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National Surveys and Tobacco Use Among African Americans: A Review of Critical Factors

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Abstract

Introduction: Beginning in the 1970s, US national surveys showed African American youth having a lower prevalence of cigarette smoking than white youth. Yet, during adulthood, African Americans have a smoking prevalence comparable to white adults. Data sources chosen can contribute in different ways to understanding tobacco use behaviors among African American youth and adults; this article is a review of national and/or state-based health surveys to examine their methodology, racial and ethnic classifications, and tobacco-use related measures.

Methods: Eleven national and/or state based surveys were selected for review. Eight surveys were multitopic and included questions on tobacco use and three surveys were tobacco specific. Survey methods included telephone (4), household (3), and school (4). Three major characteristics examined for each survey were: (1) survey design and methods, (2) racial and ethnic background classification, and (3) selected tobacco smoking questions. Within these three characteristics, 15 factors considered to be important for examining tobacco use behaviors by African Americans were identified a priori using previously published reviews and studies.

Results: Within survey design and methods, the majority of surveys (≥7) oversampled African Americans and did not use proxy respondents for tobacco questions. All surveys used Office of Management and Budget standard classification for race/ethnicity classification. The majority of surveys (≥7) captured five of the seven tobacco-related smoking questions.

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Conclusions: Programmatic objectives and/or research questions should guide the selection of data sources for tobacco control programs and researchers examining African American tobacco use behaviors.

Implications: This review of 11 national and state tobacco-related surveys shows that these surveys provide much needed estimates of tobacco use behaviors. However, as tobacco programs and researchers seek to examine tobacco use behaviors among African Americans, it is important to consider multiple surveys as each can contribute to informing the tobacco experience in African Americans. Most importantly, programmatic objectives and/or research questions should guide the selection of data sources for tobacco control programs and researchers examining African American tobacco use behaviors.

Introduction

Health surveys are one component of tobacco use surveillance that provide population-based information to monitor trends and patterns in tobacco use behaviors and associated covariates. Data derived from these surveys provide prevalence estimates of tobacco use by demographic characteristics that serve to monitor trends in tobacco use and to inform tobacco prevention and control initiatives. A 2008 review of key tobacco surveillance and evaluation systems by Delnevo and Bauer identified several factors, however, that make it challenging to capture the true impact of tobacco use within communities; these include the rapidly changing tobacco environment in regards to emerging products, differing estimates of tobacco use depending on the type of survey (eg, school-based, household, tobacco specific, multifactor), reliance on cross-sectional data, and inadequate use of multilevel factors such as state tobacco policies and neighborhood effects to inform the context of tobacco use. Their review also briefly addressed concerns regarding the representativeness of data for minorities in tobacco surveillance systems. It is unclear how completely minorities are captured by these surveillance systems and the extent to which this impacts prevalence estimates of tobacco use for minority groups including African Americans.

Beginning in the late 1970s and early 1980s, the prevalence of cigarette smoking among African American youth declined at a much greater rate than among white youth.[,] This resulted in a substantial and sustained difference in cigarette smoking prevalence between African American and white youth that remains evident. For example, in 1977, the Monitoring the Future (MTF) study found a similar prevalence of cigarette smoking among African American (36.7%) and white (38.3%) 12th grade students. By 1987, the prevalence of cigarette smoking in African American 12th grade students (14.2%) was half the prevalence of white 12th grade students (32.1%). The 2014 MTF reported that cigarette smoking prevalence was 9.0% among African American 12th grade students compared with 17.5% among white 12th grade students. Unfortunately, a corresponding decrease did not occur among African American adults. In 2013, the prevalence of cigarette smoking in African American adults was 18.3%, compared with 19.4% for white adults. Though this pattern has raised many questions, reasons for the inconsistency in smoking prevalence trends between African American youth and adults as compared with whites are not well understood. Some researchers have suggested that older ages of initiation and lower success in quitting among African Americans in comparison to whites may explain this

inconsistency. One may also need to consider the more rapid decline among African American young adults compared with white young adults, as the high school students from the 1980s matured into their young adult years.

Understanding the differences between African American youth and adults requires an assessment of the data sources used to obtain tobacco-related estimates in this group. An examination of features related to methodology, racial and ethnic classification, and tobacco use measures in surveys is important to consider when exploring African American tobacco use behaviors. To our knowledge, there has been no systematic review of the design, methodology, racial/ethnic identifiers, and tobacco-related questions of current national and/or state health surveillance systems as they relate to capturing tobacco-related health disparities impacting African Americans. This review focuses on 11 US-based health surveys intended to collect nationally and/or state representative data that either focus solely on tobacco use behaviors or include indicators as part of a general health survey. This research is guided in part by previous reviews of national tobacco-related surveillance systems[9] by placing a specific emphasis on African Americans for this special journal supplement.

Methods

Selected Surveys

Out of a total of 47 potential national and state tobacco-related data sources identified,[9] 11 tobacco surveys with data on African American and white youth (age < 18 years), young adult (age 18–25 years), or adult (≥18 years) tobacco prevalence were selected and briefly described in Table 1. Surveys were selected based on the following criteria: (1) administered at the national and/or state level; (2) provided more than 1 year of tobacco prevalence estimates; and (3) identified in previous reviews of tobacco surveys.[9] Data sources were excluded for the following reasons: (1) not a survey (ie, registries, vital statistics, cessation quitline monitoring, administrative [hospital], advertising, and tobacco marketing data resources); (2) no longer being conducted at the start of this review (ie, Teenage Attitudes and Practice Survey), (3) survey is not comprehensive of the United States (ie, not conducted in each state includes individual state Adult Tobacco Surveys, Youth tobacco Surveys, and Youth Risk Behavior Surveys [YRBS]); (4) only includes a specific population (ie, Pregnancy Risk Assessment Monitoring System, health provider surveys), (5) not representative of the typical US population (ie, Cancer Prevention Study), (6) primarily policy information (ie, School Health Education Profiles, School Health Policies and Programs Study), (7) cigarette smoking economic costs (ie, Smoking Attributable Morbidity, Mortality, and Economic Costs), and (8) secondary data resource (ie, State Tobacco Activities Tracking and Evaluation System, National Tobacco Control Program Chronicle).

Surveys were examined from their inception to 2012. They include the following: (1) Behavioral Risk Factor Surveillance System (BRFSS) core questionnaire (please note BRFSS is solely administered at the state level[9]); (2) Health Information National Trends Survey (HINTS); (3) National Health and Nutrition Examination Survey (NHANES); (4) National Health Interview Survey (NHIS); (5) National Survey on Drug Use and Health (NSDUH); (6) Tobacco Use Supplement to the Current Population Survey (TUS-CPS); (7)

National Adult Tobacco Survey (NATS); (8) National Longitudinal Study of Adolescent Health (Add Health); (9) MTF; (10) National Youth Tobacco Survey (NYTS); and (11) YRBS—national level. Survey documentation from official survey websites (eg, methodological and data reports)[–] and publications in the scientific literature were used to obtain information on each survey.

Survey Characteristics

Three important characteristics of surveys were examined: (1) survey design and methods; (2) racial and ethnic background classification; and (3) selected tobacco use questions. We considered common aspects of tobacco surveillance that are relevant to the general population with specific consideration of how these factors may be relevant to African Americans using previously published peer review articles and reports, including Surgeon General reports on tobacco surveillance.[–,–] Surveys were noted as having a specific factor if in the past or currently they had one of the a priori factors identified. In the literature, various terms are used to describe black and white individuals residing in the United States. For the purposes of this review, the term “African American” was used to describe non-Hispanic blacks, and the term “white” was used for persons of non-Hispanic Caucasian background. The 15 a priori factors identified are listed below according to three major areas: (1) survey design and methods; (2) racial and ethnic background classification; and (3) tobacco use questions.

Survey Design and Methods

Six factors related to survey design and methods were identified that may be considered when evaluating African American tobacco use behavior patterns and trends: (1) oversampling of African Americans; (2) excluded populations; (3) longitudinal study design; (4) state representative estimates; (5) response rates by race/ethnicity; and (6) use of proxy respondents.

Oversampling of African Americans

Some surveys oversample minority ethnic groups, including African Americans, in order to increase the precision of estimates for these groups.[,] The complex survey design and appropriate weighting of these national surveys ensure estimates obtained in these surveys are representative and account for oversampling of groups. However, not all surveys oversample African Americans; as such, lower sample sizes of African Americans in some of those national surveys can make it difficult to produce stable tobacco use prevalence estimates for this population. In some national surveys, 1 or more years of data may have to be combined in order to stratify analyses by racial/ethnic groups, including African Americans.

Excluded Populations

African Americans are disproportionately represented in the following populations usually excluded from national surveys: high school dropouts (among school based surveys), the homeless, those incarcerated, and cellphone-only households (among some telephone-based surveys). These populations are more likely to smoke cigarettes and more likely to be

African American; therefore, the exclusion of these populations could result in national smoking prevalence being underestimated for African Americans. In 2009, approximately 4.8% of African American students dropped out of high school compared with 2.4% of white students. Regular cigarette smoking and earlier initiation is more common among youth not in school compared with those in school.[9] Among African American 12th grade dropouts, cigarette smoking prevalence was 50.3% compared with 11.5% among African American 12th grade students still in school.

Prevalence of cigarette smoking among the homeless population traditionally is very high. Data from the Collaborative Initiative to Help End Chronic Homelessness found a 80% prevalence of cigarette smoking among homeless adults. While African Americans are only 13% of the US population, in the 2003 Health Care for the Homeless User Survey, African Americans accounted for 38% of the sample. Also, in cities such as New York and Philadelphia, African Americans account for upwards of 84% or higher of those experiencing transitional and episodic homelessness.

Traditional surveys do not sample persons who are incarcerated, as well as persons in other institutional settings such as nursing homes, universities, military bases, hostels, and hotels. Cigarette smoking prevalence among incarcerated adults is three and half times greater than in the general population. In 2013, nearly 3% of African American adult men were incarcerated compared with 0.5% of white men. Young adult African American men aged 18–19 were nine times more likely to be incarcerated compared with their white men counterparts.

Cell phone samples are more likely than landline samples to result in interviews with minority respondents including African Americans. Some national surveys have traditionally used lists of landline phone numbers as their sampling frames. Landrine and colleagues questioned the use of random digit dialed telephone surveys among African Americans; as they found smoking prevalence was greater than 45% for African American men and women who were phoneless or cellphone only in their study conducted in California. The BRFSS found including cellphone only households in their sample increased the number of people who were younger, of lower socioeconomic status, and belonged to a minority group, including African Americans.[9] As these groups are more at risk for unhealthy behaviors, including cigarette smoking, it is possible that prevalence estimates for these behaviors would increase with their inclusion into samples of telephone surveys.

Longitudinal Study Design

To examine African American tobacco use behaviors over the life course, longitudinal study designs are optimal since they follow the same persons over a certain period of time and can examine how smoking behaviors begin and progress. Newly published data from Add Health showed that cigarette smoking prevalence increased among African American adolescents past age 18, and the prevalence for white adolescents declined slightly. Nevertheless, the prevalence among 29-year-old African Americans (30.7%) was still substantially lower than the prevalence among 29-year-old whites (40.2%). African Americans may increase cigarette smoking prevalence as they age. Cross-sectional designs are the norm for public health surveys yet they cannot provide data on the progression of experimentation and

initiation in the same individuals over time. However, longitudinal designs are also not without their limitations. Attrition can result in bias if those who dropped out differ from those who remain in the study.[9]

State Representative Estimates

Delnevo and Bauer highlight the importance of state tobacco policies and neighborhood effects to inform the context of tobacco use. In the United States, African American populations are more concentrated in southern states and metropolitan areas in other states; however, the majority of national surveys typically do not provide tobacco estimates at state or local levels. Surveys with state estimates that allow researchers to take into account contextual variables (eg, percent African American, tobacco taxes, urban/rural) may be important to examine African American smoking patterns.[9] Osypuk and colleagues advocated for examining tobacco surveillance systems by state and gender, and identified differing racial/ethnic cigarette smoking patterns by state, region, and gender. Examination of tobacco taxes and state estimates of smoking prevalence in this study by race/ethnicity indicated that African American men and women were more likely to smoke cigarettes compared with whites and Hispanics in states with higher taxes. Tobacco companies tend to target specific areas in which minorities reside within states. For example, a study examining tobacco outlet density and demographics in New Jersey found that the major factors tobacco companies used for targeting included median household income, and percentage of Hispanics and African Americans living in the communities.

Response Rates by Race/Ethnicity

Data survey quality may be influenced by measures that relate to sample size and response rates. The representativeness of African Americans in surveys may be important to consider in regards to response rates and comparison to US census estimates by race/ethnicity age groups. National surveys do not typically report response rates by race/ethnicity. It is important to determine if response rates are declining, increasing, or stable among minority populations, including African Americans. Although most surveys adjust for non-response, differing response rates by race/ethnicity, particularly over time, may create differential bias in smoking prevalence estimates specific to these populations. Delnevo and colleagues calculating the sample completeness ratio in the BRFSS 2001–2005 using the US census found young adults (18–24 years) in the BRFSS were less likely to be included. This is a concern as young adult African American men are more likely to be incarcerated compared with white young adults and incarcerated individuals have a much higher prevalence of cigarette smoking compared with the general population. Notably, several researchers examining whether there is decreased participation among US minority populations in surveys and studies found the main barrier was that members of racial/ethnic minorities were less likely to receive the invitation to participate in the study, rather than being less likely to want to participate in the survey.[–]

Do Not Use Proxy Respondents

The use of proxy respondents may result in differentially biased estimates of tobacco use for African American youth and young adults. Soulakova and colleagues compared self-report and proxy responses to the TUS-CPS for 1992–2003. There was a discrepancy between

proxy and self-report for young adults aged 18–24 years regarding current cigarette smoking prevalence, with estimates being lower based on proxy response than on self-report. African Americans are reported to begin regular tobacco use as young adults (18–24 years). Hyland et al. also found that age, in addition to higher income and status as a recent quitter, were all associated with elevated misclassification levels based on proxy report; African Americans were incorrectly classified either as a nonsmoker or smoker more than whites in this study.

Racial and Ethnic Background Classification

In this category, two factors were examined: (1) race/ethnicity classification; and (2) foreign-born status. African Americans make up 13% of the US population based on the 2010 census. Foreign-born blacks make up 8% of the African American population and are primarily from the Caribbean and Africa.

Race/Ethnicity Classification

In the past, surveys used varying classifications and did not consistently ask participants to self-identify their race and ethnicity. For example, NHIS did not have a race-related question from 1957–1975. Interviewers recorded race as “white,” “black,” or “other,” based on observation. The NHIS first introduced a question asking respondents to self-identify their race in 1976 although interviewer-observed race continued to be recorded until 1996. The TUS-CPS revised its race and ethnic questions in 2003 allowing participants to choose more than one race. This change may affect the tracking of tobacco smoking trends by race and ethnicity. The implementation of the Office of Management and Budget (OMB) race and ethnic designations in 1997, a mandatory requirement, provided standardization and allowed for comparisons across surveys by race/ethnicity. Researchers using older versions of the national health surveys should be cognizant of the limitations related to race/ethnicity in the early years of some of the surveys.

Foreign-Born Status

Capturing information on foreign-born status in addition to race/ethnicity is important to consider since smoking prevalence estimates may be different for foreign-born blacks versus US born individuals who identify as African American. Combining data for these groups may produce lower estimates of cigarette smoking, as foreign-born blacks have lower smoking prevalence.[,] Data from the 1992–1995 NHIS consistently showed foreign-born blacks were significantly less likely to smoke cigarettes than African Americans.

Tobacco Use Questions

This final category is factors that reflect tobacco use behaviors. Seven tobacco-related use questions selected as important when examining African American tobacco use behaviors are described: (1) age of smoking initiation; (2) do not use lifetime cigarette screener; (3) exclusive use of other combustible tobacco products (eg, cigars, cigarillos); (4) flavored tobacco product use; (5) cessation; (6) marijuana use; and (7) tobacco biomarkers. Current cigarette smoking is not included as a factor, since it is always assessed in surveys that assess tobacco use. That it should be assessed is a given.

Age of Smoking Initiation

Questions capturing age of smoking initiation vary across surveys. For example, questions include “age when first started smoking regularly,” “age when smoked a whole cigarette,” and “age when smoked part or all of a cigarette”. The age when a person starts to smoke cigarettes regularly may be associated with addiction and may be disregarded by persons who do not consider themselves to be regular smokers. As noted previously, African Americans tend to initiate tobacco use later in life[,,] compared with whites and are more likely to be nondaily smokers. Thus, it is important to evaluate measures of age of initiation of tobacco use among African Americans.

Do Not Use Lifetime Cigarette Screener

Since the 1950s, a screening question used to assess current smoking, asks if a respondent has smoked ≥100 cigarettes in their lifetime. However, its validity has been questioned. Light, nondaily or experimental smokers may not identify as smoking 100 cigarettes in their lifetimes and would therefore be excluded from current smoking estimates resulting in underestimates; additionally, others may misinterpret the question. Researchers applying this screening question have shown cigarette smoking prevalence to be lowered three absolute percentage points. Instead of using the ≥100 cigarettes smoked in lifetime screening question, NSDUH asks all respondents about cigarette smoking in the past 30 days as an estimate of current smoking. According to Ryan and colleagues, current cigarette smoking prevalence estimates among adults (≥18 years) were higher based on NSDUH compared with NHIS, which used the 100-cigarette criterion, for the majority of subgroups except for older adults (≥50 years), Asians, and American Indians/Alaska Natives. Cigarette smoking prevalence differences were most pronounced among young adults and racial/ethnic minorities. Among past 30-day cigarette smokers, 18–24-year olds were 11 times more likely than adults aged 65 years and older to report not smoking ≥100 cigarettes in their lifetimes, and African Americans were over twice as likely as whites not to report the same. Using this screener question may bias prevalence estimates for African Americans by underestimating their cigarette use.

Concurrent Use of Other Combustible Tobacco Products

Not fully capturing use of other combustible tobacco products may give the impression that African American youth are smoking less, when, in fact, there could be a smaller difference in comparison to white youth when other combustible tobacco product use is included in prevalence estimates. A recent study examined patterns of current use of tobacco products among US high school students using data from the NYTS. From 2000–2012, significant declines in prevalence of cigarette smoking were observed for white and African American students who reported smoking only cigarettes. Exclusive cigar use remained steady for whites at 2.8% in 2012 compared with 2.5% in 2000, whereas among African Americans, prevalence of exclusive cigar use increased from 6.4% in 2000 to 9.6% in 2012. African American youth in the Virginia Youth Tobacco Survey were more likely to underestimate their cigar use when compared with white youth. For example, African American youth in Virginia who reported they used Black and Mild cigars, a preferred and commonly smoked brand among youth and young adults, were less likely to report general cigar use than white

youth. A study by Agaku and colleagues found that when compared with whites (1.6%) in the 2012–2013 NATS, a higher percentage of African American adults (3.7%) were every day and someday users of cigars, cigarillos, and filtered little cigars.

Flavored Tobacco Use

African Americans use substantially more flavored tobacco products, including menthol cigarettes, compared with whites.[–] Tobacco control programs, researchers, and other public health practitioners need to note the higher prevalence of flavored tobacco products among African Americans in comparison to other racial/ethnic groups and account for it in research, prevention and intervention activities. Cross-sectional data from the second wave of the Legacy Young Adult Cohort study (Gesellschaft für Konsumforschung's [GFK] knowledge panel), indicated that the overall tobacco prevalence of flavored tobacco use was 18.5% among tobacco users, with youth and African Americans being most likely to use flavored tobacco products. African Americans are also significantly more likely to use menthol cigarettes, due in part to the tobacco industry marketing of menthol products to youth, women, and African Americans. Kasza and colleagues used cohort data from the International Tobacco Control Four Country Survey, and found that 79% of African American smokers used menthol cigarettes, compared with 21% of white smokers and 34% of Hispanic smokers. These authors also found that African Americans switched back more often to menthol compared with whites and Hispanics. Caraballo and Asman used various surveys (MTF, NSDUH, NYTS, NHANES) to confirm that smoking menthol cigarettes was more prevalent among youth, African Americans, females, persons residing in the Northeast, and those with lower family incomes.

Cessation (Time Since Last Smoked, Attempts and Duration)

African American cigarette smokers make more quit attempts than whites, but are less successful at quitting smoking.[–] This may contribute to the comparable prevalence of smoking observed among African American adults in relation to white adults. As a result, it is important for surveys to capture cessation attempts and duration of cessation among African Americans. Data from the 2003 TUSCPS showed African American adult cigarette smokers attempting to quit were the least successful at 1, 3, and 6 months compared with whites, Hispanics, and Asians. Similarly, data from an online nationally representative panel indicated that African Americans who smoked menthol cigarettes were less likely to quit in comparison to non-African Americans from 2004 to 2009.

Marijuana Use

Even though African American youth may not smoke cigarettes to the same extent as whites, they are using other substances, including marijuana. Recent data from the 2013 YRBS indicate African American youth have a higher prevalence of current marijuana (27%) use than whites (18%). In contrast, only 8.2% of African Americans youth smoked cigarettes compared with 18.6% of whites. Other national surveys, including NSDUH, have found African American and white youth to have similar prevalence of marijuana use.[,] Additionally, there is evidence linking tobacco dependence and marijuana use among youth.[,] For example, data from a longitudinal study in East Harlem found among youth using marijuana a significant association with tobacco dependence when these youth were

followed up as adults 20 years later. In a qualitative study of African American young adult women and men (age 19–25 years), marijuana was initiated first and led to tobacco smoking. Black and Mild tobacco cigars were specifically mentioned as accompaniments to marijuana either to increase the “high” or to replicate it.

Tobacco Biomarkers

There is conflicting evidence African American youth and adults may be more likely to nondisclose their use of tobacco compared with whites.[–] Most studies comparing self-reported smoking status and smoking status defined by serum cotinine levels conclude that overall, self-report produces accurate estimates.[,] However, confirming self-reported smoking with a biomarker such as cotinine, the primary metabolite of nicotine, may provide more accurate estimates and additional evidence for whether African Americans are less likely to disclose their smoking status.

Results

Tables 2 and 3 summarize the selected 11 national surveys by the three major characteristics examined.

Survey Design and Methods

Table 2 shows the results for survey design and methods. Seven of the surveys oversampled African Americans (BRFSS, YRBS, NYTS, Add Health, NHIS, NHANES, HINTS). Six surveys (BRFSS [cell-phone], HINTS [cellphone], NHANES [high school dropouts], NHIS [cell phone, high school dropouts], NSDUH [homeless, high school dropouts], TUS-CPS [high school dropouts]) included commonly excluded populations. Only three surveys had a longitudinal study design component (Add Health, MTF, TUS-CPS). TUS-CPS may be considered longitudinal in 2002–2003 and 2010–2011, since it also included a subset of respondents followed over a 1-year period. Six surveys currently have or had state level estimates (BRFSS, NHIS, NHANES, NSDUH, TUS-CPS, NATS [2009–2010]). In some cases, state data may be restricted and not publicly available [NHANES, NHIS, NSDUH]. A request and application may be required to access these data. Only one survey reported response rates publically by race/ethnicity (NSDUH). Three surveys used proxy responders for certain subgroups (NHANES—adult can provide information for persons under 16 years of age and for individuals who could not self-report; NHIS—on rare occasions when a sample adult is mentally or physically incapable of self-response. TUS-CPS—proxy is allowed only on the “4th callback” to answer the tobacco-related questions).

Racial and Ethnic Background Classification

Table 2 shows the results for racial and ethnic background classification. All 11 surveys were currently using the OMB race/ethnicity classification. Six surveys collected data on foreign-born status of respondents (HINTS, NHANES, NHIS, NSDUH, TUS-CPS, Add Health) (Table 2).

Tobacco Use Questions

Table 3 shows the results for tobacco use questions. Two surveys did not have an age of smoking initiation question (BRFSS, HINTS). Six surveys did not use the lifetime cigarette screener question prior to asking questions about current smoking status (NSDUH, NATS, Add Health, MTF, NYTS, YRBS). Except for BRFSS and HINTS, all surveys collected data on use of other combustible tobacco products. Only three surveys did not assess use of menthol or flavored tobacco products (BRFSS, HINTS, Add Health). All surveys included at least one question on cessation: time since last smoked, attempts and/or duration of cessation. Marijuana use was assessed by five surveys (NHANES, NSDUH, Add Health, MTF, YRBS). Biomarker data (eg, serum cotinine) were only captured by NHANES and Add Health (Table 3).

Discussion

This review evaluates surveys for key factors to consider when examining tobacco use behaviors among African Americans. The 11 surveys were examined to obtain a perspective specific to African American tobacco use, but this goal is not the intent of these surveys, which have multiple purposes. To guide programs and researchers, it is important each be guided by an objective or research question when selecting the appropriate survey for examining African American tobacco use behaviors for their question or community of interest. For example, if information is needed on high-risk sub-populations (eg, cellphone only users), tobacco control programs and researchers may want to use surveys such as BRFSS that include populations usually excluded from national surveys due to differing and sometimes higher estimates among these populations. For examining the transition of smoking among African American youth as they transition to adults and why smoking is higher among African Americans adults, longitudinal surveys such as Add Health and TUS-CPS could be used. Longitudinal designs, although more expensive to conduct, can provide more information about changes in tobacco use patterns over time as African American youth transition into adulthood. A promising longitudinal study in progress is the Population Assessment of Tobacco and Health Study developed by the National Institutes of Health and the Food and Drug Administration. This study will provide much needed information as it follows around 46 000 persons of varying racial/ethnic backgrounds including African Americans ages 12 years and older for at least 3 years. Research questions for Population Assessment of Tobacco and Health include initiation of tobacco use, use of multiple products, cessation, and attitudes towards tobacco use.

The accuracy of tobacco estimates using self-report can be problematic for all populations, but there may be nuances specific to African Americans that are important to consider. For example, use of the lifetime screening question for determining who is a current smoker may result in an underestimate among African Americans who are occasional smokers as they are more likely to be screened out by this question on surveys compared with whites.[7] NSDUH is one survey that provides a choice in whether to use the lifetime screening question for determining tobacco use estimates without a skip pattern. There are many large studies that show African Americans are as likely as whites to disclose their tobacco use. However, there are some studies that show African Americans are less likely to disclose their tobacco use

compared with whites. Surveys such as NHANES that includes the collection of tobacco biomarkers are important to consider when programs and/or researchers are interested in supplementing self-reported tobacco use with biological measures.

This review has highlighted select features of national tobacco-related surveys that may inform measurement of African American tobacco use behaviors. It is not meant to rank surveys or make recommendations for surveys to collect additional data. The strengths of the review include: (1) a comparison of 11 national and/or state tobacco-related surveys; and (2) an examination of the surveys from their inception, focusing on survey methodology, racial/ethnic classification, and selected tobacco-related use questions. However, there are at least five limitations affecting this review: (1) the factors put forward are hypotheses and were not quantitatively analyzed or otherwise tested to examine the actual influence on tobacco use behavior estimates; (2) the hypotheses are based on data derived from the surveys included in this review as such they may be biased; (3) factors identified do not represent a comprehensive list of all survey-related items that can provide insight into smoking patterns of African American youth and adults; (4) the list of surveys is not exhaustive and excludes other surveys with tobacco use including the Cancer Prevention Study and Pregnancy Risk Assessment Monitoring System; and (5) surveys could not be ranked as their original intent was not designed to examine African American tobacco use behaviors. Additionally, psychosocial factors that can impact experimentation and initiation of tobacco use, such as religiosity, parenting and other related factors, were not included in this review.

Conclusions

National surveys provide much needed estimates of tobacco use behaviors. As programs and researchers seek to examine tobacco use behaviors among African Americans, it is important to consider multiple surveys as each can contribute to informing the tobacco experience in African Americans. Most importantly, programmatic objectives and/or research questions should guide the selection of data sources for tobacco control programs and researchers examining African American tobacco use behaviors.

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Table 1.

Brief Description of 11 US National Tobacco Related Surveys With Characteristics Relevant to Examining Tobacco Use in African Americans

	Multitopic surveys that include tobacco								Tobacco-only surveys		
	Add health	**BRFSS**	**HINTS**	**MTF**	**NHANES**	**NHIS**	**NSDUH**	**YRBS[a]**	**NATS**	**NYTS**	**TUS-CPS**
Start year	1994	1984	2003	1975	1971	1957	1971	1991	2009–2010	1999	1992
Periodicity	Typically every 5–6 years	Annually	Biennial	Typically annually/some parts biennially	Biennial since 1999–2000	Periodicity since 1964,Annually since 1997 for tobacco use questions	Annually	Biennial	2012–2013, 2013–2014[b]	Annually since 2011	Typically every 2–3 years
Survey method	In person/ mailed survey	Telephone survey	Telephone survey/ mailed survey	In person/ mailed survey	Interviews/physical examination	Household interview survey	Household interview survey	In person	Telephone survey	In person	Telephone/in person
Age range sampled	Wave I: 7th–12th grade, Wave II: 8th–12th grade, Wave III: 18–26 years of age	18+ years	18+ years	8th, 10th, 12th grades; follow-up after graduation	0–60+	Adults 18+ years for tobacco questions	12+ years	9th–12th graders (public and private schools)	18+ years	6th–12th grade	15+ before 2007, 18+ for 2007

BRFSS = Behavioral Risk Factor Surveillance System; HINTS = Health Information National Trends Survey; NHANES = National Health and Nutrition Examination Survey; NHIS = National Health Interview Survey;

NSDUH = National Survey on Drug Use and Health; TUS-CPS = The Tobacco Use Supplement to the Current Population Survey; NATS = National Adult Tobacco Survey; Add Health = The National Longitudinal Study

[a]The national YRBS survey is conducted by the Centers for Disease and Control and Prevention. In addition to the national YRBS, there are also state, territorial, tribal government, and local surveys conducted by departments of health and education.

[b]No additional surveys planned at this time.

Table 2.

Selected Factors[a] for Determining African American Tobacco Prevalence—Survey Design and Methods and Racial and Ethnic Background Classification

	Multitopic surveys that include tobacco							Tobacco-only surveys			
Factors	**Add health**	**BRFSS**	**HINTS**	**MTF**	**NHANES**	**NHIS**	**NSDUH**	**YRBS[b]**	**NATS**	**NYTS**	**TUS-CPS**
Survey design and methods											
Oversampling of African Americans	+	+[c]	+	−	+	+	−	+	−	+	−
Excluded populations[d]	−	+	+	−	+	+	+	−	−	−	+
Longitudinal study design[e]	+	−	−	+	−	−	−	−	−	−	+
State representative estimates	−	+	−	−	+[f]	+[f]	+[f]	−	+[f]	−	+
Response rates by race/ethnicity	−	−	−	−	−		+	−	−	−	−
Do not use proxy respondents	+	+	+	+	−	−	+	+	+	+	−
Racial and ethnic background classification											
Race/ethnicity classification	+	+	+	+	+	+	+	+	+	+	+
Foreign-born status	+	−	+	−	+	+	+	−	−	−	+

BRFSS = Behavioral Risk Factor Surveillance System; HINTS = Health Information National Trends Survey; NHANES = National Health and Nutrition Examination Survey; NHIS = National Health Interview Survey; NSDUH = National Survey on Drug Use and Health; TUS-CPS = The Tobacco Use Supplement to the Current Population Survey; NATS = National Adult Tobacco Survey; Add Health = The National Longitudinal Study of Adolescent Health; MTF = Monitoring the Future, NYTS = National Youth Tobacco Survey; YRBS = Youth Risk Behavior Survey.

[a] Surveys were rated as having a specific factor if in the past or currently they had one of the a priori factors identified.

[b] The national YRBS survey is conducted by the Centers for Disease and Control and Prevention. In addition to the national YRBS, there are also state, territorial, tribal government, and local surveys conducted by departments of health and education not examined in this review.

[c] There are some states that oversample for African Americans, but not every state includes an oversample in their design. The oversample is designed in order to reach a designated targeted percentage of African American in their overall sample. The oversample took place in the landline sample only prior to 2013. In 2013–2015, the states could oversample counties with higher percentage of African Americans in the cell phone sample.

[d] One or more groups of cellphone only users, homeless persons, incarcerated populations, high school dropouts.

[e] These surveys are both cross-sectional and longitudinal. A proportion of respondents are followed over a period time.

[f] NATS only had state representative estimates for 2009–2010. In some cases, state data may be restricted and not publicly available (NHANES, NHIS, NSDUH). A request and application may be required to access these data.

Table 3.

Selected Factors[a] for Determining African American Tobacco Prevalence—Tobacco Use Questions

	Multitopic surveys that include tobacco							Tobacco-only surveys			
Factors	**Add health**	**BRFSS**	**HINTS**	**MTF**	**NHANES**	**NHIS**	**NSDUH**	**YRBS[b]**	**NATS**	**NYTS**	**TUS-CPS**
Age of smoking initiation	+	−	−	+	+	+	+	+	+	+	+
Do not use lifetime cigarette screener	+	−	−	+	−	−	+	+	+	+	−
Concurrent use of other combustible tobacco products	+	−	−	+	+	+	+	+	+	+	+
Flavored tobacco use	−	*c*	−	+	+	+	+	+	+	+	+
Cessation (time since last used tobacco product, attempts, duration)(age range)	+	+	+	+	+	+	+	+	+	+	+
Marijuana use	+	−	−	+	+	−	+	+	−	−	−
Tobacco biomarkers	+	−	−	−	+	−	−	−	−	−	−

BRFSS = Behavioral Risk Factor Surveillance System; HINTS = Health Information National Trends Survey; NHANES = National Health and Nutrition Examination Survey; NHIS = National Health Interview Survey; NSDUH = National Survey on Drug Use and Health; TUS-CPS = The Tobacco Use Supplement to the Current Population Survey; NATS = National Adult Tobacco Survey; Add Health = The National Longitudinal Study of Adolescent Health; MTF = Monitoring the Future, NYTS = National Youth Tobacco Survey; YRBS = Youth Risk Behavior Survey.

[a] Surveys were rated as having a specific factor if in the past or currently they had one of the a priori factors identified.

[b] The national YRBS survey is conducted by the Centers for Disease and Control and Prevention. In addition to the national YRBS, there are also state, territorial, tribal government, and local surveys conducted by departments of health and education that were not examined in this review.

[c] State-specific question, not available on the core questionnaire.