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African American Women's Tobacco and Marijuana Use: The Effects of Social Context and Substance Use Perceptions

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Abstract

Background: Despite the status of tobacco and marijuana as two of the most commonly used substances in the U.S., both have detrimental health and social consequences for disfranchised African Americans. Substance use may be shaped by social contextual influences from families and peers in African American communities, and little research has examined perceptions of wrongfulness, harms, and dangers associated with daily tobacco and marijuana use among African American women.

Objectives: This study explores the effects of African American women's social context and substance use perceptions (wrongfulness/harmfulness/dangerousness) on daily tobacco and marijuana use.

Methods: Survey data was collected in-person from 521 African American women. Multivariate logistic models identified the significant correlates of women's daily use of tobacco and marijuana in the past six months.

Results: 52.59% of participants reported daily tobacco use and 10.56% used marijuana daily. Multivariate models indicated that women were more likely to be daily tobacco users if they had a family member with a substance use problem or perceived tobacco use to be wrong, harmful, or more dangerous than marijuana. In the models with marijuana as the dependent variable, women who lived with a person who used drugs were more likely to use marijuana daily. Perceiving marijuana use as wrong or harmful to one's health was protective against daily marijuana use.

Conclusions: Findings stress the need for prevention and intervention efforts for African American women that highlight social context influences and promote greater awareness of the health risks associated with daily tobacco and marijuana use.

Keywords

African American women; tobacco; marijuana; social context; substance use perceptions

With the exception of alcohol, tobacco and marijuana are the two most commonly used substances in the United States (Center for Behavioral Health Statistics and Quality, 2016). Tobacco users are more likely to be young, male, and live below the poverty line (CDC, 2013), with similar trends for marijuana (SAMHSA, 2014). According to estimates from the Centers for Disease Control and Prevention, when considering race, rates of current tobacco use in African Americans (16.5%) surpass overall U.S. adult rates (15.5%) (Jamal et al., 2018). While African Americans typically begin smoking at a later age (Schoenborn, Adams, & Peregoy, 2013) and smoke fewer daily cigarettes than White Americans, they are more likely to die due to smoking related diseases (American Cancer Society, 2018; American Lung Association, 2010).

Trends in marijuana use among African Americans are also distinct and disconcerting. Specifically, marijuana use among African American adults is equal to or greater than use among Whites (Azofeifa et al., 2016). Marijuana use and attitudes in certain African American subgroups have even led some scholars to suggest that, despite its status as a Schedule 1 controlled substance, marijuana use may be normalized or at least perceived of as less harmful or wrong than legal tobacco use (Sanders, 2012; Malone, Yerger, & Pearson, 2001).

Despite these important trends, little research has examined what factors contribute to daily tobacco and marijuana use among African American adults, especially for individuals at the intersection of multiple disadvantaged statuses (e.g., low-income, African American women, current/former criminal justice system involvement). As such, this study explores the effects of social context and drug use perceptions on daily use of tobacco and marijuana among a sample of women who are African American and mostly low-income, across three venues: recently released from prison, recruited while on probation, and those with no current involvement in the criminal justice system. Additionally, this study seeks to identify unique risk and protective contextual factors for this population of women, which are essential for informing effective intervention efforts (King et al., 2006).

Review of the Literature

Social Context and Substance Use

Research examining substance use behaviors in African American communities has led scholars to theorize that social context is an important behavioral influence (Datta et al., 2006). Social context refers to the groups that individuals interact with on a daily basis (e.g., family, friends, and significant others) and the setting in which an individual resides. Social contact with family, friends, and others shapes risk perceptions of tobacco and marijuana

use, and these risk perceptions directly influence substance use (Botvin, Epstein, Schinke, & Diaz, 1994; Epstein, Botvin, Diaz, Toth, & Schinke, 1995; Pears, Capaldi, & Owen, 2007). In addition, use, or even perceived use, of substances by family and friends has been demonstrated to influence one's own substance use (Bush, Weinfurt, & Iannotti, 1994; Hampson Andrews, & Brackley, 2008). Numerous studies have found parental and peer marijuana use to be robust predictors of adolescent tobacco and marijuana use (Elkington, Bauermeister, & Zimmerman, 2011; Fisher, Eke, Cance, Hawkins, & Lam, 2008; Rosenblum et al., 2005). Research indicates that family members can also influence substance use in more social ways. That is, individuals may model their drug use behaviors and attitudes based on what they learn from family members (Hawkins, Catalano, & Miller, 1992; Johnson & Leff, 1999; Kilpatrick et al., 2000). For example, tolerant parental attitudes toward marijuana and tobacco use are positively associated with use of these substances by youth (Bahr, Hoffman, & Yang, 2005), which may hold into adulthood.

Given that African American families and communities tend to be insular and highly supportive of their members (Billingsley, 1992; Hill, 1999; Stack, 1974), family ties may be an important factor to examine when studying substance use among this group. To date, existing research examining social factors and their connection to substance use among African Americans has produced mixed findings. Family relationships appear to be particularly salient in the lives of African American women and may influence, either positively or negatively, substance use initiation and continued use (Delva et al., 2005; Delva et al., 2006; Juon, Fothergill, Green, Doherty, & Ensminger, 2011; Stack, 1974). Life course analyses by Juon and colleagues (2011) indicate that low social support and family involvement among adolescents are correlated with persistent marijuana use in adult African American women. Delva and colleagues (2005), while not focusing on family support, found an inverse relationship between social support and cigarette smoking among a sample of African American women in Detroit. Taken collectively, these findings underscore the significance of familial and peer social contextual influences on tobacco and marijuana use, but suggest the need for further research to clarify their specific effects among African American women.

Substance Use Perceptions

An individual's perception regarding the potential risks and benefits of using a particular substance has been found to be a key predictor of whether they go on to actually use drugs (Bachman, Johnston, & O'Malley, 1998). Substance use perceptions have been measured in many ways, but generally refer to the degree of wrongfulness, risk, and/or harm an individual attributes to use of a given substance, as well as how these assessments compare or contrast between different substances (e.g., this study examines perceived wrongfulness of marijuana use compared to tobacco use). An individual's friend and family networks largely inform one's substance use perception, and shared perceptions about tobacco and marijuana use have been documented in African American communities.

Broadly speaking, substance use perceptions are associated with use such that increases in perceived risks are associated with decreases in substance use (SAMHSA, 2012). However, African American focus group participants perceive marijuana as less harmful than

cigarettes – describing marijuana as “more natural” and “fresh” than cigarettes, and characterized as non-addictive and less likely to cause cancer (Malone et al., 2001). Another study examining perceptions of tobacco smoking among pregnant women found that women with higher education levels had more accurate perceptions of the harmful health-related risks of smoking, and that education and smoking were inversely related (Arnold et al., 2001). Taken together, these findings suggest that perceptions of the risk associated with tobacco and marijuana use among African Americans may be unique, calling for further within-racial group research.

Substance Use Risk and African Americans

African Americans, especially those of low socioeconomic status, are at a high risk of tobacco use and suffer disproportionately from tobacco related illness and death, though they may not recognize the gravity of this risk. Relative to Whites, African Americans underestimate the risks associated with smoking (Arnett, 2000; Reimer, Gerrard, & Gibbons, 2010; Stein, Zhao, Crammer, & Gansler, 2007; Weinstein, Marcus, & Moser, 2005). This is especially problematic, as past findings demonstrate that African American smokers at lower levels of use are more susceptible to the negative effects of tobacco carcinogens (Smith-Warner et al., 2003; Ziegler, Mayne, & Swanson, 1996). Though these risks can be mitigated by a greater intake of fruits and vegetables, those at the lowest levels of income who have diminished access to affordable, healthful foods may be particularly vulnerable to these tobacco-related health risks (Haiman et al., 2006). Research also indicates that long-term marijuana smoking increases the risk of lung cancer, and this risk is greatest for those who report smoking marijuana regularly for more than 10 years (Aldington et al., 2008). Given these findings, which emphasize the risks associated with long-term tobacco and marijuana use in adulthood, research is needed to explore the interconnections between recognizing the risks associated with, and actual use, of tobacco and marijuana in African American women.

It is important to note that co-use of tobacco and marijuana is common (see Ramo, Liu, & Prochaska, 2012). Results from a study using National Survey on Drug Use and Health (NSDUH) data found that African Americans were more likely than white non-Hispanic persons to report co-use of marijuana and tobacco (Schauer et al., 2015) and others have reported similar findings (Ramo et al., 2012). In the present study, we were interested in determining if the effects of social context and substance use perceptions on daily use were different for African American women using tobacco (a legal drug) compared to those using marijuana (an illegal drug) and thus did not include co-use in the analytic models.

Study Purpose

This is the first known study to examine the effects of social contextual variables and substance use perceptions on daily use of tobacco and marijuana among African American women. Historically, African American women have been excluded from drug research studies for a variety of reasons, including their low rates of drug use; however, certain types of substance use may be deemed normative in some African American communities or among individuals with a criminal history. Thus, the current within-racial group study focuses on this unrepresented population and increases the understanding of how social contextual influences and substance use perceptions – including perceptions of

wrongfulness, risk, and danger – are associated with African American women’s use of more commonly used substances (tobacco and marijuana).

Methods

Survey data was collected from 643 African American women as part of a larger longitudinal, grant-funded project called “Black Women in the Study of Epidemics”. Women were recruited from prison (n=230), probation offices (n=197) and the community (n=206) in one southern state in which marijuana use is illegal. A stratified sampling strategy was employed to ensure that about half of participants were drug-users (i.e., had used an illegal drug in the 6 months prior to the baseline). This study uses data from the 12-month follow-up because additional questions regarding marijuana use were added to this wave of the data based on anecdotal evidence from study staff about the differing norms and perceptions of marijuana use in some African American communities. Only 584 of the 643 women who completed the baseline data collection were eligible for 12-month follow-up data collection as two women died and 57 were not released from prison during the study timeframe. While a portion of the sample were incarcerated at the baseline, they had all been released by the time of the 12-month interview as this was part of the eligibility criteria. Of the 584 women eligible, 536 participated in the follow-up data collection for a 92% 12-month follow-up rate. Fifteen participants were excluded due to missing data on one of the variables of interest, resulting in a final sample size of 521 African American women.

Eligibility criteria included: (1) self-identifying as an African American woman, (2) at least 18 years of age, (3) speaking English, and (4) willingness to participate. Recruitment differed based on criminal justice status. For the prison sample, all African American women meeting the parole board within 60 days were invited to an information session at the prison. For the probation sample, African American women were approached in six district probation offices and invited to participate in the study. Community women were recruited through flyers posted in public venues (e.g., beauty shops, bus stations, etc.) in zip codes with the highest percentages of African Americans. Community women could not be involved in the criminal justice system at the time of the baseline data collection (e.g., on parole, on probation, in drug court, or be awaiting trial). The 12-month follow-up interviews for all three groups of women (prison, probation, community) were conducted in private rooms in public locations such as public libraries, on a university campus, or at a community based organization.

This study was approved by the Institutional Review Board and a federal Certificate of Confidentiality was obtained. Informed consent was obtained prior to data collection. Trained African American female study staff collected data using laptops outfitted with Computer Assisted Personal Interviewing (CAPI) software. All participants received \$25 for participating in the 12-month follow-up data collection.

Measures

For the two dependent variables of interest, participants were asked if they had used tobacco daily in the past 6 months (0=no; 1=yes), and if they had used marijuana daily in the past 6 months (0=no; 1=yes). Daily use of tobacco and marijuana were selected as the dependent

variables over ever having used these substances in the past six months, as daily use presents a more critical public health concern.

Several control variables were included in the multivariate models. Age was measured in number of years. As participants were recruited from one of three venues, a series of two dummy variables were created for prison (0=not recruited from prison; 1=recruited from prison) and for probation (0=not recruited while on probation; 1=recruited while on probation). The community sample was the reference group. Due to the stratified sampling design, drug use status was measured as past year drug use at the time of the baseline data collection (0=no; 1=yes). Dichotomous variables for marital status (0=not married; 1=married) and high school degree equivalent (0=less than 12 years of school; 1=12 or more years of school) were also included. Household income was recoded to the midpoint and measured in tens of thousands of dollars.

Independent variables of interest included four social context variables. Participants were asked if they had a family history of alcohol or drug problems (0=no; 1=yes). Participants were also asked whom they spent most of their free time with in the past six months with the following response category options: family, friends, alone, or other. A dichotomous measure was created assessing if the participant spent most of their free time with family (0=no; 1=yes). A measure of living with a person who uses non-prescribed (i.e., illegal) drugs in the past six months (0=no; 1=yes) was also included in the models. Finally, social support was measured using the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem, Zimet, & Farley, 1988). The twelve items were measured on a seven-point Likert scale ranging from 1=very strongly disagree to 7=very strongly agree. Higher scores indicated greater levels of perceived social support from family, friends, and significant others. Examples of items include “My family really tries to help me” and “I can count on my friends when things go wrong.” The social support scale was highly reliable ($\alpha = .92$).

Substance use perceptions are operationalized as the way a person thinks about or understands the wrongfulness, harm, and danger associated with substance use. Five items measuring substance use perceptions were included. To assess perceptions of *wrongfulness*, participants were asked “How wrong it is for someone to smoke one or more packs of cigarettes per day?” and “How wrong it is for someone to smoke marijuana regularly?” Responses for both variables ranged from 1 (not at all wrong) to 4 (extremely wrong). To assess *harmfulness*, participants were asked “How much do people risk harming themselves (physically or in other ways) if they smoke one or more packs of cigarettes per day?” and “How much do people risk harming themselves (physically or other ways) if they smoke marijuana regularly?” Responses for these two variables were measured on a four-point scale ranging from 1 (no risk) to 4 (great risk). To assess perceptions of *danger*, participants were asked “When compared to marijuana, do you think tobacco is more or less dangerous?” (0=tobacco less dangerous; 1=tobacco more dangerous).

For all variables, descriptive statistics and associations were examined. Four multivariate logistic regression models were used to identify the significant correlates of daily tobacco (Models 1 and 2) and daily marijuana use (Models 3 and 4) in the past six months. Because

wrongfulness and harmfulness were significantly correlated for both tobacco ($r = .36, p = .01$) and especially for marijuana ($r = .60, p = .01$), each variable is examined in a separate model. Models 1 and 3 examine the effect of wrongfulness, while Models 2 and 4 explore the relationship between harmfulness and daily use. After separating wrongfulness and harmfulness into different models, results did not indicate problems with multicollinearity as all the variance inflation factors were less than 2.0. Results of the four multivariate logistic regression models (Table 2) report adjusted odds ratios, 95% confidence interval, Model χ^2 , and Nagelkerke R^2 . Data analyses were conducted using Stata SE version 12.0.

Results

The majority of African American women were single (88.48%) and had a high school degree (62.76%). Participants reported a mean household income of \$10,322 and a mean age of almost 37 years (see Table 1 for descriptive statistics). As expected based on the stratified sampling design, a little over half reported being drug users on the screener (58.00%) and about a third of participants were recruited from each of the three venues. While more than half of participants reported having a family member with an alcohol or drug problem (59.69%), a similar percentage also reported spending most of their free time with family (58.93%). Only 14.78% reported living with a person who uses drugs and, overall, participants had a great deal of social support (mean = 5.61, $SD = 1.15$, range: 1 to 7).

In the prior six months, 57.39% of participants reported using tobacco and 52.59% used tobacco daily. About one-third (32.82%) reported using marijuana in the past six months and 10.56% used marijuana every day during the 6-month window. The prevalence of daily co-use of tobacco and marijuana was 8.30%. It is also noteworthy that 60.77% of the women in the sample reported seeing and 64.62% reported smelling marijuana while growing up.

As displayed in the first two bars of Figure 1, the majority of African American women in this study reported that it is extremely wrong to smoke tobacco or marijuana as compared to those that felt tobacco or marijuana use was moderately, slightly or not at all wrong. Participants were significantly more likely to view tobacco use as extremely wrong as compared to marijuana use; 43.1% and 35%, respectively ($\chi^2 = 285.94, p = .000$). The third and fourth bars in Figure 1 display risk perceptions of tobacco and marijuana. African American women were most likely to report that people risk great harm (rather than moderate, slight, or no harm) if they smoke tobacco or marijuana. While 42.7% of the women reported an extreme risk of harm associated with marijuana use, 69.5% associated tobacco use with an extreme risk of harm, indicating the risk of harm was perceived as much greater for tobacco use than for marijuana use ($\chi^2 = 95.92, p = .000$).

Results of the four multivariate models are displayed in Table 2. Models 1 and 2 examine the correlates of daily tobacco use, while daily marijuana use was the dependent variable in Models 3 and 4. Model 1 revealed that participants who were recruited while on probation ($p = .01$), who reported being a drug user on the screener ($p = .05$), and who had fewer than 12 years of education ($p = .05$) were significantly more likely to use tobacco daily in the past six months. Moreover, having a family history of substance use problems was the most robust correlate of daily tobacco use and increased the odds of using tobacco every day

almost four-fold (AOR = 3.82; 95% CI: 2.37–6.16; p .001). Also, the perception that it was wrong to smoke tobacco was protective against daily tobacco use, net of the effects of the other variables in the model (p .05). Women who reported that tobacco use is more dangerous than marijuana were 54% more likely to be daily tobacco users (AOR = 1.54; 95% CI: 1.02–2.33; p .05).

Table 2.

Multivariate Logistic Models Identifying the Significant Correlates of African American Women's Daily Tobacco Use and Daily Marijuana Use in the Past Six Months (n=521)

	Daily Tobacco Use		Daily Marijuana Use	
	Model 1:	Model 2:	Model 3:	Model 4:
<i>Socio-demographics</i>				
Age	.99 (.97–1.01)	.99 (.97–1.01)	.95 ** (.92-.99)	.96 * (.93-.99)
Prisoner	1.11 (.66–1.88)	1.08 (.64–1.83)	.67 (.30–1.52)	.60 (.26–1.37)
Probationer	1.95 ** (1.20–3.17)	1.98 ** (1.21–3.23)	.81 (.37–1.74)	.63 (.29–1.39)
Drug User on Screener	1.72 * (1.10–2.69)	1.83 ** (1.17–2.86)	4.85 *** (1.93–12.22)	6.07 *** (2.37–15.53)
Married	.56 (.29–1.10)	.54 (.28–1.05)	1.83 (.67–4.99)	2.04 (.72–5.78)
High School Degree	.61 * (.40-.93)	.63 * (.41-.96)	.42 * (.21-.82)	.40 ** (.20-.79)
Income	.99 (.97–1.01)	.99 (.97–1.01)	1.01 (.98–1.04)	1.01 (.98–1.04)
<i>Social Context</i>				
Family Member with Substance Use Problems	3.82 *** (2.37–6.16)	3.79 *** (2.35–6.10)	.99 (.45–2.16)	1.04 (.46–2.33)
Spend Most of Free Time with Family	.94 (.862–1.42)	.93 (.61–1.40)	1.05 (.87–1.28)	1.22 (.62–2.39)
Live with a Person Who Uses Drugs	1.68 (.99–3.02)	1.66 (.92–3.00)	2.25 * (1.03–4.94)	2.48 * (1.12–5.49)
Social Support Scale	1.03 (.86–1.24)	1.00 (.84–1.20)	1.03 (.78–1.35)	1.08 (.82–1.43)
<i>Substance Use Perceptions</i>				
Wrong to Smoke Tobacco	.77 * (.63-.94)	---	---	
Risk of Harm Using Tobacco	---	.69 ** (.52-.90)	---	
Wrong to Smoke Marijuana	---	---	.51 *** (.37-.70)	
Risk of Harm Using Marijuana	---	---	---	.38 *** (.27-.53)
Tobacco is More Dangerous than Marijuana	1.54 * (1.02–2.33)	1.56 * (1.03–2.38)	1.02 (.62–2.34)	1.06 (.54–2.08)
-2 Log Likelihood	596.05	596.35	274.87	263.14
Model χ^2	124.81 ***	127.07 ***	76.43 ***	97.09 ***
Nagelkerke R ²	.28	.29	.28	.34

Notes:

p .001,
**
p .05,
*
p .01;

Adjusted Odds Ratios (AOR) and 95% Confidence Intervals are displayed; Models 1 and 3 examine the effect of wrongfulness on daily tobacco and marijuana, respectively; Models 2 and 4 explore the relationship between harmfulness and daily tobacco and marijuana use, respectively; Age was measured in number of years; Income was measured in tens of thousands of dollars; Social support was measured on a 7-point Likert scale ranging from 1=very strongly disagree to 7=very strongly agree; Perceptions of wrongfulness were measured on a 4-point Likert scale ranging from 1=not at all wrong to 4=extremely wrong; Perceptions of harmfulness were measured on a 4-point Likert scale ranging from 1=no risk to 4=great risk.

Model 2 also examined the correlates of daily tobacco use, but instead of including perceptions of the wrongfulness of tobacco use, it included perceptions of tobacco risk. Similar to Model 1, participants were significantly more likely to be daily tobacco users if they were recruited while on probation ($p = .01$), were a drug user on the screener ($p = .01$), and had fewer than 12 years of education ($p = .05$). Also, women with a family history of drug or alcohol problems were almost four times as likely to be daily tobacco users than those without a family history (AOR = 3.79; 95% CI: 2.35–6.10; $p = .001$). Both the perception that tobacco use is harmful ($p = .01$), and view that tobacco is more dangerous than marijuana were significant, similar to Model 1. Specifically, the greater the perceived risk of harm associated with tobacco, the less likely a woman was to be a daily tobacco user (AOR = 0.69; 95% CI: 0.52–0.90; $p = .01$). In addition, women who reported tobacco use as more dangerous than marijuana were 56% more likely to be daily tobacco users, even when accounting for risk perception (AOR = 1.56; 95% CI: 1.03–2.38; $p = .05$).

Models 3 and 4 display the results of the analyses examining the independent correlates of being a daily marijuana user, with the perception that it is wrong to use marijuana and the risk of harm from using marijuana variables included respectively. In Model 3, older participants ($p = .01$), and those with at least 12 years of education ($p = .05$) were significantly less likely to be daily marijuana users in the past six months; whereas, being a drug user on the screener increased the odds of using marijuana by a factor of 4.85 (95% CI: 1.93–12.22; $p = .001$). As with daily tobacco use, social context also matters with regard to daily marijuana use. African American women living with a person who uses drugs were twice as likely to use marijuana daily (AOR = 2.25; 95% CI: 1.03–4.94; $p = .05$). Additionally, women who perceived smoking marijuana as wrong were significantly less likely to report daily marijuana use ($p = .001$).

The same socio-demographic characteristics that were significant in Model 3 were also significant in Model 4. African American women were less likely to be daily marijuana users if they were older ($p = .05$), more educated ($p = .01$), and did not report being a drug user when screened ($p = .001$). Similar to Model 3, living with a person who uses drugs increased the odds of using marijuana daily more than two-fold (AOR = 2.48; 95% CI: 1.12–5.49; $p = .05$). Also, the perception that marijuana use is harmful was protective against daily marijuana use in the past six months, net of the effects of the other variables in the model ($p = .001$). All four multivariate models were statistically significant.

Discussion

This study examined the socio-demographic, social context, and substance use perceptions associated with daily tobacco and marijuana use among a sample of African American women. Overall, there was a higher prevalence of daily tobacco use (52.59%) in this sample of women compared to national reports for African American women generally (13.5%; Jamal et al., 2018). The stratified recruitment strategy and purpose of the study (i.e., criminal justice involvement for 62.2% of study participants) likely accounts for this difference, as having a history of incarceration is associated with a higher risk of tobacco use for African American women (Bailey, Okechukwu, Kawachi, & Williams, 2015). Prevalence rates of daily marijuana use in this sample (10.56%) are also concerning, and possibly related to

involvement in the criminal justice system. Given that women of color are the fastest growing incarcerated population (The Sentencing Project, 2015), incarceration may act as a catalyst for increasing tobacco use rates in African American communities (Bailey et al., 2015) and may be associated with daily marijuana use.

Despite the high prevalence of daily tobacco use, women in this study perceived tobacco use as being significantly more wrong and more harmful than marijuana use at the bivariate level. This may be due, in part, to the addictive properties of nicotine, and greater public awareness of the health consequences of tobacco use. According to the Centers for Disease Control and Prevention (2018), African Americans are more likely to report wanting to quit using tobacco but are less likely to do so and have fewer successful quitting attempts than Whites and Hispanics. This finding may also be an artifact of period effects, given the mean age of the current sample was 36.91, many of these women grew up in a historic era of growing knowledge of tobacco's harms coupled with aggressive tobacco marketing. It was not until 1998, when the average woman in this sample would have been in her 20s, that the Master Settlement Agreement banned multiple forms of tobacco advertising and marketing (Niemeyer et al., 2004). Tobacco companies have historically targeted African American communities, even after the 1998 agreement (Kwate & Lee, 2007). Other research has provided evidence that marijuana use may be more normative in African American communities (Stevens-Watkins, Perry, Harp, & Oser, 2012; Wei, Loeber, & White, 2004), and also that perceptions of harmfulness concerning marijuana use are typically lower than those of tobacco or cigar use among African Americans (Malone et al., 2001). This study supported the latter finding in that the African American women in this sample perceived tobacco use as being significantly more harmful than marijuana use. This finding is not surprising in light of the nation-wide movement to sway public opinion on reforming marijuana laws, including decriminalizing personal use, approving medicinal use, and promoting industrial hemp.

In the multivariate models, being older and having at least 12 years of education were protective against daily marijuana use, and education was a protective factor against daily tobacco use. This aligns with national research that finds individuals with lower levels of education are more likely to use tobacco (Homa et al., 2015). While a study by Wu and colleagues (2016) using NSDUH data found a similar association between lower levels of education and marijuana use and dependence, they found that being younger significantly *increased* the odds of marijuana dependence. Education remains a protective factor against substance use, and efforts should be made to improve education more generally, but also increase knowledge about the potential harms associated with substance use, particularly in communities with high rates of tobacco, marijuana, and other substance use.

Criminal justice involved (i.e., recruitment venue) was a significant correlate of daily tobacco use, but not of daily marijuana use. Specifically, African American women recruited while on probation were significantly more likely to report daily tobacco use than women recently released from prison or the community. Tobacco use may be a coping mechanism for African American women on probation that is legal, relatively low-cost, accessible, and socially sanctioned among those under community supervision. A 2010 study of men and women on community supervision found high rates of interest in receiving an intervention to

quit smoking among their participants (Cropsey, Jones-Whaley, Jackson, & Hale, 2010), thus probationers may be an important population to target for smoking cessation interventions. In comparison, prisons in this state are tobacco-free institutions and African American women in the prison sample likely had a significant period of time without access to tobacco as the average length of incarceration for participants was 51 months. This could explain the lack of a significant relationship between being in the prison sample and daily tobacco use. In the marijuana multivariate models, the recruitment venue (i.e., prison, probation, and community) was not significantly associated with daily marijuana use, likely reaffirming other study findings of the normalization of marijuana use within the African American community (Sanders, 2012; Malone et al., 2001).

While some of the social context variables considered were not associated with African American women's daily tobacco or marijuana use (i.e., social support and spending most of one's free time with family), several social contextual factors were significant correlates. Specifically, the most robust correlate of regular tobacco use was having a family member with substance use problems, whereas living with a person who uses drugs was the most robust correlate for marijuana use. These findings provide support for both the genetic and learned components of addiction. In the first case, research has established that genes play a role in risk for substance use. The National Institute on Drug Abuse (NIDA, 2016), in summarizing numerous genetic and epigenetic twin and family studies, suggests that up to one half of a person's risk for becoming dependent on nicotine, alcohol, or drugs can be contributed to their genetic makeup. On the other hand, from a social influence perspective (Friedkin, 1998; Valente, 2010), living in an environment where one or more people are using drugs, nicotine, or alcohol is a risk factor for substance use. Whether co-habiting with family, friends, a romantic partner, or someone else, the social modeling of substance use as normative and/or positive can lead to changes in one's own thinking and attitudes towards substance use and may increase their chances of initiating such use themselves.

Implications

Prevention and cessation efforts should include important educational information about prevalence rates of marijuana and tobacco use in the communities that are targeted as compared to national rates to address misconceptions as well as discuss health consequences of both commonly used substances (Webb, Francis, Hines, & Quarles, 2007). Interventions developed that focus on preventing marijuana use may also be useful in not only reducing rates of initiating marijuana use, but also of initiating tobacco use. Finally, although the authors acknowledge that genetics play a role in the passing down of substance use behavior from one generation to the next, the role of one's social environment is also significant, as well as a more feasible target for prevention efforts. Because living with a person who uses drugs increased the likelihood of marijuana use for women in this sample, prevention efforts should be made early in life to educate parents on the effects of not only their family history, but also their own substance-using behavior on the views and future substance-using behavior of their children. In terms of adulthood, it is difficult to address the effects of living with someone who uses drugs on the other people in the home. One avenue for future research could be examining if there are other pro-social ways to offset the effects of living with a person who uses drugs.

Results of this study also demonstrate that perceptions of wrongfulness and harmfulness were protective against regular tobacco and marijuana use, reinforcing existing research (Danseco, Kingery, & Coggeshall, 1999; SAMHSA, 2012). That is, when risk and harm were perceived, African American women were less likely to engage in risky or harmful behaviors. While the mechanisms for understanding how their perceptions were created cannot be determined by this study, the results do bolster the importance of educational messages in prevention efforts. Future studies should consider employing qualitative methods with similar populations, to ascertain the mechanisms by which individuals acquire their perceptions of risk and wrongfulness, and if this differs based on factors such as race/ethnicity and socioeconomic status. Further, among the women in this study, agreeing with the statement that tobacco is more harmful than marijuana was not protective against daily tobacco use. The latter result may be confounded by the physically addictive quality of nicotine that makes cessation difficult, in spite of perceived harm.

Limitations

Limitations include the use of self-report data and limited generalizability. The stratified sampling design based on drug use status and the three recruitment venues (i.e., prison, probation, and community) may be deemed as a limitation, but it is also a strength as research suggests there is heterogeneity in tobacco and marijuana use among African American women. Moreover, researchers have advocated for more studies on within-racial group variations, particularly among groups at higher levels of risk, in order to tailor prevention and intervention efforts and reduce health disparities (King et al., 2006). Measurement limitations were also a concern as items assessing familial use of tobacco during childhood or familial current use of tobacco or marijuana were not assessed. An additional measurement limitation is the use of single items to measure complex concepts such as social contextual influences. Future research should examine social contextual influences and perceptions of wrongfulness, risks, and harms as predictors of daily tobacco and marijuana use with longitudinal analyses.

Conclusion

This study adds to the literature on risk and protective factors related to daily tobacco and marijuana use, focusing on African American women, the majority of whom are from low socioeconomic backgrounds – a historically understudied population. In addition to age and education being protective from daily tobacco and marijuana use, an individual's substance use perceptions and social context also had an effect. Perceiving both tobacco and marijuana use as wrong and perceiving a greater risk of harm from using tobacco and marijuana were protective against daily use of either substance. In addition, having a family member with substance use problems significantly increased the likelihood of being a daily tobacco user, while living with a person who uses drugs increased the likelihood of daily marijuana use. Continued efforts should be made to educate communities at high risk about the health effects of tobacco use, as well as marijuana use. Existing research shows that marijuana use is more culturally accepted among many African American communities (Malone et al., 2001; Sanders, 2012), and with the continued legalization of cannabis use across many states in the U.S., normalization of marijuana use is likely to increase across the board in the

absence of concentrated prevention and intervention efforts, and education about the health effects of its use.

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Figure 1.

Wrongfulness^a and Risk of Harm^b of Smoking One or More Packs of Cigarettes Per Day Versus Smoking Marijuana Regularly

^a The difference between the perceptions of wrongfulness of tobacco use versus marijuana were statistically significant at the $p < .001$ level.

^b The difference between the perceptions of risk of harm due to tobacco versus marijuana were statistically significant at the $p < .001$ level.

Table 2.

Multivariate Logistic Models Identifying the Significant Correlates of African American Women's Daily Tobacco Use and Daily Marijuana Use in the Past Six Months (n=521)

	Daily Tobacco Use		Daily Marijuana Use	
	Model 1:	Model 2:	Model 3:	Model 4:
<i>Socio-demographics</i>				
Age	.99 (.97–1.01)	.99 (.97–1.01)	.95 ** (.92-.99)	.96 * (.93-.99)
Prisoner	1.11 (.66–1.88)	1.08 (.64–1.83)	.67 (.30–1.52)	.60 (.26–1.37)
Probationer	1.95 ** (1.20–3.17)	1.98 ** (1.21–3.23)	.81 (.37–1.74)	.63 (.29–1.39)
Drug User on Screener	1.72 * (1.10–2.69)	1.83 ** (1.17–2.86)	4.85 *** (1.93–12.22)	6.07 *** (2.37–15.53)
Married	.56 (.29–1.10)	.54 (.28–1.05)	1.83 (.67–4.99)	2.04 (.72–5.78)
High School Degree	.61 * (.40-.93)	.63 * (.41-.96)	.42 * (.21-.82)	.40 ** (.20-.79)
Income	.99 (.97–1.01)	.99 (.97–1.01)	1.01 (.98–1.04)	1.01 (.98–1.04)
<i>Social Context</i>				
Family Member with Substance Use Problems	3.82 *** (2.37–6.16)	3.79 *** (2.35–6.10)	.99 (.45–2.16)	1.04 (.46–2.33)
Spend Most of Free Time with Family	.94 (.862–1.42)	.93 (.61–1.40)	1.05 (.87–1.28)	1.22 (.62–2.39)
Live with a Person Who Uses Drugs	1.68 (.99–3.02)	1.66 (.92–3.00)	2.25 * (1.03–4.94)	2.48 * (1.12–5.49)
Social Support Scale	1.03 (.86–1.24)	1.00 (.84–1.20)	1.03 (.78–1.35)	1.08 (.82–1.43)
<i>Substance Use Perceptions</i>				
Wrong to Smoke Tobacco	.77 * (.63-.94)	---	---	
Risk of Harm Using Tobacco	---	.69 ** (.52-.90)	---	
Wrong to Smoke Marijuana	---	---	.51 *** (.37-.70)	
Risk of Harm Using Marijuana	---	---	---	.38 *** (.27-.53)
Tobacco is More Dangerous than Marijuana	1.54 * (1.02–2.33)	1.56 * (1.03–2.38)	1.02 (.62–2.34)	1.06 (.54–2.08)
–2 Log Likelihood	596.05	596.35	274.87	263.14
Model χ^2	124.81 ***	127.07 ***	76.43 ***	97.09 ***
Nagelkerke R ²	.28	.29	.28	.34

Notes:

p .001,

**
p .05,

*
p .01;

Adjusted Odds Ratios (AOR) and 95% Confidence Intervals are displayed; Models 1 and 3 examine the effect of wrongfulness on daily tobacco and marijuana, respectively; Models 2 and 4 explore the relationship between harmfulness and daily tobacco and marijuana use, respectively; Age was measured in number of years; Income was measured in tens of thousands of dollars; Social support was measured on a 7-point Likert scale ranging from 1=very strongly disagree to 7=very strongly agree; Perceptions of wrongfulness were measured on a 4-point Likert scale ranging from 1=not at all wrong to 4=extremely wrong; Perceptions of harmfulness were measured on a 4-point Likert scale ranging from 1=no risk to 4=great risk.

Table 1.

Descriptive Sample Statistics (n=521)

	Percent	Mean	S.D.	Range
<i>Dependent Variables</i>				
Daily Tobacco Use in the Past Six Months	52.59%			
Daily Marijuana Use in the Past Six Months	10.56%			
<i>Socio-demographics</i>				
Age		36.91	11.63	19.00–70.00
Drug User on Screener	58.00%			
Married	11.52%			
High School Degree Equivalent	62.76%			
Income		10.32	12.98	2.50–87.50
<i>Recruitment Venue</i>				
Prison	28.98%			
Probation	33.21%			
Community (no criminal justice involvement)	37.81%			
<i>Social Context</i>				
Family Member with Substance Use Problems	59.69%			
Spend Most of Free Time with Family	58.93%			
Live with a Person Who Uses Drugs	14.78%			
Social Support Scale		5.61	1.15	1.00–7.00
<i>Substance Use Perceptions</i>				
Wrong to Smoke Tobacco		2.99	1.05	1.00–4.00
Wrong to Smoke Marijuana		2.79	1.09	1.00–4.00
Risk of Harm Using Tobacco		3.57	.75	1.00–4.00
Risk of Harm Using Marijuana		2.99	1.04	1.00–4.00
Tobacco is More Dangerous than Marijuana	61.23%%			