

Attitudes and Beliefs about Smoking among African-American College Students at Historically Black Colleges and Universities

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Smoking rates are lower among African Americans compared to Caucasians, but African Americans have higher lung cancer mortality. Guided by the Powe Fatalism Model, this descriptive study reports on attitudes and beliefs and predictors of lifetime cigarette smoking behaviors among students at historically black colleges and universities (HBCUs). Data were collected using the Attitudes and Beliefs about Perceived Consequences of Smoking Scale and a Demographic Data Questionnaire. The majority (N=438) were female and single. More than 50% reported trying cigarettes in their lifetime and reported smoking a whole cigarette at age 15.5 years. Only 7.5% of the sample were lifetime smokers. The likelihood that a student would smoke was 15 times greater if their friends smoked and almost seven times greater if they were not members of a Greek organization compared to other students. Males associated smoking with self-confidence, endorsed the emotional benefits and influencing factors of smoking compared to females. Intervention efforts should focus on preventing the initiation of smoking as well as cessation efforts for students at HBCUs. Campus clubs and organizations can play a vital role in long-term changes in smoking behaviors for these students.

Key words: smoking ■ African Americans ■ historically black colleges and universities ■ attitudes and beliefs

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Smoking has been identified as the most preventable cause of death in our society.¹ While rates of smoking have declined over the past decade, an estimated 20.9% of all adults in the United States smoke cigarettes. Of these smokers, an estimated 24% are between the ages of 18–24 years and another 24% between the ages of 25–44 years.² Interestingly, past trends indicate higher rates of smoking in the 25–44 age

group compared to those aged 18–24. However, in recent years, these rates have become similar among the two groups.³ The prevalence of cigarette smoking is highest among American Indians/Alaska natives followed by Caucasians, African Americans, Hispanics and Asians, respectively.² However, in 2003, cigarette smoking rates among African-American men in the 25–34-year age group surpassed Caucasian men (29% and 31%, respectively) and the smoking rate among African-American women increased to 17%, while the rate among Caucasian women rate decreased to 23%.⁴ The incidence of cigarette smoking is also higher for those with lower incomes and less formal education.²

Despite being ranked third in terms of prevalence of cigarette smoking, African Americans bear a greater health burden and suffer higher death rates from smoking-related diseases compared to others.⁵ For example, African Americans (male and female) have higher incidence and mortality rates from lung cancer compared to all other racial/ethnic groups.¹ It is believed that when smoking is initiated at a young age, these patterns are likely to continue during college years and into adulthood.^{6,7} The college years represent a time when adolescents are evolving into adults and making independent decisions.⁸ Thus, those who were smokers in high school are more likely to smoke more once they matriculate into college.⁹ Among college students, previous research suggests that more than half of the students surveyed had smoked a cigarette in their lifetime, 38% did so in the past year and 28% were current cigarette smokers.^{10,11} The median age of their first cigarette was 14 years for both males and females, and cigarette usage was higher among Caucasian students compared to African Americans.⁷ However, one study suggests that African-American college students are a fast-growing subpopulation of college-student smokers.⁹ It is estimated that 1.6 million African Americans who are now aged <18 will become regular cigarette smokers, and approximately 500,000 will die of a smoking-related disease.^{4,12} Yet research that addresses smoking behaviors among college-aged African Americans is limited.

Predictors of smoking behaviors among college students are multifaceted. Lifestyle characteristics such as using marijuana, heavy drinking and having multiple sex partners have been correlated with smoking status.¹³ In a study with predominately African-American students, predictors of smoking behaviors included having one or both parents and/or close friends who smoked, age, race/ethnicity, marital status, spirituality, low income, and environmental influences.^{5,12,14} Attitudes and beliefs such as these have been reported as contributing factors for smoking behaviors among college students: 1) smoking makes a man look more masculine, 2) smoking helps one to feel less anxious, or 3) smoking helps to control weight.¹⁵ But it is difficult to generalize these findings to African-American students because of the lack of representation in many of the study samples.^{6,10,16}

The current study evaluates attitudes and beliefs about smoking and identifies predictors of lifetime cigarette smoking (smoked ≥ 1 cigarettes for 30 days) behaviors among students who attend randomly selected historically black colleges and universities (HBCUs). This information is important because the smoking behaviors of college/university students can provide valuable information about trends in smoking among young adults.¹⁶ Further, the college/university environment may lend itself to targeted intervention strategies within the curricula and student health centers. There is also the potential that interventions within these settings can target family members, whether directly (i.e., programs for parents) or indirectly (i.e., through second-

hand information from the student). The college years may also provide a window of opportunity to deter the occasional smoker from becoming a lifetime smoker and help to meet the nationwide challenge goals of Healthy People 2010 and the American Cancer Society (Tables 1 and 2).¹⁶⁻¹⁸

THEORETICAL FRAMEWORK

This study used an expanded version of the Power Fatalism Model¹⁹ to explain the interrelationships among potential barriers (cancer fatalism, perceptions about cancer, knowledge of cancer, risk perceptions, previous and current personal experiences with cancer, availability of education information about cancer) and their influences on outcomes such as participation in age-appropriate screening and health-promotion activities. The current study (Figure 1) evaluates attitudes and beliefs about smoking and identifies predictors of lifetime smoking behaviors among African-American college students. It is believed that attitudes and beliefs as well as social influences such as having a friend or parent who smokes may influence the smoking behaviors of these students.

METHODS

This study is part of a larger project designed to evaluate perceptions of cancer fatalism, cancer knowledge, and risk perceptions among students who attend randomly selected colleges and universities within the southeastern United States. Students for the current study were recruited from eight randomly selected HBCUs. This sampling frame represents an estimated total student population of $>50,000$. Approval to conduct the study was granted by the university's institutional review board and the president, dean of students, or the dean of academic affairs on each campus.

Instruments

Data were collected using the Attitudes and Beliefs about Perceived Consequences of Smoking Scale (ABC Smoking Scale) and a demographic data questionnaire. The ABC smoking scale was developed and psychometrics established by Budd and Preston.²⁰ The parent scale was pilot-tested on 178 undergraduate students and had a total reliability measure of 0.82. The parent scale is composed of four subscales: emotional benefits (seven items, Cronbach alpha = 0.76), health hazards (nine items, Cronbach alpha = 0.76), self-confidence (eight items, Cronbach alpha = 0.83) and body image (two items, Cronbach alpha = 0.70). A five-point Likert format is used, and the majority of the items are reversed for ease of reading. Scores on the subscale are derived from reverse scoring. A value of 0 is assigned to the neutral response. Responses range from strongly disagree (1) to strongly agree (4). Therefore, lower values on the scale indicate the students disagree with the

Table 1. Demographic data (N=438)

	Frequency n (%)
Gender	
Male	113 (26%)
Female	325 (74%)
Marital Status	
Single, never married	395 (90)
Married/married, living apart	35 (8)
Divorced	8 (2)
Year in School*	
Freshman	149 (34)
Sophomore	77 (18)
Junior	89 (20)
Senior	80 (19)
Graduate student	34 (8)
Postdoctoral student	1 (.2)
Other	2 (.5)
Have an Immediate Family Member Who Smokes	
Yes	204 (47)
No	232 (53)
Age M=22 years (sd=5.06)	
Age of first whole cigarette	M=15.5 years (sd=3.88)

*Due to rounding or missing data, percentages may not equal 100.

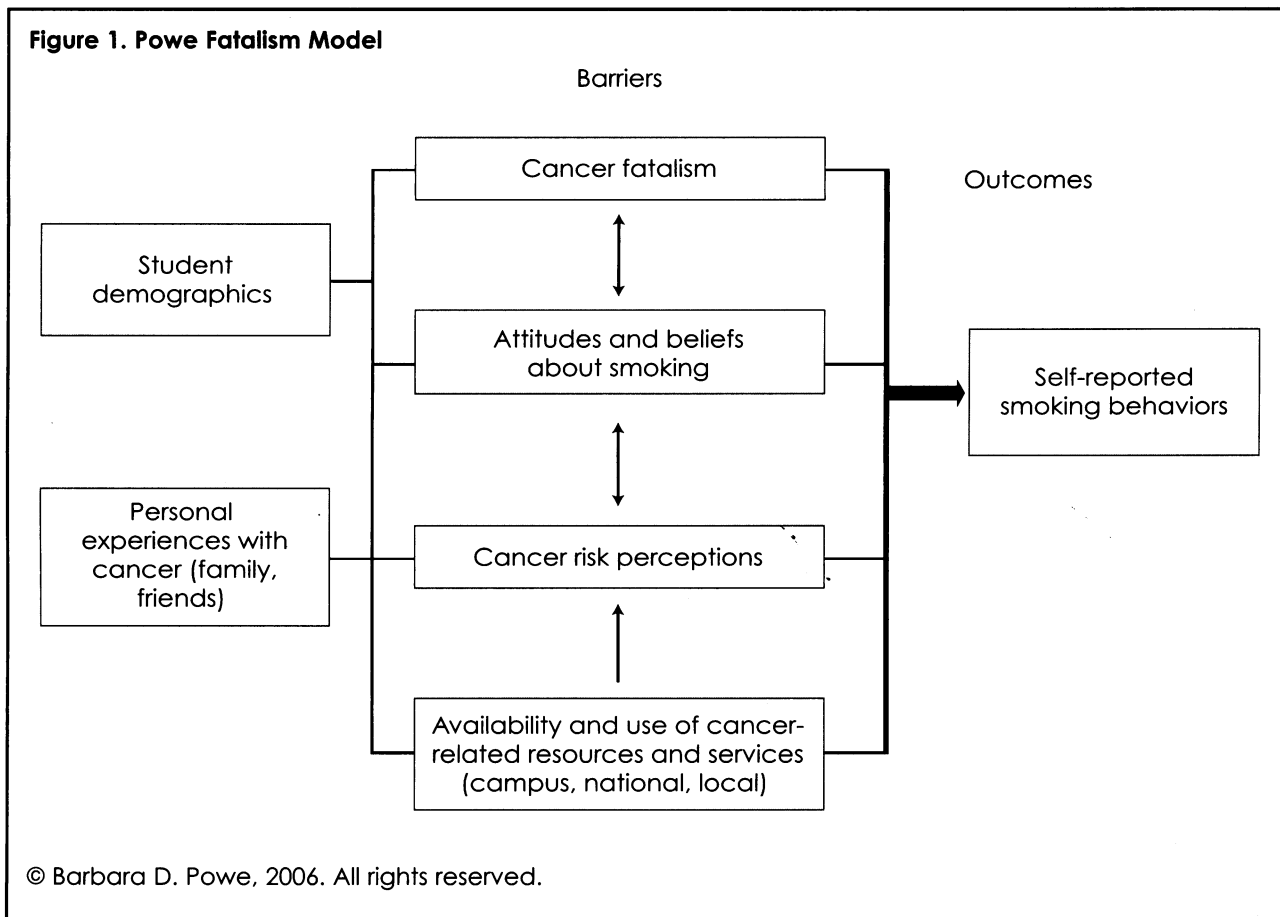
statements, and higher values indicate agreement with the statement. An additional nine questions developed by Budd and Preston²⁰ but not included on the parent scale were also used in the current research. Six questions composed the fifth subscale labeled influencing factors, and three items composed a sixth subscale labeled “detering factors.” The subscales include factors that the students believed influenced or deterred an individual’s decision to smoke. For the current study, the reliability measures were 0.75 (emotional benefits), 0.75 (health hazards), 0.79 (self-confidence), 0.77 (body image), 0.62 (influencing factors) and 0.50 (detering factors). The reliability for the total scale was 0.79. Total scores on the ABC smoking scale could range from 0–144.

Demographic data collected included age, academic year of study, GPA, race/ethnicity, marital status and gender. The students were asked if they knew anyone with cancer (breast, cervical, lung, prostate, testicular) and whether the person is still alive. In addition, seven questions included were taken from the Youth Risk Behavioral Survey.²¹ These questions ask the students if they have ever tried smoking, their age at the time they smoked a whole cigarette, whether they have ever tried to quit, if they smoke daily, whether they use smokeless tobacco, and whether their friends and immediate family members smoke.

Procedures

Students were eligible to participate in this study if they were ≥18 years old, a current student at the selected college or university and present at the time the surveys were conducted. Initial contact was made with the deans of students, the president’s office or department chairpersons. The purpose of study was explained. This initial contact lead to the identification of appropriate faculty on campus to serve as the liaison between the college/university and the study team. The study’s principal investigator (PI) contacted these individuals, explained the study and recruited them as faculty liaisons. The liaisons were trained in the study protocol via a verbal and written description of the study and the data collection protocol, and received a protocol manual as a reference. The liaison and the study PI identified the data collection timeframe (3–5 days) for each college/university and appropriate classes to recruit students. Data collection materials were mailed to the liaison approximately one week prior to data collection. During a regularly scheduled class, the liaison explained the purpose of the study, obtained informed consent and distributed the questionnaires. The students completed them in an average of 20 minutes and returned them to the liaison, who checked them for completeness, and counted and returned them to the PI. Students received a gift certificate to the campus bookstore as an incentive

Figure 1. Powe Fatalism Model



for completing the survey. Faculty liaisons received an honorarium.

RESULTS

The majority (Table 1) of the students (N=438) were female (74%), and single (90%), with an average age of 22 years. Females were slightly older than males (df=428; t=1.97; p=0.05). Thirty-nine percent were juniors or seniors, while 52% were freshmen or sophomores. The students reported an average grade-point average (GPA) of 3.0 (of a four-point scale). Females had slightly higher GPAs than males (df=403; t=2.63; p=0.009). Fifty-four percent of the students knew someone with cancer, and 23% reported knowing someone with lung cancer. Of the students who knew someone with lung cancer, 38% reported the person was no longer alive. The majority (74%) perceived they were less or much less likely to develop lung cancer compared to others their age, while 16% considered themselves equally likely. The majority (54%) reported lifetime cigarette use [i.e., trying smoking (one or two puffs) within their lifetime] and on average, smoking a whole cigarette at one time at age 15.5 years. Females were slightly older (M=15.9, SD=3.82) than males (M=14.6, SD=3.58) when they smoked their first whole cigarette (df=155; t=1.94; p=0.02). Lifetime cigarette users (smoked ≥ 1 cigarette for 30 days) comprised 7.5% (n=33) of the sample.⁷ Although there were more female than male lifetime smokers, this difference was not statistically significant (df=2; $\chi^2=1.13$; p=0.568), but this may be in part due to the small number of smokers in the sample.

Forty-six percent of the students reported having someone in their family who smokes, and 70% reported having friends who smoked. A cross tab was used to determine differences between current lifetime smokers and nonsmokers. There were no differences between current lifetime smokers and nonsmokers with regard to having family (df=2; $\chi^2=2.48$; p=0.291) or friends who smoke (df=2; $\chi^2=3.83$; p=0.147).

Attitudes and Beliefs about Smoking

The average total score on the ABC smoking scale was 49.95 with a range of 0–104 points. The analyses focused on the subscale scores because it is more appropriate to interpret the responses in this way. T tests were used to evaluate differences among the subscale scores between males and females (Table 2) and between current lifetime smokers and nonsmokers (Table 3). Males had significantly higher scores on the self-confidence subscale (df=159; t=2.64; p=0.009), the emotional benefits subscale (df=169; t=2.11; p=0.036) and the smoking influencing subscale (df=424; t=4.49; p<0.0001). Smokers, regardless of gender, had significantly higher scores on the emotional benefits subscale (df=476; t=3.14; p=0.002) and significantly lower scores on the

detering factors subscale compared to nonsmokers (df=474; t=2.49; p=0.013).

Forward stepwise logistic regression was used to model the predictors of lifetime smoking behaviors for these students. Gender, having family members who smoked, having friends who smoked, membership in a Greek organization, and the subscale scores of the self confidence, emotional benefits, health hazards, body image, influencing factors, and detering factors were entered into the model. The significant prediction model (df=4; $\chi^2=35.18$; p<0.0001) included age (df=1; OR=1.20; p<0.0001), emotional benefits subscale (df=1; OR=1.11; p=0.05), having friends who smoked (df=1; OR=14.77; p=0.007) and not being a member of a Greek organization (df=1; OR=6.5; p=0.023).

DISCUSSION

This descriptive study explored attitudes and beliefs about smoking and predictors of lifetime cigarette smoking among African-American college students. This inquiry is important because, while Caucasians have higher rates of cigarette smoking, African Americans suffer disproportionately from lung cancer and other smoking-related diseases.¹ In fact, it has been suggested that African Americans are more susceptible to lung cancer than Caucasians.²² Therefore, it is crucial to understand factors that influence smoking behaviors among African Americans. This information can be used to target smoking prevention strategies and enhance successful smoking cessation efforts.

As with most research, there are limitations to this study. One issue arose with the interpretation of the question designed to report smoking status. The current study assessed rates of lifetime cigarette use (smoked

Table 2. Subscale scores for females and males (N=438)

Subscale	Gender	(SD)
Self-Confidence*	Female	9.45 (3.48)
	Male	10.70 (4.59)
Emotional Benefits*	Female	9.46 (3.89)
	Male	10.50 (4.68)
Health Hazards	Female	25.11 (6.45)
	Male	25.07 (6.33)
Body Image	Female	3.00 (1.93)
	Male	2.96 (2.00)
Influencing Factors**	Female	12.76 (4.38)
	Male	14.91 (4.00)
Detering Factors	Female	6.62 (2.74)
	Male	6.54 (2.82)

* Significant at p<0.05; ** Significant at p<0.01

≥1 cigarette daily for 30 days and lifetime cigarette use (ever tried cigarettes, even one or two puffs). The study did not assess current cigarette use (having smoked cigarettes on ≥1 of the 30 days preceding the survey) or frequent cigarette use (having smoked cigarettes on 20 or more of the 30 days before the survey). It is possible that attitudes and beliefs of current cigarette users and current frequent cigarette users may differ from lifetime cigarette users. In addition, there were a limited number of lifetime smokers in the sample, which may have masked additional statistically significant relationships. There were also a limited number of students who were members of Greek organizations, which prevented a more complete analysis of the interaction of group membership and smoking behaviors. Lastly, two of the subscales, influencing factors and deterring factors had low reliability (0.62 and 0.5, respectively). Therefore, interpretation of these findings must be done with these limitations in mind.

Findings from this study are comparable to national reports. For example, 54% of students (9th–12th grade) surveyed in the Youth Risk Behavior Surveillance Survey (YRBSS)⁷ reported lifetime cigarette use. In another study of students at HBCUs, 54% of students reported lifetime cigarette use.¹² Similarly, 54% of college-aged students in this study reported lifetime cigarette use. About 13% of students of all racial/ethnic groups surveyed in the YRBSS were lifetime cigarette users, with 7.5 of these being African-American males and 3.5% being African-American females.⁷ In the current study, 7.5% of the sample were lifetime cigarette users and while there was a data trend towards females having higher smoking rates than males, this difference was not statistically significant. The rate of lifetime cig-

arette smoking in the current study is lower than the rate of 13% reported by Laws and colleagues¹² in a study of students at HBCUs in North Carolina, but—as in the current study—there was a higher number of female than male smokers. The students in this study smoke their first whole cigarette at an average age of 15.5 years, which is higher than age 14 reported in other studies.¹¹

There were also differences in attitudes and beliefs about smoking between males and females, and lifetime smokers and nonsmokers. Males, regardless of whether or not they smoked, associated smoking with self-confidence, endorsed the emotional benefits of smoking and endorsed factors that influenced their smoking compared to females. For example, the self-confidence subscale included items such as “smoking makes a person look more sophisticated” and “smoking makes a person more successful in doing what they set out to do.” Questions on the emotional benefits of smoking included “smoking goes along with drinking” and “smoking makes a person relax.” Smoking influencing factors included items such as “friends’ smoking behaviors influence others to smoke” and “cigarette ads make smoking look glamorous.” These findings are similar to others who reported that male smokers expressed feeling more masculine and less anxious compared to nonsmokers,^{9,14} but they do not fully explain the differences in these attitudes and beliefs between males and females. Another interesting difference found in the current study is the fact that while there was not a statistically significant difference between the number of males and females who were identified as lifetime smokers, there was a greater number of female smokers in this sample. This is most likely due to the overall small number of smokers in the sample that may have masked the true relationship between rates of smoking and gender. However, lung cancer is the third most common cancer for African-American women and the leading cause of death for Caucasian and African-American women.² Although decreases in the number of lung cancer cases and deaths among men began decades ago, attributable to the reduction of smoking, it has only been since the late 1970s that there have been reductions in smoking among women.² With these facts in mind, these findings may suggest more aggressive smoking prevention, and smoking cessation efforts should be targeted at women. More research is needed to verify the findings in this study.

Lifetime smokers in this sample, regardless of gender, identified higher emotional benefits for smoking and identified fewer factors that deterred them from smoking. This finding is similar to those by Castrucci²³ and Laws et al.,¹² who reported those at more advanced stages of smoking endorsed more social aspects of smoking as positive and believed smoking made them

Table 3. Subscale scores for lifetime smokers and nonsmokers (N=438)

Subscale	Smoking Status	(SD)
Self-Confidence	Lifetime smokers	9.69 (3.75)
	Nonsmokers	10.39 (4.44)
Emotional Benefits*	Lifetime smokers	12.03 (4.27)
	Nonsmokers	9.50 (4.00)
Health Hazards	Lifetime Smokers	25.48 (6.41)
	Nonsmokers	25.03 (6.42)
Body Image	Lifetime smokers	2.94 (1.90)
	Nonsmokers	3.45 (2.25)
Influencing Factors	Lifetime smokers	13.55 (4.38)
	Nonsmokers	13.27 (4.35)
Deterring Factors*	Lifetime smokers	5.44 (2.85)
	Nonsmokers	6.69 (2.74)

* Significant at p<0.05

feel good. These findings may suggest that as one progresses towards lifetime cigarette usage their attitudes about smoking change in order to be congruent with their behavior.²³ For example, while lifetime smokers in this sample endorsed the emotional benefits of smoking, there was no difference between the groups on the health hazards of smoking subscale, which meant smokers and nonsmokers recognized the potential dangers of smoking. However, this knowledge was not sufficient to change their current smoking behaviors. This finding is important because it supports the fact that having knowledge about the risk of cancer or the dangers of smoking alone is not sufficient to change smoking behaviors.²⁴

The prediction model for a student becoming a lifetime smoker included age, emotional benefits, having friends who smoked and not being a member in a Greek organization. Consistent with findings in previous research, the likelihood that a student would become a lifetime smoker was about 15 times greater if they had friends who smoked compared to persons who did not have friends who smoked.^{12,14,25} This is alarming given the fact that 70% of these students reported having friends who smoked. Similar to another study at an HBCU, having a close family member who smoked was not a significant predictor of lifetime cigarette smoking.¹² Nonetheless, it is believed that having friends who smoke or holding positive attitudes towards smoking such as viewing the behavior as having emotional benefits, can influence immediate and future smoking behaviors.¹⁴ It is unclear whether the relative roles that friends and family play in the smoking decision change over time. Epstein et al.¹⁴ suggest that having parents who smoke may play more of a role in whether someone experiments with smoking, whereas having friends who smoke may play more of a role in influencing lifetime smoking behaviors. This speculation may have merit given the fact that for the current sample, students who were not members of a Greek organization had a greater likelihood of being lifetime smokers. Reasons for this finding are unclear but may be linked to the historical missions of black Greek organizations. This mission focused on the development of interpersonal relationships, academic achievement and community involvement.²⁶ However, there are different types of Greek organizations, and the current study did not differentiate among these. Therefore, it is difficult to determine with certainty the type of student experiences that may influence their decision to smoke compared to those who are not members of these organizations. More research is needed on the role of social organizations and smoking behaviors among African-American college students.

IMPLICATIONS

Findings from this study have potential implications for education, practice and research. For example, college

campuses provide a window of opportunity to target African-American students in several ways. First, information about smoking or smoking cessation programs could be disseminated through structured classes or student organizations such as fraternities and sororities. Student health centers could partner with organizations such as the American Cancer Society to provide additional resources to assist in smoking cessation or prevention of smoking. Support groups or counseling could also be established through the student health centers that included culturally appropriate educational strategies designed to meet the unique needs of these students. Specific efforts should be targeted towards African-American females. This need is important because African-American females may receive less attention since their rates of smoking are lower. However, findings of the current study and national trends suggest the rates of cigarette smoking among women may be increasing. Interventions should incorporate social support mechanisms for students so that they are less likely to equate smoking with providing an emotional benefit.

Obviously, more research needs to be done to fully evaluate and understand the factors that influence smoking for African-American college students. This research should ideally begin in high school or even grade school. It may be possible to implement longitudinal intervention studies beginning in grade school through the college years. These interventions would need to address attitudes and beliefs as well as general lifestyle modification for cancer and other health-related topics. Focus groups should be conducted to more fully understand the role of Greek organizations in smoking and other health behaviors among African-American college students. Previous research suggests that students who are members of fraternities and sororities tend to be the heaviest drinkers, and cigarette smoking is often associated with alcohol consumption.²⁷ The current study did not assess the rate of alcohol consumption among the students but did suggest that students who were members of a Greek organization were less likely to be lifetime smokers. Research may help to determine interactions among the students and these organizations that would be useful in enhancing positive health behaviors. Lastly, the issue of smoking behaviors must be addressed through policy initiatives. The role that media images and advertisements play in the initiation of smoking behaviors among high-school and college students remains unresolved.

CONCLUSIONS

While the rate of cigarette smoking is lower among African Americans compared to whites, African Americans suffer disproportionately from smoking-related diseases. The trend is clear in that persons who begin smoking early in life are more likely to become lifetime smokers. The college years may represent another key

decision point regarding a person's decisions about smoking. Leading health organizations should begin to form more partnerships with HBCUs to help target their efforts to address the cancer related disparities among these populations.

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