Nicotine & Tobacco Research, Volume 14, Number 8 (August 2012) 970–976

Original Investigation

Tobacco Use and Suicidality: Latent Patterns of Co-occurrence Among Black Adolescents

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Received May 26, 2011; accepted December 14, 2011

Abstract

Introduction: Tobacco use is responsible for a considerable portion of the health disparities experienced by Blacks. In addition to its physiological effects, tobacco use has consistently been shown to be associated with suicidality among adolescents. The purpose of the present study is to describe the association between specific patterns of tobacco use behavior and those of suicidality among a nationally representative sample of Black high school students.

Methods: Responses from Black adolescents (N = 2,931) who completed the 2007 Youth Risk Behavior Surveillance Survey were included. Latent class analysis was utilized to identify typologies based on two domains: (a) lifetime and recent tobacco use and (b) suicidality. The association between tobacco use class membership and suicidality class membership as well as the direct effects of age and gender on class membership was also investigated.

Results: A significant proportion of Black youth reported smoking and suicidal behaviors. A 4-class model provided the best overall fit to the data for tobacco use behavior (nonsmokers, former smokers, light current smokers, and frequent current smokers); a 3-class model provided the best overall fit to the data for suicidality (not suicidal, mild suicidality, suicidal). Smoking status was associated with suicidality class membership, with more intense patterns of smoking related to increased probability of identification with both mild suicidality and being classified as suicidal compared with not suicidal.

Conclusions: The results of this study indicate that any current smoking status increases the likelihood of suicidality at least 5-fold and provides incentive to target this specific portion of the population of Black adolescent smokers.

Introduction

Adolescence is a common period for the onset and progression of a variety of high risk behaviors that damage health (Eaton et al., 2010; Jessor, 1991). For example, approximately 44% of Black high school students report ever smoking a cigarette, and 9.5% are current smokers (Centers for Disease Control and Prevention [CDC], 2011). Smoking is responsible for a considerable portion of the health disparities and excess mortality experienced by Blacks (U.S. Department of Health and Human Services [USDHHS], 1998). Specifically, Blacks have the highest age-adjusted rates (per 100,000) of mortality from heart disease (280.6) and cancer (227.2) compared with all other racial groups and ethnicities (National Center for Health Statistics [NCHS], 2007). However, these effects are generally not seen until adulthood even when smoking is initiated in adolescence. A more immediate health risk that has been found to be associated with tobacco use in adolescence is suicidality (Hallfors et al., 2004; King et al., 2001; Woods et al., 1997).

The extant research suggests that tobacco use and suicidality are associated with one another in adolescents in the United States (Hallfors et al., 2004; King et al., 2001; Woods et al., 1997). Overall, the results concur that current smoking increases the likelihood of reporting suicidal ideation (Hallfors et al., 2004; Jiang, Perry, & Hesser, 2010a; King et al., 2001) and/or attempts (Hallfors et al., 2004; King et al., 2001; Woods et al., 1997). For example, in one nationally representative sample of adolescents current smokers were found to be 3.5 times more likely to report suicidal ideation controlling for other risk behaviors (e.g., marijuana use), depression, and demographic characteristics (Hallfors et al., 2004). Presently, suicide is the third leading cause of death for Black youth aged 10–14 and the sixth leading cause for those aged 15–24. Further, suicide is in the top 10 leading causes of death for those aged 25–44. Finally, rates of suicide in the Black community, particularly among youth, are on the rise (CDC, 2004; Joe, 2006; Joe, Baser, Neighbors, Caldwell, & Jackson, 2009), exceeding those of their White counterparts (CDC, 2011).

Past studies linking tobacco use and suicidality among adolescents have limitations. The majority of these studies assess tobacco use as whether the youth reports current smoking or not.

doi:10.1093/ntr/ntr322
Advance Access Published on February 7, 2012

In addition, models predicting suicidal ideation and attempts frequently are considered separately. There is evidence to suggest that there are varying profiles of tobacco use with regards to initiation, age of onset, frequency of smoking (e.g., days per month), and the number of cigarettes smoked on smoking days (Henry & Muthen, 2010). While individuals who smoke more frequently generally smoke more cigarettes per day on smoking days, there are some infrequent smokers who smoke very many cigarettes on the days they smoke and some daily smokers who smoke very few cigarettes per day. By defining smoking in terms of current smoking or not, prior research does not take these potential nuances and their possible association with suicidality into consideration.

Similarly, there are variable patterns of manifestations of suicidality (Jiang, Perry, & Hesser, 2010b). While most individuals who have thoughts of ending their own life also endorse feeling sad and hopeless, some individuals may not feel sad but nonetheless engage in thoughts or behaviors of self-harm. Thus, the progression and distribution of manifestations of tobacco use and suicidality among adolescents may not occur in a quantitative fashion ranging from lower to higher extremes (Henry & Muthen, 2010; Jiang et al., 2010b). Rather, there may be qualitative differences in the behavioral profiles of both tobacco use, suicidality, and their co-occurrence, and these differences might also vary by racially classified social group.

Black adolescents may be expected to exhibit unique qualitative profiles of tobacco use and suicidality and their co-occurrence. For instance, young Blacks may have different cultural beliefs and disclose suicidality less readily than Caucasians and therefore may endorse features indicative of suicidality in a unique fashion (Morrison & Downey, 2000; Poussaint & Alexander, 2000; Walker & Flowers, 2011; Walker, Lester, & Joe, 2006). Research indicates that there is stigma related to disclosing thoughts of ending one's own life, which has been attributed to religiosity/moral objections and belief in coping/hardiness of the Black community (Morrison & Downey, 2000; Poussaint & Alexander, 2000; Walker et al., 2006). This might manifest with a decreased endorsement of feeling sad/hopeless, thinking about and/or planning suicide yet endorsing suicide attempts.

As it pertains to tobacco use, research has shown that Blacks metabolize nicotine more slowly than some other ethnic groups (potentially due to differences of genetic variants involved in nicotine metabolism), which may result in a unique pattern of smoking heaviness and frequency in Black adolescents (Moolchan, Franken, & Jaszyna-Gasior, 2006; Moolchan et al., 2009; Schoedel, Hoffmann, Rao, Sellers, & Tyndale, 2004). Specifically, it is expected that a greater proportion of Black youth who report current smoking will also report low numbers of cigarettes per day. Hence, studies that quantify current smoking without consideration of days of use per month and cigarettes per day on smoking days may miss unique profiles present in Black adolescents who may be more likely to be regular "light" smokers.

The present study utilizes latent class analysis (LCA) to characterize tobacco use, suicidality, and their co-occurrence among high school aged Blacks. LCA is a useful method for identifying homogenous subgroups within a population that is heterogenous with regards to the manifestations of a particular set of characteristics (Auerbach & Collins, 2006; Lanza, Collins, Lemmon, & Schafer, 2007; Magidson & Vermunt, 2002). Thus, instead of subgrouping every possible profile, LCA helps to reduce the data into the most parsimonious set of classes while accounting for the majority of variation. Given the variable profiles of both tobacco use and suicidality, applying LCA to identify the most common manifestations of these two behaviors in adolescents would be informative. Furthermore, examining relations between latent classes of tobacco use profiles and latent classes of suicidality features could refine the empirical relation between these two important high-risk characteristics.

The purpose of the present study is to identify latent classes of tobacco use indicators and suicidality and explore their association with one another in a nationally representative sample of Black high school students. To our knowledge, no study of the co-occurrence of tobacco use and suicidality has focused solely on Black adolescents using a nationally representative sample. Furthermore, the present study represents one of the first applications of LCA to this topic. The results of these analyses will highlight potentially high-risk patterns of co-occurrence, which can be utilized to target tailored interventions for Black adolescent smokers who may be at risk for increased suicidality.

Methods

Sample

Data for this study were obtained from the CDC's 2007 Youth Risk Behavior Survey (YRBS). This survey is administered to high school students in all grades (9th–12th grade). The YRBS employed a three-stage cluster sampling design to estimate national rates of health-related behaviors among high school students. A total of 157 high schools (81% school response rate) completed the YRBS in 2007 from all 50 states and the District of Columbia. Student response rate at participating schools was 84%. The YRBS allowed respondents to check all racial/ethnic categories that apply to them. These potential responses (American Indian or Alaskan Native, Asian, Black or Black, Hispanic or Latino, Native Hawaiian or other Pacific Islander, White, and Other) were recoded so that persons who self-identified as one group only are classified as such, while those who selected multiple options are classified in a "Multiple Race" category. The 2007 sample includes data from 2,931 students who self-identified as Black only. A more detailed description of the sampling methods and study procedures is published elsewhere (Brenner et al., 2004). Sample weights were included in analyses to adjust for survey nonresponse and sample selection probabilities. Primary sampling units (PSU) and stratum variables were included to account for the complex sampling design. All missing data were handled using the full information maximum likelihood (FIML) capabilities of Mplus.

Measures

The 2007 YRBS included 95 items covering a range of domains including substance use, mental health and other health-related behaviors. Tobacco use was measured by five questions. Respondents indicated whether they had ever smoked a cigarette (even a puff or two), age first smoked a whole cigarette, number of days smoked in the past 30 days, number of cigarettes smoked per day in the past 30 days, and whether or not they had ever smoked everyday for 30 days. To measure suicidality, the following items were used: whether or not the respondent had ever felt sad/hopeless for 2 weeks, whether they had seriously thought about

ending their own life, whether they had made plans to end their own life, and number of times they attempted to end their own life. Finally, gender and educational level were included as demographic covariates.

Analysis Plan

LCA was used to identify homogenous subgroups of youth based first on response patterns to smoking behaviors and second on indicators of suicidality, controlling for age and gender in each of these models. After determining the appropriate number of classes for each set of behaviors, a final model was run in which the association between smoking class membership and suicidal behavior class membership was assessed while controlling for age and gender effects on each through multinomial logistic regression (Lewinsohn, Rohde, Seeley, & Baldwin, 2001). All analyses were conducted using Mplus 5.21 (Lubke & Muthén, 2005; McCutcheon, 1987) and incorporated sample weights, stratum, and cluster variables to account for the complex sampling design of the YRBS.

To determine the number of classes for both smoking and suicidal behaviors, an initial series of models were conducted. For each, an initial one-class (no covariates) model was assessed followed by a series of models with covariates specifying increased number of classes (e.g., two-class, three-class, etc.) representing different patterns of tobacco use behavior. Similar procedures were also implemented for suicidality indicators. Optimal model selection was based upon recommended indices including low Adjusted Bayesian Information Criterion (BIC) relative to other models, significant Lo–Mendell–Rubin Likelihood Ratio Test (LMR LRT), and acceptable quality of classification (Nylund, Asparouhov, & Muthén, 2007).

Following these separate analyses, we conducted a final combined LCA model in which both tobacco use and suicidality classes were estimated simultaneously. Tobacco use class membership was regressed on suicidality class, and both tobacco use and suicidality classes were regressed on demographic covariates in this final model. Thus, the final model allowed for the examination of how varying responses to whether the respondent was sad/hopeless and/or suicidal was associated with varying responses to frequency and recency of smoking. These relationships are expressed as odds ratios (*OR*s) depicting the increased or decreased likelihood of belonging to a particular suicidality class given a particular pattern of reported smoking behaviors while controlling for gender and grade level.

Results

Table 1 shows the weighted percents for gender, grade, and measures of tobacco use and suicidality within this sample. Approximately 50% of this sample was male. Ninth graders comprised the largest proportion (33.1%). Half of the respondents had tried smoking a puff or two of a cigarette, while 69% reported never smoking whole cigarette. Within this sample, 29.2% of respondents reported that they had felt sad/hopeless in the past 12 months and 13.2% had thought about ending their own life.

Model fit was determined by low adjusted BIC relative to other models and a significant LMR LRT, which indicates that the model with one less latent class should be rejected in favor of the current model. Based upon these criteria, a four-class model provided the best overall fit to the data for tobacco use behavior; a three-class model provided the best overall fit to the data for suicidality. A combined model was run specifying a four-class

Table 1. Frequencies and Weighted Percentages for Covariates and Latent Class Indicators

Variable	Unweighted frequency	Weighted percentage
Gender		
Male	1,408	50.3
Female	1,521	49.7
Grade		
9th	693	33.1
10th	720	26.5
11th	733	21.7
12th	780	18.7
Ever tried cigarettes (1 or 2 puffs)		
No	1,347	49.7
Yes	1,449	50.3
Age at initiation		
Never smoked a whole cigarette	1,903	69.2
8 or 10 years old	169	6.7
11 or 12 years old	157	5.8
13 or 14 years old	274	9.9
15, 16, or 17 or years older	288	8.4
How many days did you smoke cigarettes, during the past 30 days?		
0 days	2,438	88.4
1 or 2 days	105	3.5
3 to 19 days	119	4.2
20 to all 30 days	109	3.9
During the days that you smoked, how many cigarettes did you smoke per day (during the past 30 days)?		
Did not smoke cigarettes during the past 30 days	2,392	88.4
Less than 1–1 per day	147	4.9
2–5 cigarettes/day	132	4.9
6 to more than 20 cigarettes/day	45	1.8
Ever smoked daily? (Consecutively for at least 30 days)		
No	2,584	93.8
Yes	180	6.2
Ever felt sad/hopeless		
No	1,995	70.8
Yes	875	29.2
Thought about ending own life		
No	2,500	86.8
Yes	380	13.2
Made plans to end own life		
No	2,582	90.5
Yes	286	9.5
Attempts to end own life		
0 times	2,228	92.3
1 times	99	4.1
2 or more times	91	3.6

model for tobacco use and a three-class model for suicidality. Results of this model were used to summarize conditional probabilities for both tobacco use and suicidality based upon class membership. Conditional probabilities represent the likelihood of respondents in a particular class selecting a particular response category while controlling for model covariates.

Conditional probabilities for tobacco use are summarized in Table 2. Class 1 accounted for 69.2% of the sample and was comprised of youth with little or no likelihood of tobacco use ("nonsmokers"). Class 2 ("former smokers") accounted for 19.3% of the sample. Members of this class were likely to report some history of tobacco use but no likelihood of use in the past month. Class 3 ("light current smokers") accounted for 6.1% of the sample. Youth in this class reported were highly likely to report smoking at least once in the past 30 days but had no likelihood of smoking six to more than 20 cigarettes on the days that they smoked. Class 4 ("frequent current smokers") accounted for the remaining 5.4%. Youth in this class had a 70% chance of smoking 20–30 days in the past month and an 81% chance of reporting that they had ever smoked everyday for 30 days.

Table 2. Conditional Probabilities of Tobacco Use, by Class

	Frequent current smokers	Light current smokers	Former smokers	Nonsmokers
Class prevalence (%)	5.4	6.1	19.3	69.2
Ever tried cigarettes (1 or 2 puffs)				
No	0.000	0.000	0.000	0.723
Yes	1.000	1.000	1.000	0.277
Age at initiation				
Never smoked a whole cigarette	0.000	0.012	0.000	1.000
8 or 10 years old	0.295	0.101	0.232	0.000
11 or 12 years old	0.168	0.119	0.222	0.000
13 or 14 years old	0.237	0.387	0.324	0.000
15, 16, or 17 or years older	0.300	0.381	0.222	0.000
During the days that you smoked, how many cigarettes did you smoke per day (during the past 30 days)?				
Did not smoke cigarettes during the past 30 days	0.000	0.000	1.000	1.000
Less than 1–1 per day	0.033	0.741	0.000	0.000
2–5 cigarettes/day	0.625	0.259	0.000	0.000
6 to more than 20 cigarettes/day	0.342	0.000	0.000	0.000
How many days did you smoke cigarettes, during the past 30 days?				
0 days	0.000	0.000	1.000	1.000
1 or 2 days	0.000	0.541	0.000	0.000
3 to 19 days	0.265	0.443	0.000	0.000
20 to all 30 days	0.735	0.016	0.000	0.000
Ever smoked daily? (consecutively for at least 30 days)				
No	0.188	0.861	0.956	1.000
Yes	0.812	0.139	0.044	0.000

Conditional probabilities for suicidality are summarized in Table 3. Class 1 accounted for 65.8% of the sample and included those respondents who were highly unlikely to report any suicidality or feeling sad ("not suicidal"). Class 2 ("mild suicidality") accounted for 23.5% of the sample. Respondents in this class had a .60 probability of reporting that they felt sad/hopeless but were unlikely to report suicidal behaviors. Class 3 (suicidal) accounted for 10.7% of the sample. Youth in this class had a 70% chance of indicating that they felt sad/hopeless and 86% chance of reporting that they thought of ending their life. There was a 62% chance that respondents in this class had attempted to end their own life one or more times.

Multinomial logistic regression analyses examined the complex model in which tobacco use was regressed on suicidality. In addition, both behaviors were regressed on demographic covariates. Model results, expressed as *OR*s, are presented in Table 4. Regression estimates for demographic covariates on tobacco use are included in the first series of columns, and estimates of covariate and tobacco use effects on suicidality classes are included in the second series of columns.

Black adolescent males were twice as likely as females to be classified as light current smokers and 3.4 times more likely to be classified as frequent current smokers compared with nonsmokers (see Table 4). Males were 60% less likely to be classified as suicidal and sad/hopeless than females compared with not suicidal. Each unit increase in grade level was associated with a 34% increase in the likelihood of being classified as a frequent current smoker compared with a nonsmoker. Tobacco use had a strong association with suicidality class membership in the multinomial model even when controlling for demographic covariates. Compared with nonsmokers, former smokers were over twice as likely to be classified in the mild suicidality class compared with not suicidal and nearly four times more likely to be classified in the suicidal class compared with not suicidal. Light current smokers were five

Table 3. Conditional Probabilities of Suicidality, by Class

	Suicidal	Mild suicidality	Not suicidal
Class prevalence (%)	10.7	23.5	65.8
Ever felt sad/hopeless			
No	0.288	0.403	0.942
Yes	0.716	0.597	0.058
Thought about ending own life			
No	0.136	0.920	0.985
Yes	0.864	0.080	0.015
Made plans to end own life			
No	0.312	0.954	0.996
Yes	0.688	0.046	0.004
Attempts to end own life			
0 times	0.377	0.994	0.999
1 time	0.340	0.002	0.000
2 or more times	0.283	0.004	0.001

Table 4. Odds Ratio Results of Latent Class Multinomial Logistic Regression Model

	Mental health classes		Tobacco use classes		
	Mild suicidality vs. not suicidal	Suicidal vs. not suicidal	Former smoker vs. nonsmoker	Light smoker vs. nonsmoker	Current smoker vs. nonsmoker
Covariates	*OR* (95% *CI*)	*OR* (95% *CI*)	*OR* (95% *CI*)	*OR* (95% *CI*)	*OR* (95% *CI*)
Males	0.52 (0.18–1.46)	**0.37 (0.23–0.59)**	1.13 (0.84–1.53)	**2.08 (1.25–3.47)**	**3.40 (1.73–6.68)**
Grade in school	1.09 (0.84–1.42)	0.94 (0.82–1.09)	1.07 (0.93–1.22)	1.07 (0.89–1.29)	**1.34 (1.09–1.66)**
Mild suicidality	–	–	**2.41 (1.43–4.07)**	2.57 (0.81–8.10)	1.96 (0.64–6.00)
Suicidal	–	–	**3.80 (1.79–8.04)**	**5.20 (1.92–14.06)**	**8.52 (3.23–22.47)**

Note. Bold indicates $p < .01$. *OR* = odds ratio.

times more likely to be classified in the suicidal class compared with not suicidal class than nonsmokers, and frequent current smokers compared with nonsmokers were over eight times more likely to be classified as suicidal than not suicidal.

Discussion

The present study sought to clarify the empirical relation between tobacco use and suicidality among Black adolescents using an innovative analytic approach by regressing one latent class model on another. Regarding the demographic correlates of latent classes of suicidality and tobacco use as well as their interrelation with one another, the results of this study are consistent with those found in other studies of tobacco use and suicidality among Black adults and extend these findings to an adolescent sample. Males were more likely to be former and current smokers versus nonsmokers than females (King, Bendel, & Delaronde, 1998; King, Polednak, & Bendel, 1999). Males were less likely than females to report feeling sad and suicidal behaviors versus not feeling suicidal (Wang, Browne, Storr, & Wagner, 2005). Persons most at risk for suicidality compared with not being suicidal were those who were current smokers compared with nonsmokers (Wang et al., 2005). However, there are several findings from our analysis, which are notable and expand the current body of literature.

First, this study describes specific profiles of smoking behavior among a nationally representative sample of Black high school students. Light current smokers were more likely to report initiating smoking at older ages compared with frequent current smokers. Frequent current smokers had a 70% chance of initiating smoking by age 14. Additionally, frequent current smokers had a 70% chance of reporting smoking two to twenty cigarettes with a 70% chance of smoking at least 20–30 days each month. Given the higher probability of earlier age of initiation and frequency of smoking combined with the fact that the addictive characteristics and health effects of tobacco use are more difficult to treat with longer and greater exposure, this subgroup warrants special consideration. Comparatively, Black adolescents are as likely as White youth to try smoking cigarettes and to smoke a whole cigarette before 13 years old (CDC, 2011). However, White youth are significantly more likely than Blacks to have smoked recently (11.6% vs. 23.2%) and to smoke more than 10 cigarettes/day on the days that they smoke (6.1% vs. 11.9%, respectively; CDC, 2011). Thus, White youth are more likely to engage in riskier forms of smoking behavior compared with Blacks. This is similar to findings among adults, where Blacks are found to consistently smoke less than Whites but are less likely to quit and experience disproportionate health problems from their tobacco use (King, Polednak, Bendel, Vilsaint, & Nahata, 2004; USDHHS, 1998). Thus, this study verifies the behavioral pattern of lower frequency of use found in adults, and it would be reasonable to hypothesize that Black youth who smoke are also at greater risk for tobacco-related health disparities and difficulty in quitting. Regardless of racial classification, adolescent current smoking has important health and social implications, and a substantial proportion of adolescents are engaging in this behavior.

The distinction between the mild suicidality and not suicidal classes include a significant decrease in the likelihood of not feeling sad/hopeless and lower probability of thoughts and plans regarding suicide. More than 10% of the current sample was classified as suicidal and feeling sad/hopeless with these adolescents having a 50% chance of reporting at least one or more suicide attempt. Black youth are more likely to report feeling sad/hopeless and one or more suicide attempts than White youth (29.2% vs. 26.2% and 7.7% vs. 5.6%), respectively (CDC, 2011). Suicidal behaviors among Black youth have historically been lower than that of their White counterparts (CDC, 1995). These findings in conjunction with other recent epidemiological findings indicate that an increasingly substantial proportion of Black youth experience suicidality (Joe et al., 2009; NCHS, 2009). It is important to note, however, that the hypothesis regarding whether or not Black youth would be likely to express attempts without ideation was not supported. It may be that factors related to overall increases in suicidality among Black youth also contribute to increasing the likelihood of reporting suicidal thoughts in this population. The findings from this study and others may indicate a shift in the qualitative (endorsement of ideation and plans to harm oneself) and quantitative (higher rates compared with their White counterparts) expression of suicidality among Black youth (CDC, 2011; Joe et al., 2009).

With respect to the co-occurrence of tobacco use and suicidality, it is known that smoking increases the release of dopamine and serotonin (Benowitz, 2001), which are associated with mood elevation. Former smoking significantly increased the likelihood of any suicidality compared with nonsmokers. Thus in our sample of Black youth, former smokers may be experiencing nicotine withdrawal symptoms associated with a decrease in the mood elevating neurotransmitters associated with smoking, since a defining characteristic of the mild suicidality class was an increase in the probability of feeling sad/hopeless. Light current smoking and frequent current smoking were significantly associated with predicting being classified as suicidal but not mild suicidality.

In this instance, current smokers may be self-medicating and only those with more severe symptoms as characterized by the suicidal class are distinguishable from nonsuicidal respondents compared with mild suicidality. Finally, Blacks may be less likely to obtain treatment for either tobacco dependence or mental health problems (Fiore et al., 2000; Neighbors et al., 2007), and given the increase in suicidality and consistency of disparate health outcomes, the manifestation of these risks require exploration.

Despite prior research, the direction of causality between substance use and negative mental health (depression and suicidality) has yet to be determined conclusively in the literature. The extant research literature is equivocal on the mechanism by which tobacco use is positively associated with an increased risk for suicide. The theories and foci of the literature spans the idea that (a) smoking is a noncausal marker; (b) smoking exposes the individual to physiological toxins that increases the risk factors for suicide (e.g., depression); and (c) smoking is a form of self-medication, and the cessation of this behavior precipitates psychological symptoms and psychiatric disorders (Hughes, 2008). These data are cross-sectional, and this study does not seek to explore causality. However, if smoking is a marker for or used as a form of self-medication associated with suicidality and mood elevation, then one might expect an increase in tobacco use behaviors to occur with the increase in suicidality among this population. It will be important to monitor tobacco use if the current trends of increasing suicidality continue.

The present study does have limitations. First, the data are based on self-report; adolescents may have underreported tobacco use and suicidality. Second, this study only included students who attended public school and cannot be generalized to the general adolescent population, which include those who attend private schools and adolescents who do not go to school. Finally, data sparseness did preclude our ability to run more complex analyses of the co-occurrence of tobacco use and suicidality across subgroups (i.e., gender interaction) due to the small proportion of females who reported frequent current smoking.

Despite these limitations, the findings from this study may be useful in developing interventions for Black adolescents who are current smokers and exhibit mental health problems. The results are particularly useful in potentially providing school mental health providers with a behavioral framework by clarifying the types of behavior-specific profiles for both suicidality and tobacco use that are related with one another (e.g., students who smoke more than 20 days in a month may be at greatest risk for concurrent suicidality marked by multiple attempts). Second, this study clearly identifies the fact that Black males are more likely to be frequent current smokers versus nonsmokers, which is associated with an eightfold increase in the likelihood of being suicidal versus not suicidal. Though, females are more likely to report being suicidal in this study and others; they are also already targeted for monitoring. It is important to note that Black males who are frequent current smokers may potentially be overlooked as needing further scrutiny for mental health services in schools and communities, but this study indicates that they warrant further consideration.

Funding

TDG was supported by National Institute on Drug Abuse grant T32-DA019426 (Principal Investigator: D. Snow).

Declaration of Interests

There are no competing interests to report for the authors.

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