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An Examination of Intimate Partner Violence and Cigarette Smoking among African American Women in 12 States

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Eboneka Coleman, Student

Linda Alexander, EdD, Committee Chair

Dr. Linda Alexander, Director of Graduate Studies

An Examination of Intimate Partner Violence and Cigarette Smoking among African American Women in 12 States

CAPSTONE PROJECT PAPER

A paper submitted in partial fulfillment of the
requirements for the degree of
Master of Public Health
in the
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By
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Washington, DC

Lexington, Kentucky
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Abstract

Introduction. African American female intimate partner victims (IVP) are more likely to abuse substances, suffer from depression and anxiety, and experience mental health issues, including PTSD, all of which are risk factors for smoking. The purpose of this study is to determine among African American women who have ever experienced IPV the prevalence of smoking and whether it is influenced by education and income.

Methods. Data for this study comes from the 2005 Centers for Disease Control and Prevention (CDC) state-based Behavioral Risk Factor Surveillance System (BRFSS). This primary study population was African American females who answered IPV-related questions in 12 states. For the purposes of this analysis, 2,641 African American women were included in the study. Descriptive statistics were used to characterize the sample. Frequencies were used to analyze the sociodemographic characteristics of study participants. Bivariate analysis using chi-square test was performed to determine the association of African American women who experience any IPV by those who have smoked at least 100 cigarettes. Multivariate analysis using chi-square tests assessed the relationship between IPV and cigarette smoking, stratified by income and education levels.

Results. Approximately one-quarter of African American women reported experiencing any IPV (28.9%). Similarly, about one-third of women reported smoking at least 100 cigarettes (30.1%). African American women who experienced any IPV were more likely to smoke (40.0%) compared to women who had not experienced any IPV (25.9%) ($p < 0.001$). Women with lower educational levels were more likely to smoke (31.7%) compared to women who had higher education levels (28.4%); however, these results were not statistically significant ($p = 0.067$). African American women who made less than \$25,000 smoked at a higher rate (37.0%) than women who made \$25,000-\$50,000 (27.9%), and women who made \$50,000 or more (22.7%) ($P < 0.001$).

Discussion. African American women who are victims of IPV are more likely to smoke, regardless of how educated they may be or how much money they earn. Further research is needed to determine potential barriers faced by African American women IPV victims, and their success with integrated smoking cessation and IPV recovery programs.

INTRODUCTION

Compared to the general population, African Americans typically experience higher rates of preventable disease, lower quality health care, and increased morbidity and mortality.¹ In particular, African American women experience disproportionate health disparities, including increased rates of Intimate Partner Violence (IPV) and cigarette smoking.²

African American women are at an increased risk of experiencing any IPV.^{3,4} Rates of IPV among African American women are 35% (11.1 per 1,000) higher than that of White females (8.2 per 1,000) and 2.5 times that of other races (4.1 per 1,000).³ Recent occurrences with IPV are associated with risky health behaviors and physical symptoms.⁵ With African American women having a lifetime prevalence of IPV at 29.1%, it is important to further investigate and study this population in order to identify predictors of African American women being at increased risk for IPV victimization⁶. Notably, African American women victims of IPV have more mental health issues, and are more likely to abuse substances than women who are not victimized.⁷ These women are also at a greater risk of deliberate self-harm,⁸ depression, and suffering from Post-Traumatic Stress Disorder (PTSD).⁹

African American adults are disproportionately affected by cigarette smoking; approximately 45,000 African Americans die from smoking-related diseases each year.¹⁰ In the United States (U.S.), 18.3% of African American adults 18 years or older have smoked at least 100 cigarettes in their lifetime.¹¹ Although the adult smoking rate for African Americans is lower than American Indian/Alaska Natives (26.1%) and Whites (19.4%),

nearly one in five African American adults smoke menthol cigarettes (19.1%); this is three times the rate for White smokers (6.5%).¹¹ Females smoke menthol cigarettes at a rate double that of males (62.7% vs. 37.3%).¹² Research shows that menthol use in cigarettes makes it easier to start smoking and harder to quit, placing African American smokers at an increased risk for disproportionate health outcomes and lower chances of successfully achieving smoking cessation.¹³ Research suggest that fewer African American women are able to successfully quit smoking, but want to quit as much as their White counterparts.^{14,15} Although African American women have a lower rate of smoking (21.5%) compared to White women (21.9%), African American women are more likely to initiate smoking at a later age and are less likely to quit at an earlier age as opposed to their White female counterparts.² Notably, African American women are more likely to die of smoking-related diseases.¹⁶ Cerebrovascular disease (CVD) is a major cause of death in the U.S; smoking increases the risk of strokes. Importantly, the prevalence of CVD is twice as high among African American women than White women.¹⁷

Increased smoking rates are associated with certain risk factors, including genetics, socioeconomic factors, familial and peer influences, age, depression or mental illness, and substance abuse.¹⁸ Generational smoking is very prevalent in the African American community; children who have parents who smoke are more likely to begin smoking in adolescence compared to children born to non-smoking patents, creating a generational smoking continuum.¹⁹ African Americans are also disproportionately affected by secondhand smoke exposure (46.8%); smoking partners, parents, and immediate family continue to subject their loved ones to a preventable health hazard²⁰, which can lead to

stroke, lung cancer, and heart disease.¹⁰ Women of lower socioeconomic status are at an increased risk of smoking and less likely to achieve cessation.¹⁹

Existing literature has drawn an association between IPV victims and smoking, concluding that victims are more likely to smoke than non-victims.^{22,21,17} IPV and smoking are preventable public health issues that can result in both physical and psychological consequences.²² The effects endured by victims of IPV result in an increased risk for smoking. As noted earlier, African American women IPV victims are more likely to abuse substances, suffer from depression and anxiety, and experience mental health issues, including PTSD, all of which are risk factors for smoking.^{9,23,24}

To the author's knowledge there is no research available about the relationship among African American women victims of IPV and the effect that education and income have on smoking. Specifically, in meeting with a medical librarian, we used the following search terms: (("African Americans"[majr]) AND "United States"[Mesh] AND ("Smoking Cessation"[Mesh] OR "smoking cessation" OR (smoking AND cessation) OR "smoking"[mesh]) AND ("Battered women"[mesh] OR "Spouse Abuse"[Mesh] OR "spousal abuse" OR "intimate partner violence" OR "IPV" OR (partner AND violence) OR "sexual partners"[mesh])). Therefore, the purpose of this study is to determine among African American women who have ever experienced IPV the prevalence of smoking and whether it is influenced by education and income. We are hypothesizing that the victimization of African American women as a result of IPV may create a risk factor for smoking. Further, smoking leads to a number of smoking-attributable diseases, which in turn put African American women at risk for the disproportionate burden of poor health outcomes related to smoking and co-morbid conditions. In identifying an association between these

variables, more effective clinic-based IPV screening interventions, guided by income and/or educational thresholds, can be created to target smoking cessation programs when they may be most effective.

METHODS

Data Collection

Data for this study comes from the 2005 Centers for Disease Control and Prevention (CDC) state-based Behavioral Risk Factor Surveillance System (BRFSS). This system utilizes a standardized questionnaire, which is administered via a cross-sectional random digital dial telephone survey conducted monthly over both landline and cellular telephones by the 50 state health departments, territories, and the District of Columbia.²⁵ Prevalence data is collected among a random sample of 400,000 U.S. adults 18 years or older, focusing on preventive health practices and risk behaviors that may affect health status.²⁵ In 2005, additional questions pertaining to IPV were included in the optional state modules.

The 2005 BRFSS used computer-assisted telephone interviewing (CATI). The core questionnaire last approximately 10 minutes, state-added questions depended on the state, and can add an additional 5 to 10 minutes to the initial interview.²⁵ During this time, all surveillance sites had the capacity to monitor all interviews; all states were required to do callback verifications for a sample of interviews completed for quality control practices. The 2005 BRFSS data yielded a median response rate of 51.1% (range: 34.6% - 67.4%).²⁵ Due to the fact that BRFSS is de-identified data, this study was exempt from review by the University of Kentucky Office of Research Integrity.

Measures

For purposes of this study, only African American females' responses to survey questions were analyzed. The independent variable included in this study was having experienced any IPV. Respondents were asked four questions about IPV: 1) "Has an intimate partner EVER THREATENED you with physical violence? This includes threatening to hit, slap, push, kick, or physically hurt you in any way?", 2) "Has an intimate partner EVER hit, slapped, pushed, kicked, or physically hurt you in any way?", 3) "Other than what you have already told me about" has an intimate partner EVER ATTEMPTED physical violence against you? This includes times when they tried to hit, slap, push, kick, or otherwise physically hurt you, but they were not able to.", 4) "Have you EVER experienced any unwanted sex by a current or former intimate partner?". The responses to all four questions were yes or no. If any of the questions were answered with a YES, then the respondent was coded as having ever experienced IPV.

The dependent variable included in this study was any lifetime cigarette smoking. Women were asked one question concerning cigarette smoking: 1) "Have you smoked at least 100 cigarettes in your entire life? [Note: 5 packs = 100 cigarettes]" (Yes/No).

The descriptive variables included in this study were income and education. Women were asked one question related to income: "What is your annual household income from all sources?" (< \$15,000; \$15,000 - \$25,000; \$25,000 - \$35,000; \$35,000 - \$50,000; \$50,000+). From the original response options, a new three-category variable was created with the following levels: Less than \$25,000; \$25,000 - \$50,000; and \$50,000 or more.

Women were asked one question related to education: "What is the highest grade or year of school you completed?" (Did not graduate High School; Graduated High School; Attended

College or Technical School; Graduated from College or Technical School). From the original response options, a new two-category variable was created with the following levels: Did not Graduate High School, Graduated High School; Attended College or Technical School, Graduated from College or Technical School.²⁵

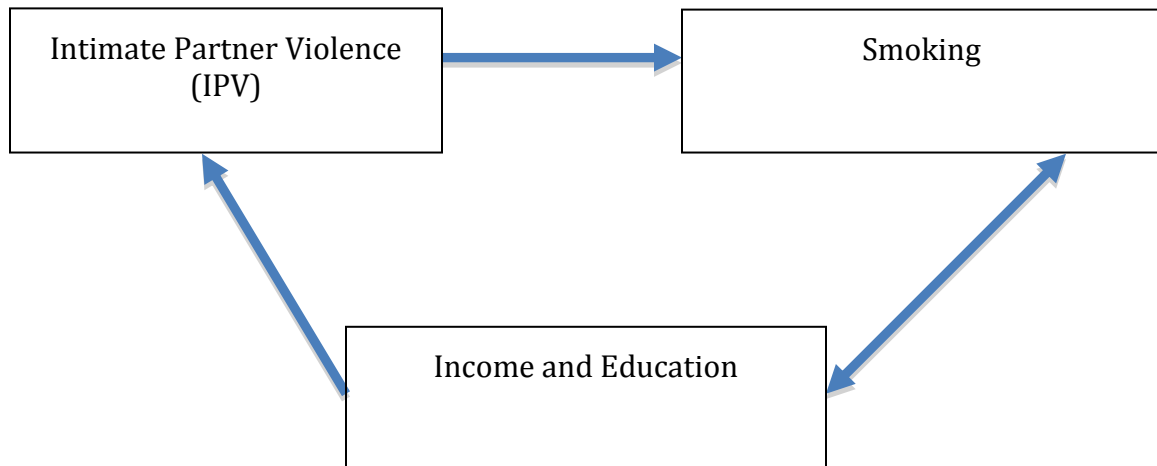
Study Population

This primary study population was African American females who answered IPV-related questions in the following 12 states: Arizona, Hawaii, Iowa, Missouri, Nevada, Ohio, Oklahoma, Puerto Rico, Rhode Island, Vermont, Virgin Islands, and Virginia. The questions answered for the purposes of the survey resulted in 2,641 African American women included in the study.

Statistical Analysis

Descriptive statistics were used to characterize the sample. Frequencies were used to analyze the sociodemographic characteristics of study participants. Bivariate analysis using chi-square test was performed to determine the association of African American women who experience any IPV by those who have smoked at least 100 cigarettes. Multivariate analysis using chi-square tests assessed the relationship between IPV and cigarette smoking, stratified by income and education levels. Missing data were excluded from the analysis. For this process, IBM Statistical Package for the Social Sciences Version 22 (SPSS) was used to analyze the data.

Conceptual Model



RESULTS

Sociodemographic characteristics of the study population are presented in Table 1. African American females accounted for 2,641 participants of the total BRFSS data collected in 2005. Of these women, less than half reported attending some college or more (48.5%), while more than half indicated they had a high school degree or less (51.5%). Almost half of these women (46.9%) made less than \$25,000 annually, 35.2% made anywhere from \$25,000-\$50,000, and less than a quarter (17.9%) made \$50,000 or more. Overall, approximately one-quarter of African American women reported experiencing any IPV (28.9%). Similarly, about one-third of women reported smoking at least 100 cigarettes (30.1%).

Table 1. Demographic characteristics of study participants [All Female African American] (N=2,641)	
Education	N (%)
High school education or less	1352 (51.5)
Attended some College or more	1275 (48.5)
Income	
< \$25,000	1107 (46.9)
\$25,000-\$50,000	831 (35.2)
≥\$50,000	422 (17.9)
Intimate Partner Violence (IPV)	
Yes	749 (28.9)
No	1841 (71.1)
Smoked at least 100 cigarettes	
Yes	793 (30.1)
No	1838 (69.9)

Table 2 displays the bivariate analysis of African American women who smoke, by whether they experienced any IPV, and their education and income levels. African American women who experienced any IPV were more likely to smoke (40.0%) compared to women who had not experienced any IPV (25.9%); the chi-square test was statistically significant ($p < 0.001$). Women with lower educational levels were more likely to smoke (31.7%) compared to women who had higher education (28.4%); however, these results were not statistically significant ($p = 0.067$). African American women who made less than \$25,000 smoked at a higher rate (37.0%) than women who made \$25,000-\$50,000 (27.9%), and women who made \$50,000 or more (22.7%); the chi-square test was statistically significant ($P < 0.001$).

Table 2. Association between Women Smoking and Experiencing any Intimate Partner Violence, Education and Income			
	No Smoke (%)	Smoke (%)	p
ANY IPV (N=2581)			< 0.001
YES	60.0%	40.0%	
NO	74.1%	25.9%	
Education Level (N=2569)			0.067
High School Education or Less	68.3%	31.7%	
Attended some College or More	71.6%	28.4%	
Income (N=2313)			<0.001
< \$25,000	63.0%	37.0%	
\$25,000 - \$50,000	72.1%	27.9%	
\$50,000 +	77.3%	22.7%	

Table 3 shows the associations between individuals who experienced any IPV and smoking, by education and income levels. Experiencing IPV had a strong association with smoking, regardless of education level. African American women who had a high school education or less, and have experienced IPV, smoked at a higher rate than women who had not experienced IPV (45.3% vs. 27.2%; $p < .001$). The same is true for African American women who attended some college or more: they were more likely to smoke having experienced IPV (35.8% vs. 24.7%; $p < .001$).

Related to income, the measures of association differ from one another by level of income, resulting in effect modification. African American women who make less than \$25,000 annually, and ever experienced IPV, smoked at a higher rate than the women who had not experienced IPV (50.9% vs. 31.0%; $p < .001$). The same is true for African American women who earned a median range of \$25,000-\$50,000 annually; they were more likely to

smoke having experienced IPV (34.8% vs. 25.1%; $p < .05$). However, a different association is observed among African American women smokers who made \$50,000 or more annually and experienced IPV versus those who did not smoke (24.8% vs. 21.7%; $p = .462$). These findings were not statistically significant. A noticeable trend can be observed within education and income levels, the percentage of African American women who smoke having experienced any IPV decreases as the level of education increases and the level of income increases.

Table 3. Association between Women Smoking and Experiencing any Intimate Partner Violence by level of Education and Income (N=2313)				
		No Smoke (%)	Smoke (%)	p
Education Level				
High School Education or Less	IPV-YES	54.7%	45.3%	<0.001
	IPV-NO	72.8%	27.2%	
Attended Some College or More	IPV-YES	64.2%	35.8%	<0.001
	IPV-NO	75.3%	24.7%	
Income				
> \$25,000	IPV-YES	49.1%	50.9%	<0.001
	IPV-NO	69.0%	31.0%	
\$25,000-\$50,000	IPV-YES	65.2%	34.8%	<0.007
	IPV-NO	74.9%	25.1%	
\$50,000 +	IPV-YES	75.2%	24.8%	.462
	IPV-NO	78.3%	21.7%	

DISCUSSION

As supported by previous literature, the investigative team found a link between IPV and smoking; however, this study offers a unique contribution to the literature by focusing specifically on African American women via the 2005 BRFSS. African American women who had ever experienced IPV were twice as likely to smoke compared to women who did not

ever experience IPV. These women were also more likely to smoke within lower levels of income and education; this rate declined as income and education increased. IPV victims are smoking at higher rates than those who had not experienced any IPV. When examining the associations between education levels, African American women with lower education who had experienced IPV were more likely to smoke than women of a higher educational level. With income, we found that African American women of low, medium and high-income levels who experience IPV were more likely to smoke than women who did not experience IPV. Overall, IPV had a strong association with smoking in African American women.

Although we cannot identify the temporal sequence of IPV and smoking, studies show that overall, African Americans smoke fewer cigarettes than their White counterparts per day, and smoking initiation begins later in life; however, they are still faced with a significantly greater smoking-related disease and mortality.¹⁶ The temporal sequence would help us identify when a woman first started smoking and started experiencing IPV, if they happened simultaneously or if one preceded the other and if the woman achieved smoking cessation and relapsed. IPV and smoking are significant public health problems for African American women. Specifically, studies show smoking-related illnesses surpasses all other causes of death, including diabetes, AIDS, and homicides, resulting in their status as the leading cause of death among African American adults.²⁶ This paradox results in approximately 500,000 premature deaths in the African American community due to smoking-related disease.¹⁰ Lung cancer exists at a higher rate in African American adults than that of their White counterparts²⁶; similarly, strokes are twice as likely to occur in African American women.²⁷

It is increasingly difficult for African American women to achieve smoking cessation due to the slow metabolization of nicotine.²⁸ Nicotine temporarily decreases stress, improves mood, and relaxes muscles; over time it can lead to changes in the brain that can cause withdrawal. Smoking allows nicotine to return to the brain, therefore, temporarily reducing withdrawal symptoms and creating a habit.²⁰ Although women who are victims of IPV suffer from stress, depression², and anxiety, nicotine allows the release of dopamine to the brain, which activates positive feelings that may increase their likelihood to smoke in order to maintain a euphoric state.¹¹ Smoking can create a false sense of relaxation, failing to address the underlying causes of anxiety among victims of IPV.²⁹ Further research should be conducted to examine African American women's smoking patterns over time as it relates to unhealthy coping mechanisms in attempts to reduce physiological and psychological influences of IPV stress.

In order to achieve smoking cessation among African American women victims of IPV, better screening techniques will need to be developed as much of the victimization in the U.S. goes underreported and undetected.³⁰ Similarly, a more concise definition for what constitutes "abuse" would help give an accurate assessment of existing measures and provide a universal standard of care. The co-presence of drinking or tobacco use could be used to heighten health care providers' awareness of possible IPV victimization, subsequently assisting in the detection of abuse in the target population.³¹ The Affordable Care Act (ACA) now requires health care providers to screen for IPV during a well-woman visit as a preventative service outlined by the Health Resource and Service Administration (HRSA) guidelines.³² This new IPV screening requirement and existing tobacco cessation screening guidelines complement one another. Once the immediacy of IPV is addressed,

physicians and their staff can be trained to provide resources such as tobacco quitlines and referrals to local tobacco cessation support programs.

The findings presented here offer a better understanding of a minority population of women who have to date experienced the highest rates of IPV.³ These associations reveal a need to better understand the mechanisms by which smoking and IPV are associated among African American women, so that effective interventions can be created and perceived barriers eliminated. In examining the effects that education and income have on this population, interventions can be better targeted and tailored for minority populations. Smoking cessation programs for this population may be more useful in lower income communities. Further research is needed to determine potential barriers faced by African American women IPV victims, and their success with integrated smoking cessation and IPV recovery programs.

Limitations

The IPV questions in the 2005 iteration of the BRFSS were limited to certain states (AZ, HI, IA, MO, NV, OH, OK, PR, RI, VT, VA, VI), thereby limiting overall generalizability to the entire U.S. The data overall yielded a low median response rate of 51.1%, which reduces the study population and does not account for the other half of the population. Given this is a cross-sectional study, it only captures a point in time; therefore, we are unable to look at any sequence of events or associations. We were unable to address factors underlying early and continued smoking, which could potentially hinder improvements in smoking cessation rates among African American women.³³ Measurement error may be present as lifetime smoking was assessed and not current smoking status. Both admission of violence and tobacco use are sensitive topics and may be underreported. Finally, the

survey was collected via telephone, which may cause selection bias. Only individuals with a working landline phone would be eligible to participate in the study, thereby potentially eliminating women who may have lived in shelters and those living with their violent partner. These women may not be allowed to use the phone or may fear for their safety if they share information regarding IPV.

Conclusion

Based on study findings, there was a relationship between IPV and smoking in African American women; this association was also seen at higher rates with women of lower income levels. Although African American women are victims of IPV at higher rates than any of their other female counterparts, little research to date has been published to specifically focus on this at risk population and their relationship with smoking.³ Even after adjusting for education level and income, a strong association still existed, reflecting African American women are more likely to smoke regardless of how educated they may be or how much money they make if they are victims of IPV. Within education and income subgroups there were notable trends, indicating women of lower income and education bear a greater burden of smoking. This data can help better address the public health concern this population faces in respect to IPV and smoking. It may also serve as a foundation for future research, identifying the chronic effects of IPV over time in this population, and the effectiveness of existing interventions.

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