disadvantaged groups may view and therefore attain higher levels of education as a protective measure against negative mental health outcomes like depression (Bauldry, 2015). Higher education may be sought to protect against discrimination, but research has shown that higher levels of education are positively associated with racial discrimination in the general AA population (Hudson et al, 2016).

Our study did not find an association between everyday discrimination and anxiety. This is not consistent with other literature which found an association between discrimination and anxiety symptoms among various, housed AA samples (Banks, 2006; Carden et al, 2021; Mouzon et al, 2017). None of these studies mention cigarette smoking, however, which may be a protective measure for anxiety. Our study was conducted only among cigarette smokers. It is also possible our study did not identify an association between discrimination and anxiety because this data was collected at a single timepoint. PEH may experience multiple stressors throughout their homeless experience, in which case discrimination may not add to any pre-existing anxiety.

It's also important to note that more than one third of participants believed the main reason for discrimination experiences was because of their housing status, while another 43% believed it was because of their race. Wrighting and colleagues (2019) reviewed discrimination experiences among PEH and found that almost a quarter (24.18%) of AA participants believed the main reason for their experiences with discrimination was because they were homeless, while another 12.09% reported ethnicity as the main reason for discrimination experiences. African Americans may feel stigmatized by their housing status because this status oftentimes is a reference to class; higher class individuals are more likely to have more financial freedom and therefore more housing options than an individual of working or lower class. Additionally, discrimination experienced because of identifying as a double minority (AA and homeless) may enhance psychological distress, especially in cases of maladaptive coping.

When measuring coping efforts using the John Henryism scale, we found that mean scores were quite high, suggesting that high-effort coping is occurring. This is consistent with the hypothesis of John Henryism, in that individuals of lower socioeconomic status are routinely and frequently exposed to stressors which require a substantial amount of energy to manage the stress

(James, 1994). Whether or not this form of coping is effective is unclear. Across various AA populations, research has shown John Henryism has demonstrated associations with systolic blood pressure in men (Barajas, 2019), self-reporting of an opioid problem (Jones et al, 2019) and inverse associations with medication adherence (Cuffee, 2020) and depression in women (Bronder et al, 2014). It's plausible to think that those who have been experiencing homelessness longer may exude higher efforts of coping as a protective barrier for managing their environment.

Limitations

This study explores discrimination experiences and mental health outcomes and adds to the dearth of research exploring these concepts among AA PEH. Our study comes with several limitations. First, we used a sample of AA PEH who smoke cigarettes, making results not generalizable to non-smoking AA PEH. Second, our sample was based on convenience sampling, which limits the generalizability of this work to other AA PEH. Third, we collected several self-reported data from participants, including everyday discrimination, depressive and anxiety symptoms, cigarette smoking status and housing status. While we did collect data in a shelter which mandates residents wear a badge specifying residential status, we did not collect any biochemical validation measurements for current cigarette use. Fourth, we cannot determine direction for causality between discrimination scores and anxiety/depression scores because we collected data at a single timepoint.

Conclusion

Our study adds to the literature regarding psychological distress among AA PEH who currently smoke cigarettes. Discrimination experiences may potentially impact mental health outcomes, and PEH may be engaging in cigarette smoking to cope. Among more vulnerable populations, access to mental health services is vital. We suggest further investigation on discrimination experiences and their impact on mental health outcomes among PEH. Counseling or other mental health programs designed to address and combat discrimination and the potentially associated stress among PEH would be invaluable. Further probing into the association between discrimination experiences and mental health could encourage policy change and tailored interventions for smoking cessation programs among PEH, particularly AAs.

Chapter Three: Perceived Discrimination and Readiness to Quit Cigarette Smoking among African American Homeless Adults: A Mediation Analysis

Abstract

Background:

Smoking cessation programs have been utilized among people experiencing homelessness (PEH), but the literature suggests that (1) African Americans (AA) tend to be less successful in smoking abstinence than their White counterparts and (2) both the reasons for and barriers to smoking may be associated with depression and anxiety. Readiness to quit cigarette smoking should be examined as it may provide insight on one's readiness to engage in smoking cessation efforts. Whether experiences of discrimination are associated with readiness to quit smoking in AA PEH is unclear. We conducted a cross-sectional study, including a mediation analysis, to explore both the association between everyday discrimination experiences and readiness to quit cigarette smoking, and whether depression or anxiety independently mediated this association.

Methods:

Using a convenience sample we garnered study participants from a large homeless shelter in Skid Row downtown Los Angeles, CA. Scores of the Everyday Discrimination scale, Contemplation Ladder, Centers of Epidemiological Studies-Depression scale, Generalized Anxiety Scale, and Heaviness of Smoking Index, were collected and quantified through the use of these scales. Everyday discrimination scores and contemplation ladder scores were analyzed using linear regression modeling. We used a change in estimate approach to select confounding variables included in the final model. Mediators depression and anxiety scores were not included

in this initial model. Instead, we conducted a mediation analysis and adjusted for confounding factors in the mediation model.

Results:

Of the 100 participants enrolled, 58 participants were male, and the mean age for all participants was 49.6 years. After adjusting for education and heaviness of smoking, the total effect of everyday discrimination on readiness to quit was not significant (b= 0.02; 95% CI: -0.05, 0.08; p=0.56). The associations between everyday discrimination scores and anxiety scores (b=0.23, p<0.001) and depression scores (b: 0.54, p<0.001) were statistically significant. The indirect associations between anxiety and readiness to quit cigarette smoking (b=0.027; 95% CI 0.01, 0.05; p=0.04) and depression and contemplation ladder scores (b=0.035; 95% CI 0.01, 0.07; p=0.02) did reach statistical significance after adjusting for education and heaviness of smoking. There was a negative direct effect between everyday discrimination and anxiety and depression which did not reach statistical significance (anxiety: b=-0.004; 95% CI: -0.09, 0.06; p=0.86); (depression: b= -0.012; 95% CI: -0.09, 0.04; p=0.7).

Conclusion:

There was a significant mediation effect of anxiety and depression on the association between everyday discrimination experiences and readiness to quit cigarette smoking. Additionally, discrimination experiences were associated with anxiety and depression, which could impact readiness to quit cigarette smoking among AA homeless smokers. Future research should include the potential association between mental health outcomes and readiness to quit cigarette smoking.

Background

Smoking Behaviors Among Persons Experiencing Homelessness

An estimated 2.3 to 3.5 million people experience homelessness (PEH) in the United States (U.S.) over the course of a year; some of the causes for homelessness include poverty, unemployment, discrimination, incarceration, and high housing costs, as well as personal factors such as substance use, mental illness, and traumatic life experiences (Baggett et al, 2018). In 2019, 40% of PEH in the U.S. identified as African American (AA), (Henry et al, 2020). Additionally, seven in 10 homeless adults in the U.S. currently smoke cigarettes. The prevalence of cigarette smoking potentially stems from high levels of stress and other psychiatric factors such as depression and anxiety (Baggett et al, 2018). Although some PEH may view smoking as a harmless coping mechanism (Chen et al, 2016), the increased risk of cardiovascular disease (CVD) due to smoking is three-fold higher in PEH compared to housed individuals (Al-Shakarchi et al, 2020). Additionally, smoking can cause cancer, lung disease, stroke, and diabetes, and increase risk for tuberculosis and rheumatoid arthritis (CDC, 2020). Important gaps in literature to consider regarding smoking cessation among PEH include psychosocial barriers to quitting smoking, as well as readiness to quit cigarette smoking, as readiness to quit may indicate greater likelihood of engaging in smoking cessation efforts. Literature exploring discrimination experiences in PEH is growing (Alexander et al, 2022; Paul Jr., et al, 2020; Writing et al, 2019); however, data exploring the association between perceived discrimination and readiness to quit smoking in PEH, particularly among AAs, is limited.

Discrimination, Depression, and Anxiety in PEH

Discrimination experiences among PEH are endemic. In one study of PEH, AA participants were more likely than Whites to report at least one perceived discrimination experience in their lifetime (79.1% AA vs. 67.7% White; $p = 0.007$). Moreover, AA PEH experience increased burden on life because of perceived discrimination (Wrighting et al, 2019). Another study identified reasons for perceived discrimination in older AA PEH; these included both experiencing racism early in life and structural racism, which includes discrimination in the criminal justice system, exposure to violence and criminal activity, and limited family wealth and employment opportunities (Paul Jr., et al, 2020). Perceived discrimination related to one's race or to being homeless could affect mental health outcomes as well as impede success in quitting cigarette smoking.

Depressive symptoms among PEH in smoking cessation programs has been explored. In one randomized control trial of PEH (n=431), the association between depression and psychological distress was assessed during enrollment in a smoking cessation program. The investigators found at week 26, depression was associated with increased craving to smoke cigarettes ($r=0.26$, $p<0.001$), lower perceived stress ($r=0.14$, $p=0.013$) and hopelessness ($r=-0.33$, $p<0.001$), and less confidence in quitting ($r=0.26$, $p=0.002$) (Robinson et al, 2016). These data suggest that depressive symptoms and increased cravings could lead to increased heaviness of smoking, which may impact readiness to quit cigarette smoking. Readiness to quit focuses on an individual's readiness to engage in smoking cessation. Elsewhere in another randomized control trial, PEH smokers who were depressed at baseline (OR=0.58, $p=0.01$) had lower confidence to quit smoking (OR=1.10, CI, 1.01–1.19, $p=0.04$) and were less motivated to adhere to nicotine replacement therapy (OR=1.04, CI, 1.00–1.07, $p=0.04$) (Ojo-Fati et al, 2016). Each of these

studies suggest that depressive symptoms have impacted success with smoking cessation but depression and readiness to quit cigarette smoking among AA PEH is limited.

Data on anxiety and cigarette smoking among PEH are limited. One study measuring the moderating effect of anxiety symptoms on past month pain severity and heaviness of smoking among a sample of homeless adults (n=461) found that anxiety moderated this association (b=0.005; p=0.040), (Reuven et al, 2021). Elsewhere, a study reviewing the perceived barriers to smoking cessation among 100 adult PEH found that excessive stress and use of cigarettes to relieve anxiety was the most common problem voiced by participants, followed by cravings (Chen, et al, 2016). While this study does suggest a correlation between anxiety and smoking habits in PEH, psychosocial factors specific to readiness to quit cigarette smoking need to be further investigated.

Motivation and Readiness to Quit Cigarette Smoking among PEH

One-third of PEH smokers report feeling ready to quit cigarette smoking within the next 6 months, while nearly one-fifth are ready to quit within the next month (Garey et al, 2015). While it appears many PEH who smoke are ready to quit, the motivation to initiate quitting could be strained by several variables. In a study of 40 PEH (32 participants were AAs) using nicotine replacement therapy to assist smoking cessation, participants described feeling pressure from their surroundings to smoke and drink in and around shelters, leading some to start or resume smoking (Pratt et al, 2019). In another study of 31 PEH residing in family shelters, significant barriers to quitting smoking included the ubiquity of cigarette smoking and its central role in social interactions among residents in the family shelter setting, and its importance as a coping mechanism (Stewart et al, 2015). Additionally, participants expressed interest in quitting ‘‘cold

turkey'' but were skeptical of the patch and pharmacotherapy (Stewart et al, 2015). Participants in this sample were primarily White (45.1%). Studies of smoking cessation programs among PEH suggest higher rates of successful smoking cessation in Whites compared to AAs (AA: 14.3% vs White: 24.4%; p = 0.007), (Nollen et al, 2019); (AA vs. white; OR: 0.84; p = 0.002), (Stevens et al, 2016). It is also suggested that barriers to smoking cessation specifically in AA PEH may include low self-efficacy (Pinsker et al, 2018), nicotine dependence, homelessness, and fatalism (Vijayaraghavan et al, 2018); however, these studies do not mention exploring readiness to quit cigarette smoking prior to participant enrollment in a smoking cessation program.

Summary of Gaps in Current Knowledge

AAs are largely overrepresented in the U.S. homeless population, and roughly 70% of PEH reportedly smoke. Smoking cessation programs have been utilized in populations of PEH, but AAs tend to be less successful in abstaining from smoking than their White counterparts, and whether experiences of discrimination are associated with readiness to quit smoking in AA PEH is unclear. While depression and anxiety have each been associated with increased smoking habits in PEH, it is less clear how other factors, specifically perceived discrimination, impact smoking cessation in AA PEH. While perceived discrimination in AAs has been explored (Bello et al, 2020; Paul Jr et al, 2020; Purnell et al, 2012; Writing et al, 2019), to our knowledge, the association between perceived discrimination and readiness to quit cigarette smoking, specifically in AA PEH, has not been studied. Our study aims to investigate discrimination experiences and readiness to quit cigarette smoking among AA PEH. We hypothesize that as discrimination experiences increase, readiness to quit cigarette smoking will decline. We also

hypothesize that depression and anxiety will independently mediate the association between discrimination experiences and readiness to quit cigarette smoking.

Conceptual Framework

In this research, the definition of readiness to quit cigarette smoking is driven by Prochaska and DiClemente's (1991) Transtheoretical Model (TTM), also known as the Stages of Change model. Prochaska and DiClemente suggest individuals will move through six stages of change when attempting to make a behavior change such as quitting cigarette smoking. In the first three stages (precontemplation: no intention to quit in the next six months; contemplation: plans to quit smoking in the next six months; preparation: plans to quit smoking in the next 30 days), there is a shift from taking no action to quit to preparing to take action. In the action stage, a quit attempt occurs. In the maintenance stage, the quit attempt is becoming less of a struggle and more of a routine. Individuals may or may not enter the termination stage, which is where a relapse occurs. This model drives the conceptual framework of the current research study (Figure 2), in which we hypothesize everyday discrimination is associated with readiness to quit cigarette smoking, and this association is mediated by depressive and anxiety symptoms independently.

The TTM has been used among studies exploring substance use and readiness to quit among homeless adults (Adhikari et al, 2015; Velasquez et al, 2000). These studies found that 30-56.9% of each sample were in the precontemplation phase (no plans to quit in the next six months), and 16.3-60% were in the contemplation phase (ready to quit within the next six months). Factors affecting the stage of change model, specifically in PEH, may include education, heaviness of smoking, substance use and alcohol abuse. For this reason, these variables will be evaluated as possible confounders. This research will explore the association

between perceived discrimination and readiness to quit smoking, as well as the potential mediation effects of depression and anxiety on this association.

Methods

Study Design

Detailed methods of this study were explained elsewhere (Jones-Patten, et al, unpublished). Briefly, this study used a cross-sectional survey to explore the association between perceived discrimination, readiness to quit cigarette smoking, depression, and anxiety. A sociodemographic questionnaire was also used to collect descriptive statistics of participants' age, gender, and homeless and smoking histories.

Setting & Participants

Participants from a large homeless shelter in Skid Row downtown Los Angeles, CA were surveyed. The shelter houses over 900 men, women and children on any given night, and provides include food and clothing services, mental health and legal aid services, and medical and dental services. The shelter also provides designated smoking areas, by gender, for residents.

Inclusion and Exclusion Criteria

Participants were included in the study if they were at least 18 years of age, identified as AA, self-reported current smoking history, were experiencing homelessness at least one month, and provided verbal consent. Study participants were asked if they have smoked at least 100 cigarettes in their lifetime and "how many cigarettes have you smoked in the last seven days?"

Participants who reported smoking at least one cigarette within the last seven days were included in the study.

Exclusion criteria included housed individuals, those who may be cognitively impaired, those who do not speak English, youth and teens under age 18 years, and those who do not self-identify as AA. Participants were provided informed consent, then the lead author completed the decision-making capacity tool to ensure the participant understood the study and their rights. We also excluded those who have been homeless for less than 30 days.

Data Collection

Following IRB approval from the University of California, Irvine, data for the current study were collected from February - June, 2022. Participants were screened in a private room. Interested participants were given a study information sheet. Next, a screener questionnaire was completed by the lead author, who asked inclusionary criteria questions. Participants received $3 for participation. Participant contact information and verbal consent to participate were collected. Education and employment data were also collected. Responses to survey questionnaires were collected and consisted of scales measuring perceived discrimination, readiness to quit cigarette smoking, anxiety, depression, substance use, and smoking intensity. The lead author used an iPad to input survey responses. Research Electronic Data Capture (REDCap) was used to collect and store this data. Following completion of the survey, participants received $15.

Measures

Dependent Variable

Readiness to quit: The contemplation ladder is a 10-step ladder, with every other step representing a smoker's thoughts on quitting smoking. The scale ranges from 0 to 10, with 0

classified as “no thought of quitting,” and 10 meaning “taking action to quit.” Scores range from 0-10, with higher scores indicating readiness to quit smoking (Beiner, 1991).

Independent Variable

***Perceived discrimination*:** The Everyday Discrimination Scale is a nine-item instrument measuring day-to-day discrimination using a six-point Likert scale. Sample questions include “In your day-to-day life, how often have any of the following things happened to you: (a) You are treated with less respect than other people are, and (b) People act as if they are afraid of you.” Responses range from “1” (never) to “6” (almost every day), and total scores range from 9-60, with higher scores indicating greater perceived discrimination. A follow-up question was asked only of those answering "A few times a year" or more frequently to at least one question: What do you think is the main reason for these experiences? If participants mentioned more than one option, all options mentioned were checked. “Homelessness” as an additional option added to this unweighted follow-up question by this study’s authors. In our study the Cronbach's alpha was 0.86.

Mediators

***Depression*:** The Centers for Epidemiologic Studies-Depression (CES-D) Scale is a 20-item survey, using a 4-point system to measure depressive symptoms over the prior seven days (Radloff, 1977). Scores range from 0-60, with scores greater than 15 indicating depressive symptomatology. This scale has been validated in PEH, previously (Wong, 2000). Participants with scores of 16 or greater were referred to mental health services. The Cronbach’s alpha for our study was 0.88.

***Anxiety*:** The Generalized Anxiety Disorder Scale-7 (GAD-7) is a seven-item, self-rated scale assessing the severity of general anxiety disorder, using a 4-point Likert scale (Spitzer et al, 2006). Scores range from 0-21; scores of 10 or greater indicate a moderate level of anxiety. Participants with anxiety scores of 10 or greater were also referred to mental health services. For our study, the Cronbach's alpha was 0.89.

Demographics

Sample characteristics which were collected include age, gender, education and employment. Participants' education were categorized as follows. Those reporting less than 12 years were categorized as "Less than High School," while those reporting 12 years were categorized as "High School Completion." Participants reporting greater than 12 years of schooling were categorized as having Trade School experience, some college or college completion. Similarly, employment categories included "Employed", "Seeking opportunities," "Retired," "Unemployed," or "Prefer not to say."

Texas Christian University Drug Screen V: This 17-item Texas Christian University (TCU) Drug Screen V identifies substance use, including the frequency of use (Knight et al, 2018). Scores range from 0 to 11. Items 12 through 17 are not included as part of the total score. For item 13, "How often did you use each type of drug in the last 12 months," we combined the original five response options ("Daily", "1-5 times per week", "1-3 times per month", "Only a few times", and "Never") to three ("Daily Use", "Some Use", and "No Use" (Table 1). The TCU Drug Screen V scoring is as follows: Mild disorder: 2-3 points, Moderate disorder: 4-5 points, and Severe disorder: 6 or more points. The Cronbach's alpha for this study was 0.88.

Smoking intensity: The Heaviness of Smoking Index (Heatherton et al, 1989) is a measure used to express cumulative smoking exposure. It consists of 2 items from the Fagerstrom Test for Nicotine Dependence: (1) How soon after you wake up do you smoke your first cigarette? And (2) How many cigarettes per day do you smoke? The index is calculated using the sum of the scores on those two items. Response options for time to the first cigarette of the day are: within 5 minutes (3 points), within 6-30 minutes (2 points), 31-60 minutes (1 point), and after 60 minutes (0 points). Response options for average daily number of cigarettes smoked are: 10 or less (0 points), 11-20 (1 point), 21-30 (2 points), and 31 or more (3 points). Participants will fall into one of three categories for nicotine dependence: low (0-1), medium (2-4), and high (5-6).

Data Analysis

Both the primary independent variable and the primary outcome variable were analyzed as continuous variables. Although we enrolled 100 participants to ensure sufficient power for fitting multilinear regression modeling, we estimated an enrollment sample of 84, using a power of 80% and two-sided alpha at 5% to detect statistically significance between everyday discrimination and contemplation ladder scores, assuming r=0.3. We analyzed descriptive statistics for dependent and independent variables, including contemplation ladder scores, everyday discrimination scores, anxiety and depression scores, and TCU Drug Screen V, age, education, time to first cigarette, cigarettes smoked per day, and scores for the heaviness of smoking index. Subsequently, linear regression modeling was used to identify associations between everyday discrimination scores and contemplation ladder scores. Potential confounders included in this model were age, education, heaviness of smoking, and TCU Drug Screen V

scores. We used a change in estimate approach to select the variables included in the final model (Greenland, 1989), with our final model including only the variables that led to change in the beta estimate of 10% or greater for everyday discrimination score. Mediators were not included in this initial model. Instead, we conducted a mediation analysis and adjusted for confounding in the mediation model (Tingley et al, 2014). In the mediation analysis, anxiety and depression were each run in separate models to determine if either mediated the association between everyday discrimination and contemplation ladder scores. We used the bootstrapping method for causal mediation analysis. First, we ran the unadjusted bivariate model for everyday discrimination and the selected mediator (depression or anxiety). Then we ran the same model and added the dependent variable, contemplation ladder scores. Next, we used the mediation function on the first two models to determine the total, direct and indirect effects. Finally, we ran another mediation model which included variables identified from above to adjust for confounding. Data were computed using R version 4.2.0 (R Core Team, 2020).

Results

Sample characteristics are described in Table 1. Of the 100 participants enrolled, 58 participants were male, and the mean age for all participants was 49.6 years. One third of participants (33%) had less than a high school education, and more than one-third of participants (35%) were seeking employment opportunities. The mean everyday discrimination scores for both men and women were similar (32.7 for both). Contemplation ladder scores were similar among men and women (men: 6.02 vs. women 5.43), as were some or daily use of alcohol in the last 12 months (men: 43.1% vs. women: 40.5%), and TCU scores (men: 3.09 vs. women: 3.64). Female participants, on average, were more likely than male participants to smoke their first

cigarette within five minutes of waking (47.6% vs. 32.8%), and had higher depression scores (30.09 vs. 25.60) and anxiety scores (12.00 vs. 11.18). Men also reported smoking 10 or fewer cigarettes a day (69.0%) compared to women (54.8%).

Table 4 displays the unadjusted and adjusted analysis of everyday discrimination scores and contemplation ladder scores. In the unadjusted analysis, there was no association between everyday discrimination scores and contemplation ladder scores (b= 0.01; 95% CI: -0.04, 0.01; p=0.7). Compared to those with less education, participants with trade school or college education had higher contemplation ladder scores (b= 2.1; 95% CI: 0.48, 3.8; p=0.01). Using the change in estimate approach, education and heaviness of smoking index scores each changed the beta value of everyday discrimination scores by more than 10%. In the final model, after adjusting for education and heaviness of smoking, everyday discrimination had no association with contemplation ladder scores (b= 0.02; 95% CI: -0.04, 0.08; p=0.47).

A mediation analysis was conducted for anxiety and depression separately. For the mediation analysis including anxiety as a mediator in the model (Table 5), the total effect (b= 0.01) was not statistically significant (95% CI: -0.04, 0.05; p=0.56). The direct effect of everyday discrimination scores on contemplation ladder scores when accounting for anxiety (b=-0.009) was also not statistically significant (95% CI: -0.07, 0.03; p=0.86). Finally, we found that the mediation or indirect effect of anxiety on discrimination and contemplation ladder scores did not reach statistical significance (b=0.02; 95% CI -0.00, 0.05; p=0.06). The association between everyday discrimination scores and anxiety scores, however, was significant (b=0.23, p<0.001). After adjusting for education and heaviness of smoking index, the indirect effect (b=0.03) became significant (CI: 0.01, 0.07; p=0.04).

When using depression as a mediator (Table 6), the total effect between everyday discrimination and contemplation ladder scores showed no association (b= 0.01; (95% CI: -0.04, 0.05; p=0.54). The direct effect of everyday discrimination scores on contemplation ladder scores when taking depression into account (b=-0.012) was also not statistically significant (95% CI: -0.06, 0.04; p=0.82). The indirect effect did not reach statistical significance (b= 0.03; 95% CI: -0.00, 0.05; p=0.10). After adjusting for education and heaviness of smoking scores, the mediation effect became significant (b=0.04, 95% CI: 0.01, 0.06; p=0.02). The direct effect (b= -0.01; 95% CI: -0.09, 0.04; p=0.70) and total effect (b= 0.02; 95% CI: -0.05, 0.08; p = 0.56) remained statistically insignificant. We also found the association between everyday discrimination scores and depression scores to be significant (b= 0.54, p<0.001).

Discussion

To our knowledge, this is the first study to explore the association between everyday discrimination and readiness to quit cigarette smoking among AA PEH. We hypothesized that higher discrimination scores would be inversely associated with readiness to quit cigarette smoking, which was not the case for the unadjusted and adjusted linear regression models in our study. Instead, our study revealed that as discrimination experiences increased, so too did readiness to quit cigarette smoking. When accounting for the indirect effect through depression and anxiety separately in mediation analyses, we found that mediation was occurring even though the total and direct effects in the association between discrimination and contemplation ladder scores did not reach statistical significance. One explanation for this is that depression and anxiety are not associated with thoughts about quitting smoking. Or depressive and anxiety

symptoms may co-exist with readiness to quit cigarette smoking. Research has shown that depression is prevalent in PEH (Ayano et al, 2021); this may also be the case for anxiety.

We also found that perceived discrimination was statistically significant with depression and anxiety, which was expected. Previous studies have also identified an association between discrimination and depression and anxiety (Clark et al, 2015; Schuermann et al, 2020). Additionally, depression and anxiety mediated the association between discrimination and readiness to quit cigarette smoking, with each mental health outcome demonstrating a positive correlation with readiness to quit cigarette smoking. We did not find any statistically significant association between the number of days participants had been homeless at the time of the study with either discrimination, readiness to quit, depression, or anxiety. We also did not measure quit attempts, which may also be associated with readiness to quit smoking.

The traditional way for conducting a mediation analysis is to first find an effect of the independent variable on the dependent variable. If there is no significant association here, then there is no reason to continue with a mediation analysis. This has been challenged by several authors (O'Rouke & MacKinnon, 2018; Zhao, Lynch Jr. & Chen, 2010), who argue that if either the indirect and direct paths are positive and the other negative, then testing the association between the independent and dependent variables may fail. In our case, we found that a mediated effect exists, but without a direct effect, also known as indirect-only mediation (Zhao, Lynch Jr. & Chen, 2010). In this instance, the direct effect between everyday discrimination and contemplation ladder scores was not significant but had a negative association. This negative association masked the positive indirect effects through depression and anxiety when estimating the total effect. This suggests there could be mediation happening, even without there being a significant total effect between discrimination and contemplation ladder scores.

Again, our study found that depression and anxiety partially mediate the association between everyday discrimination scores and readiness to quit cigarette smoking. A study that examined smoking status of participants of an all-Black cohort found that everyday discrimination was associated with higher odds of being a persistent current smoker (OR 1.26, 95% CI 1.11,1.43), (Forde et al, 2021). While this study did not demonstrate that higher levels of everyday discrimination lead to any association with readiness to quit cigarette smoking, it does suggest that AAs who smoke may use cigarette smoking as a maladaptive practice to deal with discrimination. This partially explains the contemplation ladder scores in our study, in which participants believe they should quit, but are not ready yet. Studies demonstrating a association between discrimination, anxiety and readiness to quit cigarette smoking are also sparse. Anxiety has been associated with nicotine withdrawal (Benowitz, 2010); it is possible participants are ready to stop smoking but use cigarette smoking to control their anxiety.

Significant confounders in our study included heaviness of smoking and education. Lower levels of education have reportedly been associated with current smoking (Parker et al, 2016; Sartor et al, 2021). Among AAs, the education level disparity between ever-smokers (those who have smoked at least 100 cigarettes in their lifetime) with less than a high school education and those who graduated college increased from a 2.2-fold difference in 1992/1993 to a four-fold difference in 2018 (Nguyen-Grozavu et al, 2020). Heaviness of smoking among homeless smokers has been negatively associated with successful quit attempts lasting more than 24 hours (Neisler et al, 2018) and number of quit attempts ($r = 0.29$, $p < 0.05$), (Akande et al, 2020).

Limitations

While this study adds to the literature surrounding smoking cessation among a vulnerable population, it comes with limitations. First, our sample is a convenience sample rather than a random sample. Additionally, our sample is all African American. Each of these limitations makes it difficult for us to generalize our results to larger populations experiencing homelessness who identify as AA; however, it should not be discounted that AAs largely overrepresent PEH in the United States. Second, we did not measure readiness to quit or everyday discrimination over time, so we cannot determine a causal relationship. Third, we did not measure quit attempts, which may have supported the contemplation ladder scores. Fourth, we collected self-report measures for everyday discrimination, depressive and anxiety symptoms, smoking status, housing status, and race. While this study was conducted in a shelter requiring ID badges to be worn at all times for staff and residents, we did not confirm badges with shelter personnel prior to enrolling participants. Additionally, participants were recruited primarily from designated smoking areas within the shelter.

Conclusion

This study discusses discrimination experiences and psychosocial factors impacting readiness to quit cigarette smoking among homeless African American adults. While smoking cessation programs have been offered for this population, it is important to note that cigarette smoking may be a way to cope with many circumstances not usually reviewed in smoking cessation programs. Additionally, contemplation ladder scores illustrate the idea of making a behavior change; future studies and smoking cessation programs should consider measuring

readiness to quit at several time points to better understand whether readiness to quit fluctuates over time.

Chapter Four: Perceived Discrimination and Readiness to Quit Cigarette Smoking among African American Homeless Adults - A Qualitative Analysis

Abstract

Background

Homelessness is a critical issue in the United States, as more than half a million people experience homelessness (PEH) annually. Approximately 70-80% of PEH in the U.S. use tobacco. Smoking cessation programs specifically for PEH suggests African Americans (AA) are less successful in abstaining from smoking than their White counterparts. The purpose of this study was to identify reasons for smoking while experiencing homelessness and to explore barriers to smoking cessation among AA PEH.

Methods

In phase two of this mixed methods study, five focus groups were conducted to PEH residing in a homeless shelter over a three-week period. Using a semi-structured interview guide, we asked participants about discrimination experiences, how smoking habits were impacted by these experiences, and tools needed to successfully abstain from cigarette smoking. Qualitative descriptive content analysis was used to explore discrimination experiences and its association with readiness to quit cigarette smoking among AA PEH.

Results

Of the 17 participants, 14 (82.4%) were male, and the average focus group participant age was 46.8 years of age. Using a qualitative In Vivo coding method (Saldana, 2021), three themes were

revealed: "*Experiencing Discrimination while Black*", "*The Social Fabric - Why Quitting is a Challenge*", and "*The Lesser of Two Evils - Choosing to Smoke over more Harmful Options."* Participants discussed working in the blue-collar workforce while Black, identifying as a double minority, smoking to cope with stress, early exposure to cigarettes, smoking being a central part of one's belonging to a group, and the legality of cigarette smoking.

Discussion

Our findings show that (1) AAs experience discrimination in multiple settings, regardless of housing status, (2) participants grew up around cigarette smoking and are surrounded by it even while experiencing homelessness, and (3) the experience of smoking may provide a calming effect, which stops some AA PEH from reacting negatively to situations that may cost them their freedom.

Conclusion

Barriers to successfully abstaining from smoking are multifactorial and should be addressed further. Future research should explore the cultural tailoring of interventions that support cessation efforts unique to minoritized populations.

Background

Homelessness is experienced by more 560,000 people in the United States on a given night (Henry et al, 2020). Reasons for homelessness seem endless, but most often include poverty, lack of employment, discrimination, incarceration, high housing costs and evictions, and mental illness (Baggett et al, 2018; Wolch, Dear, & Akita, 1988). One concerning issue for people experiencing homelessness (PEH) is access to health care. The response to managing the overall health of PEH varies across the United States, with some communities offering healthcare through street medicine, and local health clinics strategically placed in areas highly populated with PEH. With the growing rate of homelessness comes the greater likelihood of poorer health outcomes. Compared to housed individuals, PEH have a shorter lifespan largely because of the prevalence of cigarette smoking, which is associated with heart disease, cancer, stroke, lung disease, and unintentional injury (Fleisch & Nash, 2019).

Approximately 70-80% of PEH in the U.S. use tobacco (Pratt et al, 2019). Literature has uncovered some of the reasons for continued smoking among PEH. This includes the socialization which may come from smoking in designated smoking areas within a shelter, and smoking being a coping mechanism for managing stress (Akande et al, 2020; Baggett et al, 2018; Stewart et al, 2015). Smoking cessation programs specifically for PEH have been implemented in various settings across the US. Prior research suggests African Americans (AA) are less successful in abstaining from smoking than their White counterparts (14.3% vs 24.4%, odds ratio [OR] 0.51, 95% confidence interval [CI].0.32-0.83, p=0.007, Nollen et al, 2019), (OR: 0.84, 95% CI: 0.75-0.94, p= 0.002, Stevens et al, 2016). Notable barriers to quitting smoking include the central role cigarette smoking plays in social interactions between residents in a family shelter setting, and unstable housing (Akande et al, 2020; Stewart et al, 2015). Further, it is suggested

that barriers to smoking cessation specifically in AA PEH may include low self-efficacy (Pinsker et al, 2018), nicotine dependence, homelessness, and fatalism (Vijayaraghavan et al, 2018). Fewer studies measure readiness to quit, a measure of one's readiness to engage in smoking cessation. Among homeless smokers, greater readiness to quit cigarette smoking has been associated with higher subjective social status (Garey et al, 2015) and increased number of quit attempts (Akande et al, 2020); however, these samples are not exclusively AA.

Discrimination is the unfair treatment against a group of people, sometimes experienced because of one's race, age or gender (American Psychological Association, 2022). In the general AA population, perceived discrimination, whether it be racially charged, or everyday experiences in general, has been associated with lower heart rate variability (Hill, 2017), lower socioeconomic status (Assari & Moghani Lankarani, 2018; Colen, Ramey, Cooksey, & Williams, 2018), and smoking (Hooper et al, 2020; Nollen et al, 2019), including tobacco withdrawal symptoms (Bello et al, 2020). Among PEH, experiences of discrimination have been studied infrequently. Available research suggests that discrimination is more likely to be reported among AAs than Whites (AA: 48.11% vs. White: 14.76%, Otiniano Verissimo et al, 2021), (Mean (SD) discrimination scores: Black: 48.76 (53.61), White: 39.44 (51.62, Wrighting et al, 2019). While discrimination has been linked to substance use and stressful life events among PEH (Alexander et al, 2022) and the experience of being homeless itself, (Otiniano Verissimo et al, 2021; Skosireva et al, 2014), research exploring discrimination and readiness to quit cigarette smoking is limited.

While one-third of homeless smokers report readiness to quit smoking within the next 6 months, nearly one-fifth are ready to quit within the next month (Garey et al, 2015). Although discrimination is considered a reason for experiencing homelessness, little is known about how

discrimination may impact cigarette smoking among PEH. The purpose of this study was to identify reasons for smoking while experiencing homelessness and to explore the needs participants felt should be met if they were to stop smoking.

Conceptual Framework

Developed by Prochaska and DiClemente (1991), the Transtheoretical Model (TTM), also called the Stages of Change Model, assumes that individuals move through the following stages of change (at times back and forth): precontemplation, contemplation, preparation, action, and maintenance, and termination. This model has been used among studies exploring substance use and readiness to quit among PEH (Velasquez et al, 2000), providing mixed results regarding participant readiness to quit cigarette smoking. We believe that as discrimination experiences occur more frequently, readiness to quit scores may decline, and participants will fall into the early stages (precontemplation or contemplation) in the TTM model. In the quantitative phase of this study, we found participants thought they should quit cigarette smoking, but were not quite ready. This research will further explore the relationship between perceived discrimination and readiness to quit smoking through the use of focus group discussions.

Methods

Design

This sequential explanatory mixed methods research includes two phases and began with a quantitative cross-sectional study. In phase I data via surveys for measurements of perceived discrimination, readiness to quit cigarette smoking, depression, anxiety, and John Henryism. In phase II, the current study, we used a qualitative descriptive study design to conduct focus

groups with participants from phase I of the study. Using a semi-structured interview guide (Table 7), we conducted focus groups of up to five participants each to explore discrimination experiences, responses to those experiences and how they have impacted smoking habits, and what participants felt would need to happen for them to abstain from cigarette smoking. This paper will focus on the results of the focus groups from phase II.

Inclusion Criteria. Participants were invited to participate if they were at least 18 years of age at the time of the study and identified as AA. Additionally, participants had to self-report being a current smoker, and that they were experiencing homelessness for at least 30 days at the time of the study. Potential participants were asked if they have smoked at least 100 cigarettes in their lifetime and how many cigarettes they smoked in the last seven days. Those who reported smoking at least 100 cigarettes in their lifetime and at least one cigarette within the last seven days were included in the study. Potential participants also self-reported homelessness, which was defined as those lacking a fixed, regular, and adequate nighttime residence (Henry et al, 2020). Finally, participants were included if they provided verbal consent to participate in audio-record focus group discussions. To participate in the focus groups, participants had to have completed phase I of the study prior to attending a focus group.

Exclusion Criteria. Those who did not identify as AA or speak English, and youth and teens under age 18 years were excluded from the study. We also excluded those who may be cognitively impaired or were experiencing psychological distress and those who were homeless less than 30 days. Briefly, a decision-making capacity tool was used to assess cognitive impairment. Potential study participants had to explain study objectives, risks and benefits, and their rights as a participant. Although the definition of homelessness doesn't include a time limit, this research focused on those who had more chronic, unstable living conditions.

Sample and Setting. We used a convenience sample to invite participants from phase one of the Discrimination Experiences and Cigarette Smoking study. Participants were invited to the focus group discussions if contact information was provided during the data collection of phase I of this study. Focus groups of not more than five participants per group were conducted in a private room at a large shelter in Los Angeles. All participants from phase one of this study were originally eligible to participate in the focus groups; however, considering increased COVID-19 cases and the shelter used for data collection, only participants from phase one of the study who resided in the shelter at the time of the focus groups were eligible to participate.

Recruitment. Participants from phase I of the study were either contacted by phone with the date, time and location of the focus group or were provided this information when coming to the lead author's office at the shelter.

Procedures. Following IRB approval from the University of California, Irvine, (IRB#224), participants engaged in audio-recorded, semi-structured focus groups in a private room. One to two focus groups were held every week for participants until no new concepts were introduced. Participants were given time to create and write a pseudonym on a name tag to be worn so participants and researchers would address each participant by their pseudonym. Study information sheets were read to participants prior to beginning recordings, and all questions were answered prior to obtaining consent to participate. Verbal consent was then collected, and focus groups began with the lead author announcing the remainder of the conversation would then be audio-recorded. Focus groups were facilitated by the lead author, with a second trained research team member present to assist with keeping participants focused on the questions asked and taking notes during the focus groups. The focus groups lasted approximately 45-60 minutes. Audio recordings were transcribed using dictation in Microsoft Word. The lead author uploaded

audio recordings to Microsoft Word, which created a transcript for each recording. The lead author listened to each recording while following along with the transcript created. Using an abridged transcription method, the lead author made edits to transcripts when the dictation function incorrectly used a word or phrase. Transcription of content from focus groups was then uploaded to Dedoose Cross Platform application (Dedoose Version 9.0.54) for analysis within one week after each interview concluded.

Data analysis. Qualitative In Vivo coding (Saldana, 2021) using Dedoose software was conducted to create codes from transcripts. Transcripts from interviews were read from start to finish, with some note taking. Transcripts were read line-by-line to capture key themes. Using an inductive approach, codes were created from the transcripts to group into categories and then themes. The lead author initially coded the interviews independently, summarizing common themes. A second researcher then assessed the transcripts independently, summarizing recurrent content, and then collaboratively discussed coding similarities and differences with the lead author. A third researcher, who was present for all interviews, assessed the transcripts and themes by the lead author and second coder when agreement could not be met on themes.

Trustworthiness of qualitative data entails establishing a rigor to the research, providing validation through establishing credibility, dependability, transferability, and confirmability (Amankwaa, 2016; Guba & Lincoln, 1981). To ensure the trustworthiness of our data, several methods were employed. First, to ensure credibility of the focus group transcripts, focus groups were attended by the lead author and a second trained research professional. Additionally, two researchers independently coded the transcripts. Dependability was ensured by two researchers attending the focus group sessions debriefing following the conclusion of focus groups. Further, the two researchers who coded the transcripts conducted meetings to discuss and justify codes

and themes each researcher created. Transferability was ensured through asking open-ended questions to focus group participants and note taking of responses. Additionally, the purpose and methods of the study were provided to participants using a study information sheet. Confirmability was ensured by creating an audit trail of audio recording focus groups, documented meetings with the study's team members, and creating and revising study timelines.

Findings

One to two focus groups were conducted weekly over a three-week period. Sample characteristics of participants are included in Table 8. Of the 66 participants contacted to participate, 17 (25.7% response rate) participated in one of five focus groups held (Table 9). The first focus group had four participants. The second group had three participants. The third group had two participants. The fourth group had four participants. The fifth and final group had four participants. A maximum of 60 was allotted for each focus group; two groups were able to answer only the first three interview questions. Of the 17 participants, 14 (82.4%) were male, and the average focus group participant age was 45.11 years. Five participants (29.4%) did not complete high school, six (35.3%) completed 12th grade, four (23.5%) completed trade school or took college courses, and two (11.8%) obtained a college degree.

Three major themes were identified. The first was *Experiencing Discrimination while Black.* Participants described experiences of discrimination while walking down the street and while growing up. Subthemes included: *Working in the blue collar workforce while Black, Identifying as a Double Minority: being Black and..,* and *Smoking to Cope with Stress*. The second theme identified was "*The Social Fabric - Why Quitting is a Challenge*" in which cigarettes were perceived as a way to belong in one's community, especially the smoking

community. Subthemes included *Early Exposure to Cigarettes, Smoking Surrounds Me* and *Cigarettes are Legal.* Finally, the third theme, *The Lesser of Two Evils - Choosing to Smoke Tobacco over more Harmful Options*, includes participants' experiences with quitting other substances and how smoking may stop them from violently responding to a stressor. Subthemes included *I Quit All the Other Stuff* and *Smoking instead of Reacting/Fighting*

Experiencing Discrimination while Black

When asked about discriminatory experiences, most responses centered around race. Participant who identified as "Box" describes not feeling accepted while walking down the street, "We walking down the street and, if you mess with me so much, why is ya'll grabbing ya'll purse? Just 'cause we Black?... Like I wanna steal something from y'all."

Ray described the first time being called the "n" word shortly after returning to live with his mother following spending time in the foster care system.

> And it was little kids out there playing. And.. we went out there to play... So, as we got through playing with em, this white lady comes out and she's hollering to the kids to come here and to… get away from them and then she.. Then I heard the word "n*gga.

Other notable experiences of discrimination occurred in the workplace, with participants describing their experience working in blue collar America.

Working in the blue-collar workforce while Black. Several participants shared discriminatory experiences occurring in the workplace. One example of workplace discrimination included feeling less supported by managers of a different race. Big Boi described his experience working in a hospital in Texas,

> I had this boss. I ain't gon say he hated Blacks, but he grew up in an environment where… Blacks didn't have nothing, and they wasn't gon' never have nothing. So I was under the impression that… if I did something and then another person from another race did something it was OK for him to do that. But it wasn't OK for me to do it.

Another example of workplace discrimination offered was in the context of providing service to customers who commented on one's race. Saadiq shared,

> I was working at Home Depot at the time and there were multiple instances where customers came in and, you know, did not agree with certain things. And just because of all the tension that was going on, would blurt out racial slurs. I mean, I was called the "n" word…[and told] "You need to go back to Africa.

Still, several participants described the intersectionality of experiencing discrimination while identifying as a double minority.

Identifying as a Double Minority: "being Black and...". One female participant shared her story of a man stepping in front of her while in line at a local store.

> I was in a Sears store in line… and I was standing in line. It was other people in the line, and a Hispanic… or Latino man came and just jumped in front of me. So I stood there; I didn't say nothing at first. I… thought he was like, "I'm getting in line," and didn't notice that I was there. He never moved and I was like "Excuse me but you jumped in front of me… He said 'I didn't see you.'

Rosta described growing up with cerebral palsy and receiving unwanted attention. "As a youth I was born with cerebral palsy, so I wore braces and cables. So that brought a lot of discriminatory uh, attention my way from family, from friends and from enemies of all colors." Participants described how these experiences sometimes led to smoking a cigarette.

Smoking to cope with stress. In their responses to discrimination, participants described how discrimination impacted their smoking habits. James L. discussed using cigarette smoking as a way to manage frustration following discrimination experiences. "It makes me very angry. It just

makes me want to just continue smoking." Mario provided a similar response to dealing with discrimination felt from others. "That makes me wanna smoke more."

Rosta describes cigarette smoking as an entry point to utilizing substances to manage stress.

> Smoking cigarettes was like the first stage of smoking, you know? Cigarettes, weed, heroin, cocaine, crack, speed, methamphetamines. I mean the list goes on and on and on about the level of smoking or defense… mechanisms that one might try to use.

The responses to discrimination often involved reflecting on cigarette smoking as a way to regain control of their emotions. The socialization component attached to cigarette smoking was also addressed.

The Social Fabric - Why Quitting is a Challenge

Cigarette smoking was described most frequently in social settings. Participants described their first experiences with cigarette smoking and the troubles experienced trying to get away from cigarette smoking.

Early Exposure to Cigarettes. Participants described growing up around cigarettes in the home and starting to smoke as early as eight years old. Participants saw their siblings, parents and caretakers smoking cigarettes growing up.

Buddy Love reflected on being exposed to a tobacco farm his family member owned. "I just started smoking and he gave me what I want… I'd sell it in school and everything like that to the teachers… I was in middle school." Similarly, James L. described access to cigarettes from family members while growing up. "I've been smoking ever since I was eight years old. And the only reason why I started smoking 'cause… My oldest brother hooked me on to smoking." Other

participants described the involvement of smoking in other facets of life, including at school and work.

Smoking Surrounds Me. Many participants shared their experience with cigarette smoking with peers. Big Boi explained his first experience gave him a high that he still seeks from cigarettes today.

> I think I might have been about 12 years old… Yeah, I just walked in to use the restroom. It was like 10-12 guys in there… And a guy said, "Hey man, you want to hit this? I hit that cigarette, I was high as a kite. And then after that… I've been wanting a cigarette ever since then.

Bebe agreed. "My mom smoked my entire life. And my sister. I just did what everybody else did." Rick's reply was similar, stating hanging out with coworkers encouraged him to smoke, "A lot of my coworkers would smoke and I think I would pick up a cigarette just because, mostly, because they did. And it would feel awkward if I didn't, you know?" Participants discussed cigarette smoking being socially acceptable, but also being a legal way to relax.

Cigarettes are Legal. Participants reflected on the acceptability of cigarette smoking. Some were encouraged to take smoke breaks at work to calm themselves down after something happened. Saadiq noted, "The managers were like go take a break, go smoke, get you something, you know… and calm down." Alfred discussed how cigarette smoking is more socially accepted than other substances,

> I smoke more weed than I do cigarettes. But from an environment where I can't smoke weed, I gotta run way down the street, go smoke some weed and I gotta go around the corner two blocks... I'ma just smoke the cigarette.

The responses about the legality of cigarette smoking also led to discussion about why other substances are used less frequently, if at all.

The Lesser of Two Evils - Choosing to Smoke Tobacco over more Harmful Options

Other substance use was brought up in many of the focus group discussions. Participants described exposures to other substances early in life and attempting to quit each substance. Cigarettes were tougher to quit.

I Quit All the Other Stuff. Other substances were thought to be more harmful because they caused participants to feel as though they were losing control. Participants constructed a hierarchy when it came to substance use, and cigarettes were more of an entry point to other substances.

Rosta shares his urges for other substances he believes is kept at bay by cigarettes.

> Ultimately, as to right now, I'm down to cigarettes, is what I can say and, I know that you know they're not good. And just like all the other stuff, I've smoked the cigarettes they have to disappear also." But because of those tendencies, those urges that I used to once respond to, the want or drive to smoke something is definitely still there, so I'm just trying to keep it contained to cigarettes.

Ray agreed, stating that he's stopped using other substances. "And as I've gotten older, I notice it's kind of hard to stop the cigarettes. I stopped the drugs but the cigarettes was a little bit… harder, so I'm down… lower now." Participants also shared how cigarettes stopped them from making decisions which may have dire consequences.

Smoking Instead of Reacting/Fighting. Participants reflected on their belief that cigarettes calmed urges to physically fight with someone. Buddy Love shares, "Yeah, but sometimes I get mad. I gotta smoke a cigarette, 'cause I don't want to lay a hand on nobody, you know?"

Alfred also describes smoking as a way to avoid harmful physical acts toward others, which could land him in prison.

> Cigarettes pretty much play the equalizer. Cigarettes give me a second to put everything into perspective… When I smoke a cigarette I got 5 minutes of time to choose between my children and a bunch of dudes for the rest of my life… Cigarettes play a big part in not just calming down but… in the pros and cons and the… tomorrow.

To add, Box describes her thoughts on the potential consequences of physically harming someone else.

> Yeah, if I hit you, who will get in trouble? Me or you? I'm the person that hit you first, right? That mean I'm going to jail... If I hit you, I'm looking at getting kicked out of here, and don't have nowhere to go, and I have to start back at square one.

Participants also reflected on the consequences of fighting while in the shelter, including the possibility of losing future housing opportunities or being removed from the shelter.

Discussion

Our findings provide several findings about cigarette smoking among AA homeless adults. First, AAs experience discrimination in multiple settings, regardless of housing status, and the response for some is to smoke cigarettes as a way to cope. Second, there is a social fabric with cigarette smoking; to add, cigarettes are legal, and provide an option for substance use which may not prohibit their stay at a homeless shelter. Finally, the experience of smoking may provide a calming effect, which stops some from reacting negatively to situations that may cost them their freedom. Participants reported stressful and perceived discriminatory experiences in various settings, which was often followed by smoking a cigarette. This is consistent with earlier literature which also links discrimination experiences with cigarette smoking (Parker et al, 2017; Purnell et al, 2012). Cigarette smoking may be a trauma response to repeated experiences of

discrimination in the workplace and in other arenas of life. This trauma response may also be compounded by the housing status of our participants.

Participants described starting to smoke cigarettes at a young age, and being exposed to cigarettes both in the home and at school. Participants also noted smoking during breaks at work, sometimes with cigarette smoking used as a socialization component to feel included. Homeless smokers with greater nicotine dependence have previously reported having more difficulty finding shelter ($P = 0.01$), than those with lower nicotine dependence (Bagget, Rigotti, & Campbell, 2016). It's possible that our participants smoke more often in social settings than alone. A study including a predominantly AA sample also reported having setbacks with smoking cessation when living in a homeless shelter because of the pressure felt to smoke in their environment (Pratt et al, 2019). While some shelters provide programs to mitigate substance use, they may inadvertently promote a space for cigarette smoking, especially in the social context. Additionally, the need for socialization and connection with others while experiencing homelessness may also reinforce smoking in this way. It should not be ignored, however, that participants may also struggle to stop cigarette smoking because of nicotine dependence.

Literature regarding cigarette smoking and its association with physical harm toward others is limited, unless the physical harm includes intimate partner violence. Intimate partner violence was not a common theme mentioned in the focus groups; however, there were no questions asked about forms of violence against intimate partners. It's important to note that literature including cigarettes providing a calming effect, as described by several of our participants, among PEH is limited. Available literature has suggested that this calming effect

cigarette smokers describe may be the action of nicotine in ending withdrawal symptoms (Silverstein, 1982). That is, as a smoker becomes addicted to nicotine they crave the relaxation which comes from smoking a cigarette, but this calming effect is actually nicotine working to keep withdrawal symptoms at bay. The calming effect participants mentioned may be enhanced by the long-term relationship several participants described having with cigarette smoking.

Limitations

While this research adds to the literature on reasons for continued smoking among AA PEH, this study is not without limitations. First, our sample size is small. With only three of the 17 participants being female, our results are primarily based on the thoughts of men. Second, we used an all-AA sample, making it likely our results are not generalizable to other PEH across the United States. Next, to remain consistent with each focus group discussion, we kept each discussion to 45-60 minutes. Two groups were provided 60 minutes for discussion, but only covered the first three of five questions of the interview guide. Finally, a minimum number of participants per focus groups was not required. This led to the inclusion of one focus group in this research which contained only two participants. Despite these limitations, this research adds to the literature on barriers to smoking cessation among a vulnerable population. We identified several barriers to readiness to quit smoking among homeless adults, which should be considered when implementing smoking cessation programs among this population.

Conclusion

The purpose of this study was to add to the literature on the complexities of abstaining from cigarette smoking among AA PEH. Barriers to successfully abstaining from smoking are

multifactorial, and include the addictive properties of cigarette smoking, as well as the socialization that cigarettes are often involved. Future research should further investigate these barriers stemming from cigarette smoking while socializing. Further, smoking cessation programs designed for this population should include developing interventions that support combatting discrimination and enhancing smoking cessation efforts for those who may be engaged in other substance use.

Chapter Five: Conclusion

In sum, this research found that 1) discrimination experiences are associated with depression among AA PEH, 2) depression and anxiety mediate the association between everyday discrimination experiences and readiness to quit cigarette smoking among AA PEH, 3) AA PEH report discrimination is related to their race and housing status, 4) that cigarette smoking is not only a coping mechanism but a tool to be socially accepted among others, and 5) that AA PEH experience the effects of identifying as a double minority, which may encourage smoking habits.

Smoking cessation programs often use motivational interviewing or pharmacotherapy techniques to measure their effect on smoking cessation. While some of these smoking cessation programs address social support as well, smoking cessation programs among PEH may need improvement, specifically around combating the relationship cigarette smoking has with smoking in social settings. Readiness to quit cigarette smoking may be positively impacted by social support (Arnsten et al, 2004); however, if engaging in smoking cessation programs occurs in a homeless shelter, then the use of social support may be less effective, especially if those within one's support system smoke cigarettes. Interventions for smoking cessation programs among PEH could introduce smoking cessation for couples or groups, to encourage having an accountability partner. Literature around accountability partners in smoking cessation programs is limited and should be addressed in future works.

Managing discriminatory and other stressful experiences while experiencing homelessness is also of concern for AA PEH. Our sample of PEH specifically mentioned race and being homeless as the main reasons for experiencing discrimination. Discriminatory

experiences reportedly occur more among AA PEH compared to Whites (Wrighting et al, 2019), and among PEH with mental illness (Skosireva et al, 2014). Additionally, when PEH do engage in efforts to end their time experiencing homelessness, they may experience discrimination more frequently and in other areas, such as when seeking employment. Questions asked on job applications about housing history may impede PEH from getting an interview. A Ban the Address campaign was suggested to ban employment discrimination among PEH (Golabek-Goldman, 2016); under the policy employers would only ask for zip codes on initial applications. Other helpful suggestions from this article included involving service providers to assess one's employability.

Service providers should be provided with resources to determine one's employability as well as how to maintain employment. PEH lack fixed housing, which may increase the likelihood of moving around more than housed individuals, which may impact employment also. Interventions around employment should include tools to effectively measure employability and work opportunities that are specific to the individual and their skillset. Effectively matching PEH with jobs directly related to one's skillset and ability to learn new skills may lead to more stable income, thus increasing opportunities for housing. As for racial discrimination, more work is needed around coping mechanisms AAs may engage in to combat discrimination. While our study did not find any significant associations between discrimination and John Henryism, there may be other coping efforts that are in play. Further discussion around dismantling discrimination towards AAs and AA PEH also needs to occur. Service providers and health care professionals should provide tools to combat racial discriminatory efforts. Research also notes that civic engagement to combat discrimination of any kind should be introduced to youth of

color (Hope, Hoggard, and Thomas, 2015), so that they may be informed early in life about what discrimination may look like and how they can mitigate these experiences.

Mental health outcomes are also of concern for AA PEH. It is possible mental illness and cigarette and other substance use go hand in hand among this community which faces prolonged stress. More access to mental health care is needed, as well as more non-pharmacological interventions to best manage episodes of depression or anxiety. Additionally, mental health outcomes could be best supported in smoking cessation programs using a multidisciplinary approach to achieve success in smoking cessation, management of mental health and encouragement to acknowledge and combat discriminatory experiences. To increase effectiveness, social support systems should also be engaged.

Discrimination experiences can occur anywhere and to anyone, but PEH may struggle with these experiences at higher rates and likely have fewer tools to combat these experiences compared to the general population. Discrimination experiences may also impact mental health and cigarette smoking among PEH. Cigarette smoking may be used to cope with many factors PEH experience, but smoking cessation is important to reduce risk for cardiovascular disease, stroke, diabetes, and other grave medical conditions. Our study found that cigarette smoking continues to occur among AA PEH because of the need to cope with discrimination, especially as it relates to race and being homeless. Smoking cessation programs have an opportunity to further uncover reasons for continued smoking, and provide opportunities for conversations about managing discrimination and other stressful experiences in a healthier way.

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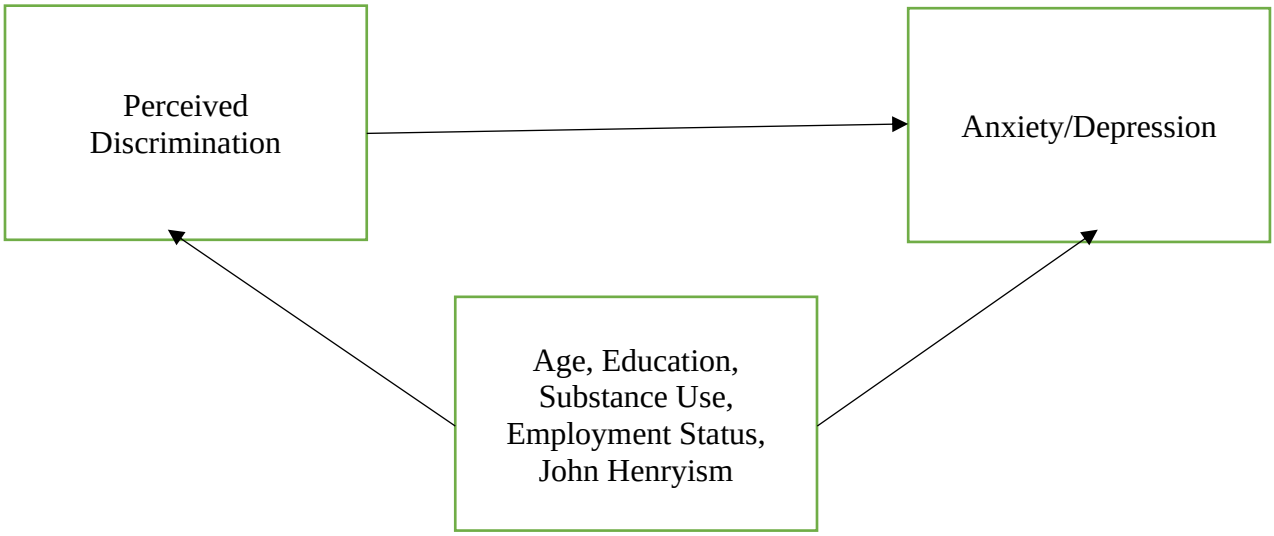

Figure 1. Discrimination Influences Mental Health Outcomes

Figure 2. Discrimination Influences Cigarette Use

Table 1 – Descriptive Statistics

	Male (N=58)	**Female** (N=42)	**Overall** (N=100)
Age mean (SD)	49.5 (14.3)	49.7 (12.3)	49.6 (13.4)
Education			
Less Than High School (n, %)	20 (34.5%)	13 (31.0%)	33 (33.0%)
High School (n, %)	17 (29.3%)	14 (33.3%)	31 (31%)
Trade School, Some College or College Completion (n, %)	18 (31.0%)	7 (16.7%)	25 (25%)
Missing (n, %)	3 (5.2%)	8 (19.0%)	11 (11.0%)
Employment			
Employed (n, %)	9 (15.5%)	3 (7.1%)	12 (12.0%)
Retired (n, %)	8 (13.8%)	2 (4.8%)	10 (10.0%)
Seeking Opportunities (n, %)	21 (36.2%)	14 (33.3%)	35 (35.0%)
Unemployed (n, %)	15 (25.9%)	15 (35.7%)	30 (30.0%)
Missing (n, %)	5 (8.6%)	8 (19.0%)	13 (13.0%)
Everyday Discrimination Scores mean (SD)	32.70 (10.8)	32.70 (12.4)	32.70 (11.4)
Depression Scores mean (SD)	25.60 (12.94)	30.09 (12.83)	27.49 (13.02)
Anxiety Scores mean (SD)	11.18 (5.9)	12.00 (6.8)	11.53 (6.3)
John Henryism Scores mean (SD)	48.50 (7.05)	49.70 (8.73)	49.00 (7.78)
TCU Drug Scores mean (SD)	3.09 (3.27)	3.64 (3.53)	3.32 (3.38)

Table 2: Bivariate and multivariate linear regression model results of everyday discrimination and outcome depression

	Unadjusted beta	**(95% CI)**	**p-value**	**Adjusted beta**	**(95% CI)**	**p-value**
Age	-0.05	(-0.25, 0.14)	0.6	-0.10	(-0.25, 0.04)	0.15
Gender (Ref: Male)	4.50	(-0.70, 9.70)	0.09	Not included	--	--
Education (Ref: Less than High School)	--	--	--	--	--	--
High School	-5.70	(-12.00, 0.77)	0.09	-3.80	(-8.53, 0.93)	0.11
Trade School, Some College or College Completion	-6.00	(-13.00, 0.90)	(0.09)	-6.08	(-10.8, -1.40)	**0.01**
John Henryism	-0.40	(-0.73, -0.07)	**0.02**	Not included	--	--
Anxiety	1.50	(1.2, 1.8)	**<0.001**	1.38	(1.06, 1.70)	**<0.001**
Everyday Discrimination	0.54	(0.34, 0.74)	**0.001**	0.19	(0.01, 0.37)	**0.04**

*Adjusted for anxiety, education, and age

Table 3: Bivariate and multivariate linear regression model results of everyday discrimination and outcome anxiety

	Unadjusted beta	**(95% CI)**	**p value**	**Adjusted beta**	**(95% CI)**	**p value**
Age	0.01	(-0.09, 0.10)	0.9	Not included	--	--
Gender (Ref: Male)	0.81	(-1.7, 3.3)	0.5	Not included	--	--
Education (Ref: Less than High School)	--	--	--	Not Included	--	--
High School	-1.10	(-4.3, 2.1)	0.5	Not Included	--	--
Trade School, Some College or College Completion	-0.02	(-3.4, 3.3)	>0.9	Not Included	--	--
John Henryism	-0.13	(-0.29, 0.03)	0.1	Not Included	--	--
Depression	0.34	(0.28, 0.41)	**0.001**	0.32	(0.24, 0.40)	**<0.001**
Everyday Discrimination	0.23	(0.13, 0.33)	<**0.001**	0.05	(0.03, 0.14)	0.22

*Adjusted for depression

Table 4: Bivariate and multivariate linear regression model results of everyday discrimination and outcome variable Contemplation Ladder Scores

	Unadjusted beta	**(95% CI)**	**p-value**	**Adjusted beta**	**(95% CI)**	**p-value**
Age	-0.01	(-0.06, 0.03)	0.6	Not Included	--	--
Gender (male)	Ref.	--	--	--	--	--
Female	-0.59	(-1.9, 0.70)	0.4	Not Included	--	--
Education (Less than High School)	Ref.	--	--	Ref.	--	--
High School	0.80	(-0.77, 2.4)	0.3	0.84	(-0.81, 2.50)	0.31
Trade School, Some College or College Completion	2.1	(0.48, 3.8)	**(0.01)**	1.99	(0.26, 3.72)	**0.02**
Everyday Discrimination Scores	0.01	(-0.04, 0.007)	0.7	0.02	(-0.04, 0.08)	0.47
TCU Scores	0.03	(-0.16, 0.22)	0.7	Not Included	--	--
Heaviness of Smoking Index	-0.30	(-0.70, 0.10)	(0.14)	-0.21	(-0.64, 0.21)	0.32

*Adjusted for education and heaviness of smoking

Table 5: Mediation Analysis (Anxiety) results of everyday discrimination and outcome variable Contemplation Ladder Scores

Mediator	Unadjusted beta	(95% CI)	p-value	Adjusted beta	(95% CI)	p-value
Anxiety						
Total Effect	0.01	(-0.04, 0.05)	0.54	0.02	(-0.04, 0.08)	0.56
Direct Effect	-0.009	(-0.07, 0.03)	0.86	-0.004	(-0.09, 0.06)	0.86
Indirect Effect	0.02	(-0.00, 0.05)	0.06	0.03	(0.01, 0.05)	**0.04**

*Adjusted for education and heaviness of smoking

Table 6: Mediation Analysis (Depression) results of everyday discrimination and outcome variable Contemplation Ladder Scores

Mediator	Unadjusted beta	(95% CI)	p-value	Adjusted beta	(95% CI)	p-value
Depression						
Total Effect	b= 0.01	(-0.04, 0.05)	0.54	0.02	(-0.05, 0.08)	0.56
Direct Effect	b= -0.01	(-0.06, 0.04)	0.82	-0.01	(-0.09, 0.04)	0.70
Indirect Effect	b= 0.03	(-0.00, 0.05)	0.10	0.04	0.01, 0.07	**0.02**

Table 7: Focus Group Discussion Questions

1. Thinking back to a time that stands out in your mind when you felt discriminated against, what happened and how did you respond?
2. How have these feelings of discrimination affected your smoking habits?
3. Describe your first experience with smoking cigarettes. How old were you? What was happening at that time in your life?
4. Describe a time when you tried to quit smoking cigarettes. What stopped you from quitting? How did you feel about attempting to quit smoking?
5. What would need to happen in your life right now to quit cigarette smoking in the next 30 days? The next six months?

Table 8: Descriptive Statistics (Focus Group Discussions)

Male sex, n (%)	14 (82.4%)
Age (mean, SD)	45.11 years; SD 14.10
Education	
Less than High School, n (%)	5 (29.4%)
High School, n (%)	6 (35.3%)
Trade School, Some College, n (%)	4 (23.5%)
College Completion, n (%)	2 (11.8%)
Days homeless (mean, SD)	276 days or 9.2 months; SD 435.56
Contemplation Ladder Scores (Readiness to Quit Smoking), (mean, SD)	5.6; SD: 3.14
Cigarettes smoked in the last seven days (mean, SD)	77; SD 84.79
Heaviness of Smoking Scores(mean, SD)	2.35; SD: 1.69
TCU Drug Screen Scores (mean, SD)	2.17; SD 3.00

Table 9: Focus Group Participant Data

	Group Number	Age
Pseudonym	--	--
Buddy Love	1	34
Rosta	1	53
Jason	1	59
Ray	1	57
Alfred	2	27
Saadiq	2	31
Big Boi	2	60
Phil	3	30
Rick	3	30
James I.	4	45
James L.	4	64
Mr. “M”	4	63
John	4	51
Box	5	31
Mario	5	34
Jackie	5	63
Bebe	5	35