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STRESS AND TOBACCO USE AMONG AFRICAN-AMERICAN ADOLESCENTS: THE BUFFERING EFFECT OF CULTURAL FACTORS

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Abstract

Tobacco is a leading contributor to morbidity and mortality and a primary reason for health disparities among African Americans. In this study we explore the role of stress in smoking and cultural factors that protect against stress among African-American adolescents. Our sample consisted of 239 youth who were recruited into the study while enrolled in 8th and 12th grade. Measures of risk factors (stress, school transition stress, and community disorganization), moderator or protective factors (religious support and intergenerational connections), and 30-day tobacco use were collected. Hierarchical multiple regression analyses were conducted. Intergenerational connections moderated the effect of stress on past 30-day tobacco use. Religious support moderated the effect of neighborhood disorganization on past 30-day tobacco use. Religious support also moderated the effect of stress on past 30-day tobacco use. The findings have implications for prevention efforts to consider religious beliefs and practices and also to link youth with supportive adults in their community.

Tobacco smoking continues to be a major health problem in the United States with tremendous morbidity and mortality costs. African Americans suffer disproportionate health

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effects from tobacco use as both use and harmful effects increase with age. African-American youth are less likely to smoke than youth from most other ethnic groups, yet by adulthood, African Americans smoke slightly more than other ethnic groups (Substance Abuse and Mental Health Services Administration [SAMHSA], 2009). Chronic conditions such as lung cancer, cardiovascular disease, and asthma affect African-American smokers more so than any other ethnic group and mortality is also much higher (Fagan, Moolchan, Lawrence, Fernander, & Ponder, 2007). Tobacco is a key contributor to the three major causes of death among African Americans: heart disease, cancer, and stroke. Reasons for increased morbidity and mortality among African-American adult smokers are varied. They include unequal access to prevention and treatment (Smedley, Stith, & Nelson, 2003), use of more addictive and carcinogenic mentholated cigarettes (Richter, Beistle, Pederson, & O'Hegarty, 2008), and aggressive marketing of tobacco products to African Americans (Sutton & Robinson, 2004; Voorhees, Yanek, Stillman, & Becker, 1998). Given these statistics it is important to understand which factors may attenuate smoking among African-American adolescents. In this study we explore the role of stress in smoking and cultural factors that protect against stress among African-American adolescents.

In general, the earlier the initiation of a substance, the more use and the more severe the health consequences of such use (Geronimus et al., 1993). However, among African-American smokers, a phenomenon known as the cross-over effect occurs when later (rather than earlier) initiation results in more use and more harmful effects (Geronimus, Neidert, & Bound, 1993). One reason for the cross-over effect is that African Americans may experience more stress as they age, and it is this additional stress that leads to increased smoking (Colby, Linsky, & Straus, 1994; Krueger & Chang, 2008).

SMOKING AMONG AFRICAN AMERICANS

Data from the National Survey on Drug Use and Health indicated that among all youth ages 12 to 17, 2.6 million (9.1%) reported smoking cigarettes (SAMHSA, 2009). Current cigarette smoking among youth ages 12 to 17 was more prevalent among White and Hispanic than among African-American and Asian youth (10.6, 7.9, 5.0, and 3.8%, respectively). Among young adults, ages 18 to 25, the prevalence of current smoking was highest for Whites and similar for Hispanics and African Americans (40.6%, 30.0%, and 26.3% respectively) and lowest for Asian at 18%. However, in the 26 and older group (smoking prevalence was slightly higher for African Americans than Whites and Hispanics (27.8, 26.6, and 26.3%, respectively), and much higher than for Asian youth, where the rate was 11.8%. These statistics show more rapid escalation in smoking among African Americans, compared to other ethnic groups, after the age of 17. Data on American Indians and Alaska Natives in the 12–17-year-old category was not provided in this report (SAMHSA, 2009). However, data on those 12 and older show that American Indians and Alaska Natives have the highest level of tobacco use at 48.7% (compared to 13.9% for Asians, 21.3% for Hispanics, 28.6% for Blacks, and 30.4% for Whites).

Risk Factors for Smoking

Extensive research has been conducted on risk factors for smoking. These include family factors such as parental monitoring and conflict (Hill, Hawkins, Catalano, Abbott, & Guo, 2005); school factors such as low academic achievement (Brunswick & Messeri, 1984b; Tucker, Ellickson, & Klein, 2003); peer factors such as drug using peers (Botvin, Epstein, Schinke, & Diaz, 1994); and individual level risk factors such as impulsivity, rebelliousness, and depression (Bricker, Rajan, Zalewski, Andersen, Ramey, & Peterson, 2009; Brook, Duan, Brook, & Ning, 2007; Brook, Ning, & Brook, 2006). Community factors including community disorganization (Lambert, Brown, Phillips, & Ialongo, 2004), is also a risk factor and is examined as a risk factor in this study. Youth who smoke may do so to alleviate or reduce stress (Mermelstein & the Tobacco Control Network Writing Group, 1999). Changes in life events and the stress associated with these events are common antecedents of cigarette smoking among adolescents (Wills, Sandy, & Yaeger, 2000, 2002). Moreover, adolescents believe that teens smoke to reduce both general stress and family stress (Scales, Monahan, Rhodes, Roskos-Ewoldsen, & Johnson-Turbes, 2009). In this study, we were interested in youth's general stress (or the perception of). School transition is a context that increases stress for students so we were also interested in how this particular type of stress affected tobacco use. Transitioning from elementary to middle school, middle school to high school, and high school to a job or college is accompanied by social, personal, and academic changes and demands which may increase anxiety and stress. Movement away from family systems that may have served to monitor and provide support to the adolescent may also increase stress and susceptibility to drug use (Hertzog, Morgan, Diamond, & Walker, 1996). School transition stress may be especially risky when youth live and attend school in low-resource and disorganized communities as these settings provide a stressful context as well as greater access to tobacco and other drugs (Lambert et al., 2004; Novak, Reardon, & Buka, 2002; Novak, Reardon, Raudenbush, & Buka, 2006; Scheier, Miller, Ifill-Williams, & Botvin, 2001). In this study, we were interested in both general stress and school transitional stress as risk factors for smoking among African-American students. We were also interested in community disorganization as another risk factor. Data used in this study were collected from youth at a school transitional point, i.e., at the beginning of the semester when they had transitioned from middle school to high school, and from high school to the work force or college or unemployment.

CULTURAL FACTORS THAT PROTECT AGAINST TOBACCO USE

Several cultural factors unique to African Americans may attenuate the effects of stress and community disorganization on smoking behavior. Among African-American youth, high levels of ethnic identity, parental racial socialization, and religiosity have shown buffering effects on risk factors with regard to substance use (Belgrave, Brome, & Hampton, 2000; Brook et al., 2007; Nasim, Corona, Belgrave, Utsey, & Fallah, 2007a; Nasim, Utsey, Corona, & Belgrave, 2006; Nasim, Jagers, Wilson, & Owens, 2007b). These factors (commonly referred to as protective factors) lessen the likelihood that youth will engage in maladaptive behaviors, including smoking, as a result of stressful conditions such as poor school transitioning and community risk. In this study, we focus on religiosity and intergenerational connections as two cultural factors hypothesized to affect smoking behavior.

Religiosity and Spirituality and Smoking

Spirituality and religiosity are critical dimensions of African-American culture (Lincoln & Mamiya, 1990; Thomas & Holmes, 1992) and the cultures of people of African descent (Long, 1997; Mbiti, 1970; Mattis, Fotenot, Hatcher-Kay, Grayman, & Beale, 2004). Wallace, Brown, Bachman, and Laviest (2003) reported in the Monitoring the Future study that once religiosity was controlled for, there were no significant differences in drug use among African-American and European-American teenagers. For African-American youth, religiosity seems to be a robust protective factor against tobacco and drug use (Berg, Choi, Kaur, Nollen, & Ahluwalia, 2009; Wills, Yeager, & Sandy, 2003).

In a study of urban African-American youth, Belgrave et al. (2000) found that African-American youth who attended religious services were less likely to use drugs, including tobacco, than their peers who did not attend religious services. Nasim and colleagues (2007a) examined the moderating effects of religious and other cultural beliefs and behaviors on tobacco and other substance use among rural African-American youth. Religious beliefs/practices and traditional African-American family practices moderated the impact of community disorganization on substance use.

Religious or spiritual coping may be a type of coping strategy helpful to African Americans during stressful periods. Religious support is one's personal beliefs and values about God (e.g., that one can turn to God for help and advice) (Fiala, Bjorck, & Gorsuch, 2002). Religious beliefs and values may protect against smoking in several ways. Youth who are religious are less likely to affiliate with peers who smoke. Under stressful conditions, youth may use religious and spiritual support through activities such as praying, attending church, and obtaining social support from non-smoking parents and peers. We hypothesized that higher levels of religious support would be a protective factor for smoking.

Intergenerational Connections and Smoking

Intergenerational connections involve communicating with and being with caring others. Intergenerational connections involves active support of children by parents and other adults in the neighborhood including close ties between adults and children, the exchange of information related to children, and mutual social control of the children by adults in the community (Sampson, Morenoff, & Earls, 1999). The importance of intergenerational connections is supported by research that shows a buffering effect of positive family and neighborhood on school outcomes and smoking behavior. For example, research has shown that factors that inhibit smoking initiation include: family cohesion (Biglan, Duncan, Ary, & Smolkowski, 1995; Tilson, McBride, Lipkus, & Catalano, 2004); neighborhood cohesion (Corneille & Belgrave, 2007; Plybon, Edwards, Butler, Belgrave, & Allison, 2003), and parental involvement (Conrad, Flay, & Hill, 1992).

Intergenerational connections include contextual factors that are common to both family and neighborhood (Sampson et al., 1999). For example, support from other adults in the neighborhood helps parents monitor adolescents' behavior, whereabouts, and overall well-being. Similarly, adolescents may be less likely to engage in smoking and other problem behaviors when they are in an environment where there are adults who will correct them or

inform their parents of inappropriate behaviors. We expected intergenerational connections to have a protective effect on smoking in this study.

We hypothesized that religious support and intergenerational connections would buffer the effects of stress, school transition stress, and community disorganization on smoking behaviors. Our expectation was that when stress was high, high (rather than low) levels of religiosity and stronger intergenerational connections would result in less smoking.

METHOD

Overview

This study was part of a larger study that examined cultural, family, and contextual factors and smoking among African-American youth in the 5th, 8th, and 12th grade. We collected data from participants during the spring of their 5th, 8th, and 12th grade year. Data were collected from these same participants a second time after they had transitioned into the 6th and 9th grade and when they had completed high school and transitioned to a job, college, military, or other. Participants included in this study were limited to those whom we collected Time 2 data from and those who were in the 8th and 12th grades upon enrollment in the study.

Participants

The sample was comprised of 239 African-American adolescents; 170 (71%) females and 69 (29%) males. We recruited 124 (52%) participants from urban schools and 115 (48%) from rural schools. In terms of grade cohorts, 129 (54%) were in 8th grade and 110 (46%) were in 12th grade. Ninety-four percent of our sample had at least one parent who was employed.

Measures

Most measures used were collected at the second data collection point. We were interested in assessing stress at a time when students had transferred into a new school context. Measures of stress, school transition stress, religious coping, and smoking were collected at Time 2. We did not collect measures of community disorganization and intergeneration connections at Time 2 and used measures of these variables that had been collected 6 months earlier at Time 1. We next describe our independent variables conceptualized as risk factors (i.e., stress, school transition stress, and community disorganization), followed by a discussion of our moderator variables (i.e., religious support and intergenerational connections), and then our dependent variable, 30-day tobacco use.

The perception of stressful events was measured using the *Perceived Stress Scale* developed by Cohen, Kamarck, and Mermelstein (1983). This scale measures how often participants felt stressed in the past 30 days. For example, a sample item asks participants how often they felt that they had been able to control things on a scale from “never” to “very often.” The Cronbach reliability coefficient was .75 for the study sample.

We used an adapted version of the *Stressful Urban Life Events Scale* to measure school transition stress (Tolan, Miller, & Thomas, 1988). This modified measure is a seven-item scale which evaluates students’ perceptions of adjustment to a new school and

includes items about school experiences. These questions ask students about their academic performance, discipline problems, and interactions with other students and staff. Response options are “no” or “yes.” The Cronbach’s alpha for this sample was .76.

Community disorganization was assessed using a modified version of the *Neighborhood Disorganization* Sub-Scale of the Communities that Care Youth Survey (Arthur, Hawkins, Pollard, Catalano, & Baglioni, 2002). This 10-item scale measures students’ perception of crime, fighting, physical deterioration, and safety in their communities. Respondents are presented with a list of problems that may occur in neighborhoods and asked to indicate to what extent that problem exists in their community. The response options range from 1 “big problem” to 3 “no problem” in their neighborhood. The Cronbach’s alpha for this sample was .93.

The *Intergenerational Connections Scale* (Sampson et al., 1999) measures intergenerational connections and active support of neighborhood children by parents and other adults. Items are rated on a 5-point Likert-type scale ranging from “strongly disagree” (1) to “strongly agree” (5) with higher scores indicating more connections and neighborhood support. A sample item includes: “Parents in this neighborhood know their children’s friends.” The scale had a Cronbach reliability coefficient of .83 using the current sample.

The *God Support* subscale of the *Religious Support Scale* (Fiala et al., 2002) consists of seven items that assess private religiosity (i.e., personal beliefs and values about religion). A sample item from the sub-scale is: “I have worth in the eyes of God.” Responses range from “strongly disagree” (1) to “strongly agree” (5). Higher scores suggest that individuals derive support from their belief in a higher power. One item was omitted to increase reliability. The Cronbach’s alpha of the six-item modified scale was ($\alpha = .91$).

30-Day Tobacco Use was assessed using an item adapted from the National Survey on Drug Use and Health (Substance Abuse and Mental Health Services Administration [SAMHSA], 2009). Participants self-reported 30-day cigarette use by responding to the item: “During the past 30 days, on how many days did you smoke cigarettes?” Participants could provide a range of seven responses from “0 days” to “all 30 days.”

Procedure

This study was approved by the university’s Institutional Review Board. Data were collected in two public school systems in the southeastern United States, one urban and one rural. Liaisons at each school assisted study staff in informing students about the study. Students from one rural middle school, one rural high school, three urban middle schools, and two urban high schools participated in this study. Participants were enrolled in the study upon consent from parents and after providing their assent. Data were collected at schools during school hours by trained researchers. The questionnaire was administered in a designated area in schools, such as the cafeteria or auditorium. Researchers seated students far enough apart to ensure privacy. Following protocol, a survey prompt was read aloud that included information about how to complete the survey and reminded the students that their participation was voluntary and their responses were anonymous. A $10 gift card to a local department store was provided to students when they completed the questionnaire.

At the first data collection point during the Spring semester, students were reminded that the research staff would be in touch with them to collect data approximately 6 months later when they were at a new school or had completed high school. Twelfth graders were no longer attending high school so they were given an option to complete their survey on line via a web-based survey or as a hard copy that was mailed for them to complete and return.

Data Analytic Strategy

Preliminary analyses were conducted to screen data for outliers and violations of the assumptions of multiple regression including linearity, normality, and homogeneity of variance. In order to test the study's hypotheses, hierarchical multiple regression analyses were computed. Predictor variables were centered to reduce non-essential multicollinearity. In order to control for the effect of gender and grade cohort, these items were entered into the first step. Lower order effects such as neighborhood disorganization, stressful events, school transitional stress, intergenerational connections, and religious support were entered into the second step. Interaction/moderating effects were entered into the third step.

In addition to gender and grade cohort, we examined two proxy variables of SES: parent employment status and parent educational attainment. We found that 84% of our sample had a mother who was employed, 76% had a father who was employed, and 94% had at least one parent who was employed. In terms of educational attainment, 86% reported their mother had attained at least a high school education, and 86% reported their father had attained at least a high school education. Because of the high proportion of mother and father employment status and attainment of at least a high school degree, we did not use these proxy variables of SES as covariates in our study.

RESULTS

Refer to Table 1 for descriptive information on our primary measures. Out of the 239 participants that responded to the item assessing if they had smoked at least once in their lifetime, 104 (44%) responded that they had smoked tobacco at least once. In regards to past 30-day smoking behavior, 217 (91%) did not smoke in the past 30 days, 11 (5%) smoked 1 to 2 days, 2 (<1%) smoked 3 to 5 days, 1 (<1%) smoked 6 to 9 days, 2 (<1%) smoked 10 to 19 days, 2 (<1%) smoked 20 to 29 days, and 2 (<1%) smoked all 30 days. There was variability on the sample's responses on most measures although overall participants reported a high degree of religious support.

Bivariate associations were computed among neighborhood disorganization, stressful events, school transitions, intergenerational connections, religious coping, and past 30-day tobacco use. These correlational analyses are presented in Table 2. Stressful events were positively associated with past 30-day tobacco use. Neighborhood disorganization was negatively related to tobacco use; more problems in the neighborhood were correlated with more tobacco use. Religious support was negatively associated with tobacco use; higher levels of religious support were associated with less tobacco use. Since none of the associations among our predictors were above .70, there were no initial concerns for multicollinearity. Several of the other predictor variables were also significantly associated with one another (see Table 2).

Hypothesis Testing

A hierarchical multiple regression analysis was conducted to see if risk factors as well as cultural factors predicted past 30-day tobacco use. We were also interested in examining whether cultural factors provided moderating effects by buffering the relationship between risk factors and tobacco use. Gender and grade cohort were used as covariates and were entered into the first step. Lower order effects were entered into the second step of the regression analysis and included neighborhood disorganization, stressful events, school transition stress, intergenerational connections (moderator), and religious support (moderator). Higher order effects or moderating effects were represented in the third step of the regression analysis by the interaction effects.

The results of the analysis indicated that the overall model accounted for a significant amount of variance in past 30-day tobacco use, $F(13, 205) = 4.20$, $p = .00$, $R^2 = .21$. The change in R-squared from block 2 to block 3 was .13 and significant, $p = .00$. This confirms our hypothesis that the moderating effects of our cultural variables provided unique variance above and beyond the lower order effects. Intergenerational connections moderated the effect of stress on past 30-day tobacco use, $t(237) = -2.87$, $p = .00$, $= -.19$. As stressful events increased, past 30-day tobacco use increased less for those with high levels of intergenerational connections than those with low levels of intergenerational connections.

Religious support moderated the effect of neighborhood disorganization on past 30-day tobacco use, $t(237) = 2.21$, $p = .03$, $\beta = .16$. For those with high (rather than low) levels of religious support, neighborhood disorganization had less of an effect on smoking. Religious support also moderated the effect of stress on past 30-day tobacco use, $t(237) = -2.88$, $p = .00$, $\beta = -.20$. Religious support protected against the effects of stress on past 30-day tobaccos use. When stress was high those with high versus low levels of religious support smoked less.

DISCUSSION

The findings from this study of African-American adolescents are consistent with previous research linking tobacco use with stress (Belgrave et al., 2000; Krueger & Chang, 2008). Intergenerational connections and religiosity were both buffers against the negative effects of stress on recent (past 30-day) smoking behavior. Also, religious support was a buffer against neighborhood disorganization reducing smoking among youth who reported residing in disorganized neighborhoods. Adolescents who are connected to the family and other adults in the community are also likely to be connected through religious beliefs to a faith-based institution. In fact, our correlational analysis showed a small but significant relationship between intergenerational connections and religious support.

Both religious support and intergenerational connections are types of social support. Adolescents who believe they are supported by a higher power and from faith-based institutions (religiosity) and who feel connected to their family and other adults in the community (intergenerational connections) are likely to have in place resources to reduce stress. These adolescents are also likely to participate in positive and pro-social activities (e.g., sports, arts, community activities) that may prevent stress from occurring in the first

place (Reeve & Weiss, 2006). Resources from other adults in the community and religious institutions also support parents in childrearing and monitoring activities. Intergenerational connections may be especially important in low-resource neighborhoods. In low-resource neighborhoods there may be less monitoring by adults in the community, less knowledge of extracurricular activities, less parent/school attachment, and less connection to the surrounding community (Clampet-Lundquist, 2007). It is in these communities that connections to positive adults may be most needed.

Contrary to our hypothesis school transition stress was not significantly related to tobacco use in bivariate or multivariate analysis. We expected that higher levels of school transition stress would be related to more tobacco use but this was not confirmed in this study. Our operationalization of school transition stress may have contributed to these non-significant findings. The measure of school transition stress used in this study was operationalized as the student's perceptions of his/her adjustment to a new school and new school experiences. A measure of how stressful school events were may have provided a better measure of school transition stress. Better measures of school transition stress are needed before we can equivocally understand the nature of this type of stress to tobacco use.

There are a few study limitations that are acknowledged. As noted previously, we may not have captured school transition stress with the measure used in this study. Our sample, which included 8th and 12th graders, only captured students in the transitional period between middle school and high school and high school and beyond. Elementary students transitioning to middle school may experience more stress than those transitions that occur later. This is due to the younger age and the fact that this is the first school transition youth have to deal with. This early adolescent period, ages 11–13, is also the period when youth experiment with and initiate smoking. Including 5th graders in this sample would have allowed us to also assess the school transition period from elementary to middle school. We did not include 5th graders in these analyses because all of the measures used in this study were not administered to 5th graders due to lower literacy levels. Another potential limitation is that two of our measures were collected at Time 1 while all others were collected at Time 2 during a transitional period. However, the measures collected at Time 1 were considered static and not dynamic (i.e., intergenerational connections and community disorganization) and as such were not likely to change within 6 months.

Our results confirm previous finding that cultural attributes are protective for African-American youth. However, the amount of variance accounted for by all of the variables was only about 20%. Therefore, there are several other factors that are directly and indirectly linked to smoking among African Americans and further research is indicated. For example, Scales and colleagues (2009) found that the media along with family and community factors contribute to smoking. Teens are exposed to smoking through advertisements in magazines, films, and television shows that are popular among youth. Mermelstein also found that non-White ethnic groups perceived smoking as disrespectful to parents or a bad reflection on parents (1999). Kegler, McCormick, Crawford, Allen, and Ureda (2002) found that African-American youth in particular were moreconcerned than White youth that their parents would think less of them if they smoked. African-American youth also perceived consequences for smoking from their families as harsher than Whites (Mermelstein, 1999).

The perception of or actual punishment adolescents receive for smoking may help to explain why African-American youth initiate smoking at later ages, when parental monitoring lessens. Therefore another area of investigation is how parental factors interact with cultural factors to inhibit smoking among African-American youth. Finally, studies have shown that African-American adolescents view tobacco smoking as a complement to marijuana smoking (Mermelstein, 1999; Scales et al., 2009) suggesting the need for more research on precursors to and links between these two substances.

With these limitations and need for future research noted, we believe there are some implications for prevention and programs to reduce or prevent tobacco smoking among African-American youth. One, it may be useful to look beyond programs that target individual youth to programs that include the family, community, and religious institutions. Religious institutions and practices in the African-American community have typically provided support and monitoring of African-American youth. Of all racial and ethnic groups in the United States, African Americans are most likely to report a formal religious affiliation with 87% reporting that they belong to a religious group (Sahgal & Smith, 2009). These religious groups include “youth ministry,” “biblical study,” and the like in addition to Sunday worship service. These religious activities also typically connect youth to older and respected members of their religious community. An extension of these types of programs within community settings may be helpful. Two, it may also be important that we teach youth to recognize and deal with stress in healthy ways. These might include participating in sports and athletic activities, meditating, and/or talking to others. Three, given the role of intergenerational connections, our findings suggest that it will be important for youth to have access to and a meaningful relationship with other positive adults such as uncles, neighbors, shopkeepers, teachers, or the like. These supports and resources are likely to also reduce other problem behaviors in addition to tobacco use. We believe these protective resources will extend beyond reducing tobacco use but to other risky and problematic behaviors.

In conclusion, as this study and others have shown, stress along with poor community factors increase smoking risk among African-American adolescents. However, there are also buffers including religious support and connections to positive adults that attenuate these risk factors.

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REFERENCES

Arthur MW, Hawkins JD, Pollard JA, Catalano RF, & Baglioni AJ (2002). Measuring risk and protective factors for substance use, delinquency, and other adolescent problem behaviors: The Communities that Care Youth Survey. Evaluation Review, 26(6), 575–601. [PubMed: 12465571]

Belgrave FZ, Brome DR, & Hampton C (2000). The contribution of afrocentric values and racial identity to the prediction of drug knowledge, attitudes, and use among African American youth. Journal of Black Psychology, 26(4), 386–401.

Berg C, Choi WS, Kaur H, Nollen N, & Ahluwalia JS (2009). The roles of parenting, church attendance and depression in adolescent smoking. Journal of Community Health: The Publication for Health Promotion and Disease Prevention, 34(1), 56–63. [PubMed: 18830691]

Biglan A, Duncan TE, Ary DV, & Smolkowski K (1995). Peer and parental influences on adolescent tobacco use. Journal of Behavioral Medicine, 18(4), 315–330. [PubMed: 7500324]

Botvin GJ, Epstein JA Schinke, S. P., & Diaz, T. (1994). Predictors of cigarette smoking among inner-city minority youth. Journal of Developmental & Behavioral Pediatrics, 15(2), 67–73. [PubMed: 8034769]

Bricker JB, Rajan KB, Zalewski M, Andersen MB, Ramey M, & Peterson AV (2009). Psychological and social risk factors in adolescent smoking transitions: A population-based longitudinal study. Health Psychology, 28(4), 439–447. [PubMed: 19594268]

Brook JS, Duan T, Brook DW, & Ning Y (2007). Pathways to nicotine dependence in African American and Puerto Rican young adults. The American Journal on Addictions, 16(6), 450–456. [PubMed: 18058409]

Brook JS, Ning Y, & Brook DW (2006). Personality risk factors associated with trajectories of tobacco use. The American Journal on Addictions, 15(6), 426–433. [PubMed: 17182444]

Brunswick AF, & Messeri PA (1984b). Origins of cigarette smoking in academic achievement, stress and social expectations: Does gender make a difference? The Journal of Early Adolescence, 4(4), 353–370.

Clampet-Lundquist S (2007). No more ‘Bois ball: The effect of relocation from public housing on adolescents. Journal of Adolescent Research, 22(3), 298–323.

Cohen S, Kamarck T, & Mermelstein R (1983). A global measure of perceived stress. Journal of Health and Social Behavior, 24(4), 385–396. [PubMed: 6668417]

Colby JP, Linsky AS, & Straus MA (1994). Social stress and state-to-state differences in smoking and smoking related mortality in the United States. Social Science & Medicine, 38(2), 373–381. [PubMed: 8140464]

Conrad KM, Flay BR, & Hill D (1992). Why children start smoking cigarettes: Predictors of onset. British Journal of Addiction, 87(12), 1711–1772. [PubMed: 1490085]

Corneille MA, & Belgrave FZ (2007). Ethnic identity, neighborhood risk, and adolescent drug and sex attitudes and refusal efficacy: The urban African American girls’ experience. Journal of Drug Education, 37(2), 177–190. [PubMed: 17977240]

Fagan P, Moolchan ET, Lawrence D, Fernander A, & Ponder PK (2007). Identifying health disparities across the tobacco continuum. Addiction, 102(Suppl 2), 5–29.

Fiala WE, Bjorck JP, & Gorsuch R (2002). The religious support scale: Construction, validation, and cross-validation. American Journal of Community Psychology, 30, 761–787. [PubMed: 12385482]

Geronimus AT, Neidert LJ, & Bound J (1993). Age patterns of smoking in US black and white women of childbearing age. American Journal of Public Health, 83(9), 1258–1264. [PubMed: 8363001]

Hertzog CJ, Morgan PL, Diamond PA, & Walker MJ (1996). Transition to high school. A look at student perceptions. Becoming, 7(2), 6–8.

Hill KG, Hawkins JD, Catalano RF, Abbott RD, & Guo J (2005). Family influences on the risk of daily smoking initiation. Journal of Adolescent Health, 37(3), 202–210.

Kegler MC, McCormick L, Crawford M, Allen P, & Ureda J (2002). An exploration of family influences on smoking among ethnically diverse adolescents. Health Education & Behavior, 29, 473–490. [PubMed: 12137240]

Krueger PM, & Chang VW (2008). Being poor and coping with stress: Health behaviors and the risk of death. American Journal of Public Health, 98(5), 889–896. [PubMed: 18382003]

Lambert SF, Brown TL, Phillips CM, & Ialongo NS (2004). The relationship between perceptions of neighborhood characteristics and substance use among urban African American adolescents. American Journal of Community Psychology, 34(3–4), 205–218. [PubMed: 15663207]

Lincoln CE, & Mamiya LH (1990). The Black church in the African American experience. Durham, NC: Duke University Press.

Long C (1997). Perspectives for a study of African-American religion in the United States. In Fulop T & Raboteau A (Eds.), African-American religion: Interpretive essays in history and culture (pp. 23–35). New York: Routledge.

Mattis JS, Fotenot DL, Hatcher-Kay CA, Grayman NA, & Beale RL (2004). Religiosity, optimism, and pessimism among African-Americans. Journal of Black Psychology, 30(2), 187–207.

Mbiti JS (1970). Africa religions and philosophy. Garden City, NY: Anchor Doubleday Books.

Mermelstein R, & the Tobacco Control Network Writing Group. (1999). Explanations of ethnic and gender differences in youth smoking: A multi-site, qualitative investigation. Nicotine and Tobacco Research, 1, S91–S98. [PubMed: 11072411]

Nasim A, Corona R, Belgrave F, Utsey SO, & Fallah N (2007a). Cultural orientation as protective factor against tobacco and marijuana smoking for African American young women. Journal of Youth and Adolescence, 36(4), 503–516.

Nasim A, Jagers R, Wilson K, & Owens K (2007b). The moderating effects of culture on the relationship between peer deviance and alcohol use among high-risk African American adolescents. Journal of Drug Education, 37(3), 327–355.

Nasim A, Utsey SO, Corona R, & Belgrave FZ (2006). Religiosity, refusal efficacy, and substance use among African-American adolescents and young adults. Journal of Ethnicity in Substance Abuse, 5(3), 29–49. [PubMed: 17135166]

Novak SP, Reardon SF, & Buka SL (2002). How beliefs about substance use differ by socio-demographic characteristics, individual experiences, and neighborhood environments among urban adolescents. Journal of Drug Education, 32(4), 319–342. [PubMed: 12556136]

Novak SP, Reardon SF, Raudenbush SW, & Buka SL (2006). Retail tobacco outlet density and youth cigarette smoking: A propensity-modeling approach. American Journal of Public Health, 96(4), 670–676. [PubMed: 16507726]

Plybon LE, Edwards L, Butler D, Belgrave FZ, & Allison KW (2003). Examining the link between neighborhood cohesion and school outcomes: The role of support coping among African American adolescent girls. Journal of Black Psychology, 29(4), 393–407.

Reeve RE, & Weiss MR (2006). Sports and physical activities. In Bear GG & Minke KM (Eds.), Children's needs III: Development, prevention, and intervention (pp. 485–498). Washington, DC: National Association of School Psychologists.

Richter P, Beistle D, Pederson L, & O'Hegarty M (2008). Small-group discussions on menthol cigarettes: Listening to adult African American smokers in Atlanta, Georgia. Ethnicity & Health, 13(2).171–182. [PubMed: 18425713]

Sahgal N, & Smith G (2009). A religious portrait of African-Americans. January, 30, 2009, Pew Research Center's Forum on Religion & Public Life, Pew Research Center. Accessed 12/31/09 at http://pewresearch.org/pubs/1099/religious-portrait-of-african-americans

Sampson RJ, Morenoff JD, & Earls F (1999). Beyond social capital: Spatial dynamics of collective efficacy for children. American Sociological Review, 64, 633–660.

Scales MB, Monahan JL, Rhodes N, Roskos-Ewoldsen D, & Johnson-Turbes A (2009). Adolescents' perceptions of smoking and stress reduction. Health Education & Behavior, 36(4), 746–758. [PubMed: 18477670]

Scheier LM, Miller NL, Ifill-Williams M, & Botvin GJ (2001). Perceived neighborhood risk as a predictor of drug use among urban ethnic minority adolescents: Moderating influences of psychosocial functioning. Journal of Child & Adolescent Substance Abuse, 11(2), 67–106.

Smedley BD, Stith AY, & Nelson AR (Eds.). (2003). Unequal treatment: Confronting racial and ethnic disparities in health care. Institute of Medicine of the National Academies; Washington, DC: National Academies Press.

Substance Abuse and Mental Health Services Administration (SAMHSA). (2009). Results from the 2009 National Survey on Drug Use and Health: National Findings (Office of Applied Studies, NSDUH Series H-36, HHS Publication No. SMA 09–4434). Rockville, MD. Retrieved April 7, 2010, from http://www.oas.samhsa.gov/nsduh/2k8nsduh/2k8Results.cfm#4.4

Sutton CD, & Robinson RG (2004). The marketing of menthol cigarettes in the United States: Populations, messages, and channels. Nicotine & Tobacco Research, 6(Suppl 1), S83–S91. [PubMed: 14982711]

Thomas ME, & Holmes BJ (1992). Determinants of satisfaction for blacks and whites. Sociological Quarterly, 33, 459–472.

Tilson EC, McBride CM, Lipkus IM, & Catalano RF (2004). Testing the interaction between parent-child relationship factors and parent smoking to predict youth smoking. Journal of Adolescent Health, 35(3), 182–189.

Tolan PH, Miller L, & Thomas P (1988). Perception and experience of types of social stress and self-image among adolescents. Journal of Youth and Adolescence, 17(2), 147–163. [PubMed: 24277581]

Tucker JS, Ellickson PL, & Klein DJ (2003). Predictor of the transition to regular smoking during adolescence and young adulthood. Journal of Adolescent Health, 32(4), 314–324.

Voorhees CC, Yanek LR, Stillman FA, & Becker DM (1998). Reducing cigarette sales to minors in an urban settings: Issues and opportunities for merchant intervention. American Journal of Preventive Medicine, 14(2), 138–142. [PubMed: 9631166]

Wallace JM, Brown TN, Bachman JG, & Laviest TA (2003). The influence of race and religion on abstinence from alcohol, cigarettes, and marijuana among adolescents. Journal of Studies on Alcohol, 64(6), 843–848. [PubMed: 14743948]

Wills TA, Sandy JM, & Yaeger AM (2000). Temperament and adolescent substance abuse: An epigenetic approach to risk and protection. Journal of Personality, 68(6), 1127–1151. [PubMed: 11130735]

Wills TA, Sandy JM, & Yaeger AM (2002). Stress and smoking in adolescence: A test of directional hypotheses. Health Psychology, 21(2), 122–130. [PubMed: 11950102]

Wills TA, Yaeger AM, & Sandy JM (2003). Buffering effect of religiosity for adolescent substance use. Psychology of Addictive Behaviors, 17(1), 24–31. [PubMed: 12665078]

Table 1.

Descriptives of Variables of Interests

	Mean	*SD*	Range
Neighborhood disorganization	18.67	6.19	9.00–27.00
Stress events	39.45	5.17	17.00–63.00
School transitions	3.74	2.72	.00–6.83
Intergenerational connections	17.87	4.55	5.00–25.00
Religious support	28.03	2.77	6.00–30.00

Table 2.

Bivariate Associations among Variables of Interests

	1	2	3	4	5	6
1. Neighborhood disorganization	1	−.09*	−.07	.15**	.08	−.11*
2. Stressful events		1	.11**	−.06	−.19**	.15**
3. School transitions			1	−.06	.04	.05
4. Intergenerational connections				1	.13**	−.08
5. Religious support					1	−.14**
6. Past 30-day tobacco use						1

*Significant at $p \leq .05$.

**Significant at $p \leq .01$.