# The Association Between Chronic Disease and Smoking Beliefs and Behaviors in African American Young Adult Smokers

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**Purpose:** African American young adults have higher rates of smoking and chronic disease than Whites. Understanding the association between chronic disease and smoking beliefs and behaviors could improve cessation strategies for young adult smokers.

**Methods:** African American young adult smokers aged 18–29 years ($n=243$) were administered surveys assessing smoking beliefs and behaviors. Participants indicated if they had physician-diagnosed asthma, diabetes, and/or hypertension. Responses were analyzed using logistic regression, comparing responses of those diagnosed with a chronic disease to those without that disease.

**Results:** Smokers with asthma were 2.20 times more likely to acknowledge smoking negatively affected their health yet were no more likely to make a quit attempt than those without asthma. Diabetic smokers were 4.10 times more likely than those without to have made a quit attempt, yet were 3.24 times more likely to disagree that they were in control of their smoking. Hypertensive smokers were more likely to be heavier smokers and were 3.12 times more likely to disagree that they would stop smoking if they knew it affected the health of others than those without hypertension. Smokers with chronic disease were less likely to be influenced to quit by their physician than smokers without.

**Conclusions:** African American young adult smokers with a chronic disease often diverge from smokers without that chronic disease in smoking beliefs and behaviors. These may influence how young adults respond to cessation messages and programs. (*Ethn Dis*. 2014;24[4]:488–494)

**Key Words:** African American, Smoking, Asthma, Diabetes, Hypertension, Young Adult

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## Introduction

Smoking is the leading preventable cause of death in the United States.[1] Young adults, aged 18–24 years, now have the highest smoking rate of any age group in the United States.[2] Approximately 40% of African Americans who have ever smoked started smoking between the ages of 18 and 21,[3,4] resulting in adulthood smoking rates (26.4%) that surpass Hispanics (19.8%) and Whites (20.8%).[5] This poses a significant public health concern as African Americans are less likely than Whites and Hispanics to quit smoking once they start and suffer greater health effects from smoking later in life.[6–8]

In addition to high smoking rates, African Americans also have one of the highest rates of chronic disease among racial/ethnic groups, and are more likely to die sooner from chronic disease than Whites and Hispanics. African Americans have the highest rates of hypertension among adults, regardless of sex or education level, and racial/ethnic disparities are greatest among young adults.[9,10] African Americans also have a higher prevalence of diabetes than Whites.[9,10] Younger adults who develop type 2 diabetes have a greater risk of a more aggressive disease and higher risk of many complications compared to adults who develop type 2 diabetes later in life.[11,12] Furthermore, African Americans have one of the highest rates of asthma compared to other racial/ethnic groups.[13,14] The disparity in asthma between African Americans and Whites is evident at all age levels.[14,15]

Smoking contributes to and worsens symptoms of numerous chronic diseases, including diabetes, hypertension, and asthma.[16] Complications of these diseases can lead to a lifetime of poor health outcomes and quality of life as well as perpetuating or increasing health disparities. Understanding the association between chronic disease and beliefs of African American young adult smokers toward smoking and quitting smoking could have a significant impact on public health by increasing quit attempts among young adult smokers.

Currently, little is known about African American young adult smokers and how the presence of chronic disease is associated with how they think and feel about smoking and quitting smoking. The purpose of this exploratory study was to identify differences in smoking beliefs among African American young adult smokers with chronic disease, and differences in beliefs for different chronic diseases.

## Methods

A survey assessing smoking beliefs was administered to African American young adult smokers in community-based settings. This exploratory study used the Theory of Planned Behavior as a guide for survey question development.[17] Additional survey questions were developed from a review of

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qualitative and quantitative studies of young adult and adolescent smoking,[18–30] and through brief interviews with a convenience sample of African American young adult smokers who accessed services at a local clinic. A four-point Likert scale was used for survey responses. An advisory group of African Americans living in Central Oklahoma was convened to review the survey and provide feedback. The advisory group provided recommendations on question phrasing and ordering within the survey, and suggested the addition of two questions. The revised survey was then tested on a convenience sample of African American young adult smokers.

Survey participants ($n$=243) were recruited through recruitment posters and electronic distribution lists from diverse organizations and locations throughout Central Oklahoma. Inclusion criteria were: aged 18–29 years, self-identified as African American ethnicity, began smoking regularly after age 17, and smoked tobacco at least once a week. Surveys were administered in multiple community settings, including community and faith-based centers, local businesses, local clinics, and libraries. Survey participants received a $10 store gift card to thank them for their participation.

Surveys were entered into an Excel spreadsheet and checked for accuracy by the second author and a research assistant. The 4-point Likert scale responses were dichotomized, combining strongly disagree and disagree into one category disagree and a similar process for strongly agree and agree. Responses to quit attempts were coded no quit attempts or at least 1 quit attempt. Survey questions were grouped into four categories of factors that could impact smoking cessation: social influences, smoking beliefs, perceived impact of smoking, and smoking behaviors.

## Analysis

Frequencies of participant characteristics were examined, followed by frequencies, means, and standard deviations of study variables. Next, logistic regression, using SAS version 9.2, was used to test the association between chronic disease and smoking beliefs and behaviors, controlling for age, sex, and parent education and using alpha <.05. For each question, responses were divided into those reporting the doctor-diagnosed chronic disease and those without the chronic disease. When the odds ratio was less than one, and the difference was significant, the reference group for subject responses was reversed in SAS so that odds ratios were greater than one.

**Table 1. Descriptive statistics of study participants**

| | *n* (%) |
|---|---|
| Age group | |
| 18–20 | 77 (32) |
| 21–24 | 87 (36) |
| 25–29 | 77 (32) |
| Sex | |
| Male | 99 (41) |
| Female | 144 (59) |
| Marital Status | |
| Single | 195 (80) |
| Married | 21 (9) |
| Living with someone | 22 (9) |
| Divorced/separated | 5 (2) |
| Education | |
| <12th grade | 31 (13) |
| HS graduate | 62 (26) |
| Tech or some college | 50 (21) |
| BA or higher | 22 (9) |
| Still in school | 78 (32) |
| Cigarettes smoked each day | |
| <5 | 134 (55) |
| 5–<10 | 58 (24) |
| ≥10 | 52 (21) |
| Little cigars smoked each day | |
| 0 | 85 (40) |
| 1–2 | 81 (38) |
| ≥3 | 46 (22) |
| Times tried to quit smoking | |
| 0 | 91 (39) |
| 1–3 | 83 (36) |
| >3 | 59 (25) |
| Health condition | |
| Asthma or other lung disease | 49 (22) |
| Diabetes | 20 (9) |
| High blood pressure | 33 (15) |

# RESULTS

## Descriptive Statistics

The characteristics of survey participants are listed in Table 1. Participants were aged 18–29 years. There was a relatively even distribution across age categories and sex. A third of participants were still in school, either part-time or full-time, and the majority (80%) were single. The majority of participants (55%) were light smokers (<5 cigarettes per day) but over half of participants (60%) also reported regularly smoking little cigars. Within this young adult population, most (61%)

**Table 2. Mean response to study questions, mean (SD)**

| | All Participants | Participants with Asthma | Participants with Diabetes | Participants with Hypertension |
|---|---|---|---|---|
| Social influences on quitting[a] | | | | |
| I would stop smoking if my doctor told me to | 2.67 (.95) | 2.40 (.96) | 2.20 (.95) | 2.30 (.98) |
| I would stop smoking if my pastor told me to | 2.20 (.91) | 2.14 (1.02) | 1.85 (.75) | 2.21 (.99) |
| My family wants me to quit smoking | 2.73 (.97) | 2.94 (1.03) | 2.75 (.97) | 2.72 (1.02) |
| Beliefs about smoking[a] | | | | |
| There is no reason for me to quit smoking | 2.22 (1.00) | 2.15 (1.00) | 1.63 (.83) | 2.27 (1.10) |
| I get a lot of benefits from smoking | 2.00 (.82) | 1.92 (.92) | 2.40 (.99) | 2.24 (.87) |
| I am in control of how much I smoke | 3.00 (.87) | 2.88 (.90) | 2.70 (.92) | 2.55 (.90) |
| I feel just as capable of handing stress without smoking | 2.58 (.89) | 2.54 (1.09) | 2.45 (.94) | 2.61 (.83) |
| I would like to quit smoking | 2.78 (.99) | 2.83 (1.13) | 2.50 (1.05) | 2.71 (.94) |
| I do not want people to know I smoke | 2.19 (.91) | 2.34 (.96) | 2.85 (.99) | 2.42 (.97) |
| It would be hard for me to quit smoking | 2.50 (1.02) | 2.65 (1.02) | 2.65 (1.14) | 2.70 (.98) |
| I am truthful about how much I smoke when someone asks | 3.00 (.89) | 3.29 (.91) | 2.70 (1.03) | 3.00 (1.03) |
| Impact of smoking[a] | | | | |
| I would stop smoking if I knew it affected the health of others | 2.59 (.87) | 2.59 (.86) | 2.11 (.74) | 2.16 (.92) |
| I don't smoke enough for it to hurt me | 2.35 (.94) | 2.12 (.95) | 2.25 (1.07) | 2.21 (.99) |
| People think less of me when they see me smoking | 2.19 (.85) | 2.21 (.93) | 2.21 (.98) | 2.45 (.97) |
| People who smoke have health problems later | 2.94 (.89) | 3.04 (.80) | 2.50 (1.15) | 2.75 (.95) |
| Smoking isolates me from others | 2.08 (.90) | 2.00 (.91) | 2.10 (1.12) | 2.22 (1.10) |
| Smoking behaviors | | | | |
| I have tried to quit smoking ___ times | 1.74 (2.58) | 1.86 (3.24) | 2.74 (3.07) | 1.90 (2.24) |
| Cigarettes per day | 6.32 (7.35) | 7.07 (5.85) | 7.78 (6.14) | 7.5 (5.42) |
| Little cigars per day | 1.65 (2.54) | 1.67 (2.68) | 1.26 (1.90) | 1.2 (2.17) |

[a] Using a 1–4 Likert scale; 1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree.

had already made at least one attempt to quit smoking, and one in four had made more than three attempts. More than one in five (22%) young adults reported physician-diagnosed asthma, one in ten (9%) reported physician-diagnosed diabetes, and one in seven (15%) reported physician-diagnosed hypertension. Means and standard deviations of study variables are shown in Table 2.

## Relationship between Chronic Disease and Smoking Attitudes and Behaviors

### *Social Influences*

The three questions in the social influences category addressed individuals who could influence the young adult smoker to stop smoking (Table 3). African American young adult smokers with asthma were 2.17 times as likely as those without asthma to disagree with the statement "I would stop smoking if my doctor told me to." Similarly, those with hypertension were almost three times (OR 2.82) more likely to disagree that they would stop smoking if their doctor asked them to than those without hypertension. There were no significant differences by chronic disease for family or pastor social influences on quitting.

### *Smoking Beliefs*

African American young adult smokers with diabetes significantly differed from those without diabetes on three smoking beliefs (Table 3). Diabetic smokers were 4.82 times more likely than non-diabetic smokers to disagree with statement "There is no reason for me to quit smoking" yet they were five times (OR 4.99) more likely to agree with the statement "I get a lot of benefits from smoking" than those without diabetes. Diabetic smokers were 3.24 times more likely to disagree with the statement "I am in control of how much I smoke." Diabetic smokers were also 4.26 times more likely to agree with the statement "I do not want people to know I smoke" than those without diabetes.

### *Impact of Smoking*

This category focused on young adult smokers' perceptions of the impact smoking has on their health or the health of others (Table 4). All three groups of chronically-ill young adults expressed some denial of the impact of smoking. Both diabetic (OR 2.99) and hypertensive (OR 3.12) smokers were three times more likely than those without the disease to disagree with the statement "I would stop smoking if I knew it affected the health of others."

African American young adult smokers with asthma were 2.20 times as likely as those without asthma to disagree with the statement "I don't smoke enough for it to hurt me."

Diabetic smokers were 3.57 times more likely to disagree with the statement "People who smoke have health problems later" than those without diabetes.

**Table 3. Social influences and beliefs about smoking, odds ratio (95% CI)**

| | | Asthma | Diabetes | Hypertension |
|---|---|---|---|---|
| Social influences on quitting | | | | |
| I would stop smoking if my doctor told me to | no | ref | ref | ref |
| | yes | .46 (.24, .90)[a] reverse code 2.17 (1.13, 4.21)[a] | .59 (.22, 1.59) | .35 (.16, .80)[a] reverse code 2.82 (1.25, 6.38)[a] |
| I would stop smoking if my pastor told me to | no | ref | ref | ref |
| | yes | 1.10 (.56, 2.17) | .55 (.17, .76) | 1.12 (.50, 2.51) |
| My family wants me to quit smoking | no | ref | ref | ref |
| | yes | 1.65 (.83, 3.28) | 1.69 (.60, 4.73) | 1.20 (.54, 2.67) |
| Beliefs about smoking | | | | |
| There is no reason for me to quit smoking | no | ref | ref | ref |
| | yes | .86 (.43, 1.73) | .21 (.05, .95)[a] reverse code 4.82 (1.05, 22.04)[a] | 1.36 (.60, 3.06) |
| I get a lot of benefits from smoking | no | ref | ref | ref |
| | yes | 1.01 (.47, 2.15) | 4.99 (1.77, 14.05)[a] | 2.15 (.95, 4.88) |
| I am in control of how much I smoke | no | ref | ref | ref |
| | yes | .58 (.27, 1.24) | .31 (.11, .85)[a] reverse code 3.24 (1.18, 8.89)[a] | .48 (.21, 1.12 |
| I feel just as capable of handing stress without smoking | no | ref | ref | ref |
| | yes | .87 (.45, 1.67) | .92 (.34, 2.45) | .97 (.45, 2.12) |
| I would like to quit smoking | no | ref | ref | ref |
| | yes | 1.17 (.60, 2.31) | .41 (.15, 1.13) | .66 (.30, 1.46) |
| I do not want people to know I smoke | no | ref | ref | ref |
| | yes | 1.57 (.81, 3.06) | 4.26 (1.55, 11.70)[a] | 2.08 (.95, 4.56) |
| It would be hard for me to quit smoking | no | ref | ref | ref |
| | yes | 1.30 (.70, 2.50) | 1.22 (.45, 3.26) | 1.92 (.87, 4.25) |
| I am truthful about how much I smoke when someone asks | no | ref | ref | ref |
| | yes | 2.02 (.84, 4.90) | 1.02 (.34, 3.08) | 1.08 (.43, 2.72) |

[a] $P<.05$.

*Smoking Behaviors*

Three questions addressed how smoking behaviors were associated with chronic disease (Table 4). Diabetic smokers were 4.10 times more likely than those without diabetes to have made at least one attempt to quit smoking. There were no significant differences in quit attempts for asthma and hypertension.

Smokers with hypertension were 2.52 times more likely than those without hypertension to smoke five or more cigarettes per day. There was no difference in the number of little cigars smoked by chronic disease.

## DISCUSSION

African American young adult smokers with chronic disease differed in their beliefs toward smoking and quitting smoking than those without a chronic disease. Moreover, the pattern of beliefs varied by chronic disease.

### Asthma

Smokers with asthma were more likely to disagree that they would stop smoking if their physician asked them to, and were no more likely to make a quit attempt than those without asthma. Yet these smokers also acknowledged that they smoked enough for it to hurt them more than smokers without asthma, perhaps because of smoking's more immediate effects on their ability to breathe. These smokers may be more receptive to messages emphasizing immediate effects of smoking on their quality of life, but messages may be more effective coming from other sources than traditional social influences of family, physician, and pastor.

### Diabetes

African American young adult smokers with diabetes differed from smokers without diabetes on several questions. Diabetic responses were often characterized by inconsistent or conflicting smoking beliefs. Those with diabetes were more likely to disagree that there was no reason to quit smoking, yet they agreed that they get a lot of benefits from smoking. They also disagreed that they would stop smoking if they knew it affected the health of others and were no more likely to agree that they would stop smoking if their physician asked them to than non-diabetic smokers. Diabetic smokers were also more likely to disagree that they were in control of how much they smoked, and had attempted to quit smoking at least once. One way to interpret these

**Table 4. Impact of smoking and smoking behaviors, odds ratio (95% CI)**

| | | Asthma | Diabetes | Hypertension |
|---|---|---|---|---|
| Impact of smoking | | | | |
| I would stop smoking if I knew it affected the health of others | no | ref | ref | ref |
| | yes | .65 (.34, 1.26) | .34 (.12, .95)[a] reverse code 2.99 (1.05, 8.49)[a] | .32 (.14, .74)[a] reverse code 3.12 (1.35, 7.19)[a] |
| I don't smoke enough for it to hurt me | no | ref | ref | ref |
| | yes | .45 (.23, .92)[a] reverse code 2.20 (1.09, 4.43)[a] | 1.80 (.67, 4.87) | 1.09 (.49, 2.40) |
| People think less of me when they see me smoking | no | ref | ref | ref |
| | yes | 1.36 (.68, 2.70) | 1.20 (.43, 3.35) | 2.06 (.93, 4.58) |
| People who smoke have health problems later | no | ref | ref | ref |
| | yes | 1.41 (.64, 3.10) | .28 (.10, .77)[a] reverse code 3.57 (1.31, 9.75)[a] | .71 (.31, 1.64) |
| Smoking isolates me from others | no | ref | ref | ref |
| | yes | .88 (.43, 1.78) | .97 (.34, 2.71) | 1.23 (.55, 2.76) |
| Smoking behaviors | | | | |
| I have tried to quit smoking ≥1 times | no | ref | ref | ref |
| | yes | 1.28 (.62, 2.66) | 4.10 (1.07, 15.71)[a] | 1.67 (.71, 3.91) |
| Cigarettes per day, ≥5 | no | ref | ref | ref |
| | yes | 1.53 (.79, 2.98) | 2.40 (.86, 6.71) | 2.52 (1.11, 5.71)[a] |
| Little cigars per day, >0 | no | ref | ref | ref |
| | yes | 1.03 (.45, 2.37) | .74 (.24, 2.28) | .55 (.23, 1.30) |

[a] $P<.05$.

findings is through a social marketing perspective.[31,32] One barrier to giving up an unhealthy behavior and adopting a healthy one is that the unhealthy behavior is meeting a need that the healthy behavior does not. Diabetic smokers know they should quit, but they get a lot of benefits from smoking. Consequently, their more frequent quit attempts may not have been successful because those benefits were not replaced through healthier behaviors, and the needs met by smoking were not being met when smoking stopped. Thus the exchange of an unhealthy behavior for a healthy one had more personal costs than benefits for these young adult smokers and was not sustained.

Lastly, diabetic smokers more than other groups do not want people to know they smoke. This might lead to diabetic smokers hiding their smoking from others, including health care providers. Providers should continue to ask African American young adults, particularly those with diabetes, if they smoke, even occasionally, to identify smokers and refer them to cessation programs. Providers could also consider having information about the telephone quitline available in waiting and exam rooms for those young adult smokers who continue to hide their smoking but would like to quit.

## Hypertension

Similar to asthmatic smokers, African American young adult smokers with hypertension were more likely to disagree that they would stop smoking if a physician told them to. They also disagreed that they would stop smoking if they knew it affected the health of others. This could reflect a more realistic assessment of their actual behaviors in that it is highly likely that they have heard messages to quit smoking from their health care provider in the past but have not followed them, or have not been able to sustain any effort to quit in response to these messages.

Understanding the benefits smoking provides these young adult smokers, as well as any needs they feel smoking meets better than other behaviors is a first step in developing more effective cessation interventions for this group. Qualitative research can help researchers understand the perceived benefits of smoking and perceived barriers to quitting.[33] Increasing self-efficacy and promoting changes to the physical environment may also increase control beliefs and increase chances that future quit attempts will be successful.

*Asthmatic and hypertensive smokers were less likely to agree that they would listen to their physician's recommendation to quit smoking than those without asthma or hypertension.*

Future research should first seek a better understanding of smoking beliefs in African American young adult smokers with a chronic disease then focus on the development of targeted cessation interventions and sources of delivery. African American young adult smokers with a chronic disease struggle with conflicting beliefs, perhaps due to denial of how smoking will make them unhealthier in the future, their inability to stop smoking, or denial of their addiction. Traditional sources for cessation and prevention messages have been health care providers. Asthmatic and hypertensive smokers were less likely to agree that they would listen to their physician's recommendation to quit smoking than those without asthma or hypertension. These results suggest that young adults, particularly those with a chronic disease, need additional messages originating from other sources.

A limitation of this exploratory study is that it is drawn from a limited geographic area. A larger, more nationally-representative sample of African American young adult smokers is needed to assess the generalizability of these results. We are also unable to determine from this cross-sectional study if the social and physical experience of chronic disease has shaped beliefs about smoking or if these beliefs shaped behaviors, which contributed to disease. Even so, as chronic disease is increasing in this population of young adults, this study provides important information to begin a discussion of how to tailor cessation programs to effectively reach young adults with chronic disease whose health will be significantly impacted by smoking. Many of these young adults are trying to quit but internal beliefs as well as external social environments prevent their attempts from succeeding. Learning more about culturally-specific beliefs and behaviors will assist researchers and practitioners in developing effective interventions and closing the gap in disparities in quality and length of life.[34]

In conclusion, smoking has a direct impact on the quality and length of life of African American young adults with chronic disease. The findings from this exploratory study show that African American young adult smokers who have a chronic disease often diverge from smokers without a chronic disease in their views about smoking and smoking cessation. These may influence how young adults respond to smoking cessation messages and programs. Understanding the influence of chronic disease on beliefs toward smoking is the first step in developing effective cessation interventions for this population, and to ultimately reduce health disparities.

## ACKNOWLEDGMENTS

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