


# Exploring Condom Use Behaviors Among African American Adolescent Boys in the Deep South

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## Abstract

Risky sexual behaviors among adolescents can increase adverse outcomes including unplanned pregnancy or contraction or transmission of disease. Adolescents who engage in risky sexual activities are at increased risk for adverse health and social outcomes compared to those who do not engage. Despite declines in adolescent pregnancy and birth rates, the diagnosis of sexually transmitted infections (STIs) is steadily increasing among adolescents. Moreover, African American adolescent boys in the United States, specifically in the southeastern region are disproportionately at greater risk for STIs, and STI diagnosis within this population has increased over time, compared to their white counterparts. This study sought to identify factors associated with condom use among adolescent boys in the Deep South. Using data from the Mobile Youth Survey, a longitudinal adolescent community-based survey, this study assessed the relationship between personal, behavioral, and environmental factors and condom use among African American adolescent boys (14–19 years). Younger participants (14–15 and 16–17) were more likely to use a condom during the last sexual intercourse compared to older participants (18–19 years). High positive attachment to boy/girlfriend was associated with increased condom use. The number of sexual partners, age at their first sexual encounter, recent sexual behavior, and having an STI were also associated with increased condom use among participants. The study provides further insights into factors associated with condom use among African American adolescent boys and results can inform the development of sexual health interventions.

## Keywords

sexual health, sexuality, adolescent men, special populations, male contraception, sexuality

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## Introduction

There has been some improvement in risky sexual behaviors among adolescents in the United States, such as decreased in the number of sexual partners, multiple sexual partners, reporting ever having sexual intercourse, and being currently sexually active (Centers for Disease Control and Prevention, 2017a, b, c, d). Adverse outcomes such as unplanned pregnancies and sexually transmitted infections (STIs) continue to be public health concerns. Early initiation of sexual activity among adolescents increases their risk of negative outcomes (Marcell et al., 2011; Price & Hyde, 2009). The impact of risky sexual behaviors among adolescents is

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far reaching and does not have isolated consequences that only impact the immediate individuals (Lavin & Cox, 2012). For example, teenage childbearing can cause adverse birth outcomes such as low-birth weight baby, fetal death, infant mortality, long-term psychosocial trauma, lower educational attainment and lower income (Basch, 2011; Clear et al., 2012; Duffy et al., 2012). Specifically, teen fathers are likely to have lower education attainment, higher rates of poverty than their peers who are not fathers, higher school dropout rates, and engage in other risky behaviors such as tobacco, drug and alcohol use that could lead to incarceration (Nevarez et al., 2009). Moreover, children born to teen parents are more likely to engage in high-risk behaviors as adolescents, perform inadequately in school and as adults, are less likely to be economically prosperous (Lavin & Cox, 2012).

Birth rates among adolescents in the United States have declined but are still significantly higher compared with other industrialized nations such as Canada and the United Kingdom (Centers for Disease Control and Prevention, 2017a, b, c, d; Department of Health and Human Service, HHS, 2018; Sedgh et al., 2015). According to results from the 2019 Youth Risk Behavior Survey, the reported use of condoms among adolescents is declining (Centers for Disease Control and Prevention, 2021a, b). STI diagnoses have increased among adolescents (Centers for Disease Control and Prevention, 2017a, b, c, d). Of the newly diagnosed HIV cases in the United States in 2014, young people 13–24 years old accounted for 22% of those cases. Additionally, young people ages 15–24 accounted for nearly half of the twenty-six million new STIs reported in 2018 (Centers for Disease Control and Prevention, 2021a, b).

African American adolescent boys are the most at-risk population in regard to risky sexual behaviors and associated outcomes. African American adolescent males are more likely to initiate sexual activity early (before 13 years old), and by 19 years old have an average of 11 sexual partners total, double that of their non-Hispanic white counterparts, which puts them at greater risk of acquiring an STI (Wilchins & Gilmer, 2016). Despite being disproportionately diagnosed with STIs (Centers for Disease Control and Prevention, 2017a, b, c, d), African American adolescent boys report to have greater odds of consistent condom use compared with their white counterparts (Abma et al., 2004; Everett et al., 2000; Ku et al., 1993; Manlove et al., 2008; Marsiglio, 1993). African American adolescent boys seem to have unique experiences with condom use; however, there is still little known about how the relationship between personal, environmental, and behavioral factors influence condom use behaviors among African American adolescent boys.

## Condom Use Behaviors Among Adolescent Males

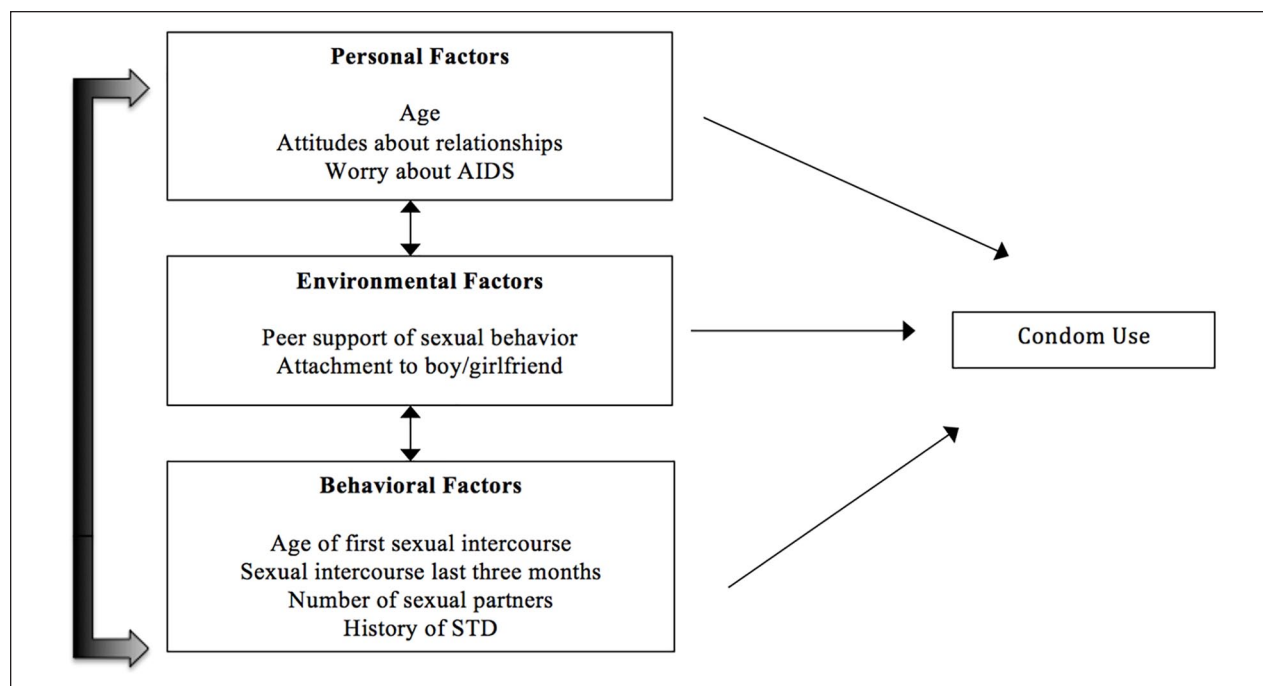
Personal factors that can influence condom use may include race, age, attitudes, and worry among male adolescents. In an analysis of the 2011–2015 National Survey of Family Growth Survey, it was reported that non-Hispanic African American (58.6%) males 15–19 years old had sexual intercourse at a significantly higher rate than Hispanic adolescent males (45.7%) and non-Hispanic white males (42.8%). In addition, non-Hispanic African American males reports of condom use at last sexual intercourse is higher than Hispanic males. Reduced odds of condom use among adolescent males have been associated with older age and minimal knowledge about condom use (Manlove et al., 2008; Wilson et al., 1994).

Environmental factors that can influence condom use among adolescent males may include peer support, partner communication and romantic relationships. Peer support or perceived peer norms surrounding sexual behaviors and condom use are significant influencers of risky sexual behaviors (DiClemente et al., 2005). Perceived norms that are supportive of STI protective factors can influence the adoption of preventive behaviors. However, if adolescents perceive their friends are engaging in risky sexual behaviors, such as unprotected sex, they are more likely to adopt those behaviors (Boyer et al., 2000; DiClemente et al., 2005).

Behavioral factors that can influence condom use may include multiple sexual partners, frequency of sexual intercourse and history of teen pregnancy and a STI. Engaging in sexual intercourse with two or more partners is considered having multiple sexual partners. The percentage of high school students with four or more sexual partners during their lifetime has decreased; however, there was an increased percentage of adolescent males reporting having sex with four or more partners (11.6%) compared with females. Additionally, African American adolescents are reporting a higher percentage of having four or more partners as compared with their counterparts (Centers for Disease Control and Prevention, 2017a, b, c, d). There is limited research on the association of multiple sexual partners and condom use; however, other studies suggest that a history of teen pregnancy, previous diagnosis of an STD and engaging in more frequent sex reduces the odds of condom use (Manlove et al., 2008; Wilson et al., 1994).

## Theoretical Framework

The Social Cognitive Theory (SCT) model, developed by Albert Bandura (1986) emphasizes the importance of observation and cognitive factors in the understanding and prediction of human behaviors. Triadic reciprocal



**Figure 1.** Model of condom use based on social cognitive theory (see Haley et al., 2013).

causation or determinism is a basic principle of the SCT that explains the connection of personal cognitive factors, behavior, and environmental influences (Bandura, 1999, 2004). Numerous studies have used the SCT framework to explain adolescent sexuality (DiClemente et al., 2001; DiIorio et al., 2001; O'Donnell et al., 2003; Robinson et al., 1999). Haley et al. (2013) used the SCT framework to analyze condom use behaviors among rural high school students in the Northeast region of the United States. Haley used the reciprocal determinism concept to explore which behavioral, personal, and environmental factors were related to condom use finding that personal standards, condom use goals, condom use at first intercourse, and male gender were predictors of condom use.

## Present Study

This study uses data from the Mobile Youth Survey (MYS), a multiple cohort, community-based survey of adolescents who live in economically impoverished neighborhoods in Mobile, Alabama between 1998 and 2011. The primary purpose of the current study was to explore the relationship between condom use and personal (age, attitudes, and worry about AIDS), environmental (peer support and attachment), and behavioral (age at first sexual intercourse, sex in the last 90 days, sexual partners and STI history) factors in the 2006 through 2011 survey years (MYS Waves 9–14). Each Wave of the survey was examined individually to determine if different factors

influenced condom use among African American adolescent males over time.

The present study used the SCT to provide the theoretical and conceptual framework for the selection of predictors examined and used a modified version of Haley's model (2012). Reciprocal determinism constructs were used to explore the relationship between personal, environmental, and behavioral factors and condom use among African American adolescent boys in the Deep South. Although several studies use SCT constructs in adolescent sexuality research (e.g., DiClemente et al., 2001; DiIorio et al., 2001; O'Donnell et al., 2003; Robinson et al., 1999), there is a dearth of knowledge about the influence of age, worry about AIDS, attitudes about a romantic relationship, attachment to significant others, peer influences, and sexual history on condom use (see Figure 1).

## Methods

### Mobile Youth Survey

It is important to describe the Mobile Youth Survey (MYS), given its uniqueness. The purpose of the MYS was to explore factors; both risk and protective, associated with substance use, violence, and sexual risk behaviors among adolescents 10–18 years old. The MYS began in 1998, where adolescents between the 9 and 19 years old ( $M = 13.6$ , 49% female) living in the 13 poorest

neighborhoods in Mobile, Alabama, and neighboring Prichard, Alabama were recruited to participate in a survey. To conserve space, recruitment details are presented elsewhere (Bolland, 2007). Parental consent and youth assent were obtained for all participants. Each summer, surveys were conducted in community centers, schools, and local churches in Mobile. Each survey item and response options were read aloud by research staff. Participants were asked to mark their answers in their survey booklets. Once the survey was completed, participants were compensated \$10 (with an increase to \$15 in 2006) for their time and invited to participate the following summer if age eligible. Each year, a new cohort of adolescents was recruited to participate in the MYS. As participants moved, which was common, they continued to be recruited to participate, even if they moved out of the initial MYS-designated neighborhoods. As participants relocated to different neighborhoods, additional adolescents were recruited in those neighborhoods.

### Study Participants

Participants in this current study were participants in the MYS, with some exclusion criteria. First, the sample for this study is limited to waves 9–14 because, in wave 9 (2006), additional items were added to the MYS, which are of interest in this study. Second, the sample is limited to African American male MYS participants who indicated (a) engaging in sexual intercourse at least once and (b) were between the 14 and 19 years old because this age range is at an increased risk for acquiring an STI (Table 1). Third, described more in the following section, participants who indicated they had never had sex or did not know if they used a condom during their last sexual intercourse were excluded from the analyses. Of the total male population, approximately 93% of the male participants were African American, condom use behaviors were reported by approximately 75% of the African American male participants. The final number of participants included in the final analysis was 3,718 (Table 2 and Table 3). This study was classified as a non-human subject as a result of using secondary data without identifiable data and approved by the University of Alabama at Birmingham Institutional Review Board (IRB) for Human Use (approval number 300000427-001).

### Measures

**Personal Factors.** Three personal factors (14 items) were included in this study. First, participants were asked to indicate their age as a whole number on each survey. For analyses, ages were grouped as 14–15, 16–17, and 18–19. Second, participants were asked to agree (= 1) or disagree (= 2) with 12 items measuring positive and negative attitudes about romantic relationships (e.g., It is easy to see

**Table 1.** African American Male Participants Reporting Condom Use Behaviors by Age and Wave.

	<i>n</i>	%	<i>n</i> reporting condom use	%	<i>n</i> included in final analysis	%
<b>Wave 9</b>						
14–15	285	44	224	43	183	45
16–17	249	39	201	39	163	40
18–19	108	17	92	18	65	16
<b>Wave 10</b>						
14–15	357	41	279	40	226	41
16–17	374	43	311	45	234	42
18–19	141	16	117	17	91	17
<b>Wave 11</b>						
14–15	336	40	249	37	204	41
16–17	340	40	275	41	207	40
18–19	165	20	146	22	115	22
<b>Wave 12</b>						
14–15	336	38	244	34	201	35
16–17	358	40	302	42	233	41
18–19	191	22	170	24	139	24
<b>Wave 13</b>						
14–15	331	36	263	34	208	34
16–17	441	48	348	46	266	46
18–19	175	19	148	19	104	18
<b>Wave 14</b>						
14–15	316	38	262	35	206	38
16–17	381	44	333	45	233	43
18–19	163	19	146	20	100	19

**Table 2.** Number and Percentage of African American Males Reporting Condom Use During Last Sexual Intercourse by Wave.

Reported condom use	<i>n</i>	%
<b>Wave 9</b>		
No	145	22.5
Yes	372	57.9
Total	517	80.5
<b>Wave 10</b>		
No	166	19
Yes	541	62
Total	707	81.1
<b>Wave 11</b>		
No	201	23.9
Yes	469	55.8
Total	670	79.7
<b>Wave 12</b>		
No	212	24.0
Yes	504	56.9
Total	716	80.9
<b>Wave 13</b>		
No	222	24.2
Yes	537	58.6
Total	759	82.8
<b>Wave 14</b>		
No	191	22.2
Yes	550	64.0
Total	741	86.2

**Table 3.** Number of African American Male Participants and Number of African American Male Participants Reporting Condom Use Behaviors for Each Wave.

Participants aged 14–19 years old							
	Wave 9	Wave 10	Wave 11	Wave 12	Wave 13	Wave 14	Total
N African American males	642	872	841	885	917	860	5,017
N African American males reporting condom use behaviors	517	707	670	716	759	741	3,810
Missing cases	106	321	315	312	339	321	
Included in analysis	411	551	526	573	578	539	3,178

why a boyfriend/girlfriend would really care about me; Most boyfriends/girlfriends will lie to you in order to make things easier for themselves). Responses to positive attitude questions were recoded from 1 to 1 = agree and 2 to 0 = disagree. Responses to negative attitude questions were recoded from 1 to 0 = agree and 2 to 1 = disagree. Resulting is a scale ranging from 0 to 12, where higher scores indicate a more positive attitude about romantic relationships. Importantly, the instructions for this section read: Many people have boyfriends or girlfriends, and even if you don't right now, chances are that you will someday. We would like you to think about what it might be like to be in a close dating relationship, and how you and your boyfriend/girlfriend might think or act. Third, participants were asked "How much do you worry that you might get AIDS?" to measure worry about AIDS and given three response options: (a) not at all (= 0), (b) some (= 1), (c) very much (= 2).

**Environmental Factors.** Two environmental (15 items) factors were included in this study. First, peer support for sexual behavior was measured using a single item. Participants were asked "How many of your friends think you are a punk if you don't have sex?" with three response options: (a) most of them (= 1), some of them (= 2), or almost none of them (= 3). Second, attachment to boyfriend/girlfriend was measured with six items. (e.g., How often does your boyfriend or girlfriend keep his/her promises to you? How often does your boyfriend or girlfriend let you down when you are counting on him/her?). These questions were categorized into positive and negative attachment to boy/girlfriend. Responses to positive attachment questions were recoded from 4 to 0 = rarely or never, 3 to 1 = sometimes, and 2 remained the same for the response often. The range of possible scores for positive attachment was 0–8 and the range of possible scores for negative attachment was 0–10. Lower positive attachment scores indicate a negative attachment to the partner while higher positive attachment scores indicate positive attachment to the partner. Responses to negative attachment questions were recoded from 2 to 0 = often, 3 to 1 = sometimes, and 4 to 2 = never. Lower negative attachment scores indicated a negative attachment to the

partner while higher negative attachment scores indicated a positive attachment to the partner signifying a healthy relationship.

**Behavioral Factors.** Four behavioral (four items) factors were included in this study. First, participants were asked to indicate the age of their first sexual intercourse experience in whole numbers, with a response option of, "I have never had sexual intercourse." Second, participants were asked to indicate the number of sexual partners they had in the past year with options ranging between 0 and 5 or more. Next, participants were asked whether they had engaged in sexual intercourse in the past 3 months (90 days), with response options of no (= 0), yes just once (= 1), or yes more than once (= 2). Finally, participants were asked if in the past year, were they ever told by a doctor or nurse that they had an STI, with response options of no (= 0) or yes (= 1).

**Condom Use.** Condom use was measured with one item. Participants were asked "The last time you had sexual intercourse, did you or your sexual partner use a condom (rubber)?" They were given four response options: (a) I have never had sexual intercourse (not included in analyses), (b) no (= 2), (c) yes (= 3), and (d) I don't know (not included in analyses).

**Analyses.** A logistic regression (SPSS 25.0) was conducted for each wave of the 2006–2011 MYS to assess the relationship between condom use and personal, environmental, and behavioral variables. The overall fit of the model was evaluated using the Hosmer and Lemeshow Test. The variables in the equation output were evaluated to determine which variables significantly predicted condom use. Significance values, odds ratios (s), and the confidence interval were evaluated to determine the results' significance. For the current study, each Wave was examined separately because the analysis tested the stability of the predictors each year.

## Results

Results of the logistic analysis for condom use at last intercourse and the personal factors after controlling for



**Table 4.** Logistic Regression Between Condom Use at Last Sex and Significant Personal Factors.

	Sig. <i>p</i>	OR	95% CI	
			Lower	Upper
<i>Wave 9</i>				
Grouped age 14–15	.001	3.140	1.622	6.077
Grouped age 16–17	.033	1.979	1.056	3.708
<i>Wave 10</i>				
Grouped age 14–15	.002	2.525	1.397	4.564
Grouped age 16–17	.036	1.816	1.041	3.170
<i>Wave 13</i>				
Grouped age 14–15	.011	2.053	1.179	3.575
Worry about AIDS	.048	1.226	1.001	1.55
<i>Wave 14</i>				
Grouped Age 14–15	.002	2.469	1.380	4.415

behavioral and environmental factors are reported in Table 4. Age was a significant predictor of condom use, although not consistent in each wave. In Waves 9, 10, 13, and 14, 14–15 years old were more likely to use a condom during last intercourse than 18 and 19 years old. In Wave 10, 16–17 years old were more likely to use a condom during last intercourse than 18–19 years old. Importantly, attitudes about romantic relationships was not a significant predictor of condom use. Worry about AIDS significantly predicted condom use Wave 13.

**Environmental Factors and Condom Use.** The results of the logistic analysis for condom use at last intercourse and the environmental factors after controlling for personal and behavioral factors are reported in Table 5. Negative and positive attachment were significant predictors of condom use, although not consistent in each wave. Negative attachment to boy/girlfriend presented significant for Waves 9, 11, and 14. Positive attachment to boy/girlfriend was a significant predictor of condom use for both Waves 11 and 13.

**Behavioral Factors and Condom Use.** The results of the logistic analysis for condom use at last intercourse and the behavioral factors after controlling for personal and environmental factors are reported in Table 6. The number of sexual partners was a significant predictor of condom use in Wave 10 and Wave 12. Age at first sexual intercourse, number of sexual partners, and being told that you had an STI in the past year were significant predictors of condom use in Wave 12.

## Discussion

In the current study, the relationship between condom use behavior and personal, environmental, and behavioral

**Table 5.** Logistic Regression Between Condom Use at Last Sex and Significant Environmental Factors.

	Sig. <i>p</i>	OR	95% CI	
			Lower	Upper
<i>Wave 9</i>				
Negative attachment	.046	1.093	1.001	1.192
<i>Wave 10</i>				
Negative attachment	.026	1.104	1.012	1.205
<i>Wave 11</i>				
Positive attachment	.000	1.197	1.092	1.313
Negative attachment	.010	1.105	1.025	1.192
<i>Wave 13</i>				
Positive attachment	.019	1.127	1.020	1.246
<i>Wave 14</i>				
Negative attachment	.001	1.137	1.050	1.230

factors among African American adolescent boys in the Deep South was explored. This study responds to the steady increase of STIs among adolescent boys by elucidating some of the factors that are associated with condom use behaviors. Consistent and accurate condom use is an important factor in reducing the risk of both unplanned pregnancy and STI transmission (Centers for Disease Control and Prevention, 2016). Adolescents are at greatest risk for both, but efforts to reduce the incidence is predominately female-centered. Very little research to date has included reciprocal determinism and condom use behaviors with African American adolescent boys as the sample. Thus, identifying factors that influence consistent condom use among this population, specifically in the Deep South, is essential.

After controlling for the effects of other variables, one personal factor and one environmental factor were significant predictors at least four of the six study waves. Fairly consistently, results suggest that younger African American adolescent male participants 14–15 years old were more likely to use a condom the last time they had sex than 18–19 years old participants. Boys 16–17 years old were significantly more likely to use condoms than older adolescents in two of the study waves. These findings are consistent with other studies that report higher condom use among younger boys (Manlove et al., 2008). In this study, the odds ratio provides a measure of the likelihood that an individual will use condoms given the existence of the assessed factors. As such, in this study, the odds of using a condom averaged 8% higher with each unit increase of the negative attachment score. A study by Manning et al. (2009) suggests that negative relationship dynamics are associated with consistent condom use among adolescents. These results are similar to the current study where participants with high negative attachment to boy/girlfriend scores were more likely to

**Table 6.** Logistic Regression Between Condom Use at Last Sex and Significant Behavioral Factors.

	Sig. <i>p</i>	OR	95% CI	
			Lower	Upper
<i>Wave 10</i>				
Number of sexual partners in the past year	.009	1.188	1.045	1.350
<i>Wave 12</i>				
Age at 1st intercourse	.004	1.133	1.041	1.232
Intercourse in the past 90 days	.002	1.480	1.150	1.907
Number of sexual partners in the past year	.032	1.135	1.011	1.274
Told you had a STD	.025	.372	.157	.885

report condom use during their last sexual intercourse encounter.

The behavioral factors yielded mixed results. Behavioral factors were only significant in two of the study years. With more sexual partners, boys were more likely to use condoms. The likelihood of condom use increased by an average of 33% for every additional sexual partner. Age at first sexual intercourse experience, intercourse in the past 90 days, and being told you had an STI (in the last year) were significant predictors of condom use in only one wave. These results suggest that these behavioral factors are not consistent predictors of condom use in this study population.

**Study Strengths.** This study contributes to the fields of public health and health education/promotion. The results of this study provide a further understanding of the complexities of sexual behaviors among African American adolescent boys but gives great hope for opportunities to improve population health. Disparities among adolescent pregnancy and STI transmission is more prevalent among southern states and African Americans (Centers for Disease Control and Prevention, 2017a, b, c, d, 2019). Additionally, there is more concentrated poverty in the south than in other regions of the United States. The sample used for this study was extracted from a longitudinal study of a sizeable sample of low-income, predominately African American adolescents living in the Deep South and considered a vulnerable population not often studied. This is a unique strength of this study to capture data represented of these factors and contributes to the field's understanding of this population. Further, the longitudinal nature of the data provides comprehensive information about the study population.

While the study results suggests that younger African American adolescent males are more likely to use condoms than older adolescents are, not all participants reported the use of condoms during the last sexual encounter. Consistent condom use was not explored in the current study; however, given the study results, consistent education and programming should be in existence. The

Sexuality Information and Education Council of the United States (SIECUS) advocates for the right to accurate and comprehensive sexuality information and education. The recommended key concepts essential to sex education are: human development, relationships, personal skills, sexual behavior, sexual health and society and culture. The results of this study imply that an adolescent male attachment to their partner is an indicator of condom use. The inclusion of health relationships in sexuality education could improve condom use behaviors among this population.

Additionally, comprehensive sexual health education teaches a broad range of medically accurate sex and sexuality topics. In some studies, adolescents who receive abstinence-only or no sex education are at higher risk of pregnancy than those who receive comprehensive sex education (Kohler et al., 2008). Adolescent males, particularly African American males, are open to dual protection when engaging in sexual activity, but show low levels of contraception knowledge (Gilliam et al., 2016). It has been reported previously that for adolescent's exposure to an extensive amount of sex education topics are associated with dual contraception use during last sexual encounter (Jaramillo et al., 2017). Comprehensive sexuality education has shown to reduce risky sexual behaviors among adolescents. The ramifications of not mandating this type of strategy can be grave. The key concepts and topics that are recommended by SEICUS not only address behaviors, but it explores the areas that adolescents may lack understanding.

**Study Limitations.** There are limitations. The Mobile Youth Survey was a longitudinal community-based, multiple cohort study. Over a 13-year period, more than 12,000 adolescents participated in the study, that produced over 30,000 data points annually. Although the results from the survey provides great insights to the behavioral patterns of impoverished adolescents in Deep South, the data are more than ten years old. While a limitation, to the researchers knowledge, there are not any recent studies specifically exploring the relationship of

age, worry, gender, attitudes about romantic relationship beyond relationship status, attachment to significant others, peer influences, and sexual history as predictors of condom use specifically among African American adolescent males. In response to this limited research in this area, the current study expands the evidence and body of literature by providing more understanding of how these factors influence condom use among African American adolescent males.

While the Social Cognitive Theory (SCT) was used as a guiding framework for this study, the use of the theory was limited. Reciprocal determinism is a key concept of SCT that theorizes the relationships and effects of personal, environmental and behavioral factors on behavioral outcomes; however, this framework did not guide the original intent of the MYS instrument. Another key component of SCT is self-efficacy. Self-efficacy is the belief in one's ability to successfully accomplish a task in specific situations. Condom use self-efficacy data from the study population would have increased utilization of this behavioral theory.

Next, the homogeneity of the survey participants limits the generalizability of the findings. While the results of the study provide insight into this specific population, the results of the study may not be generalizable to other adolescent boys of a different race, economic class, and region of the country. However, the homogeneity of the population also increases the internal validity of the study.

The regression models for the present study predicted participants who used a condom during last sexual intercourse; however, the models did not predict participants who did not use a condom well. In addition, the analysis for this study did not include testing for significant mean differences among condom users and non-condom users in the personal, environmental, and behavioral factors. A future analysis might include the following: changing the cutoff point for the receiver operator curve to see if the model does a better job of predicting who does not use a condom, improving the true negatives and including a sub-analysis of the non-condom users. Lastly, although this would have answered a different question, running the wave year as a categorical predictor could have demonstrated a significant effect of year.

**Recommendations for Future Research.** Future research should focus on identifying and addressing specific personal, environmental and behavioral factors that are determinants of condom use behaviors among African American male adolescents. The literature is vast on factors that influence condom use among adolescent females and males; however, the data are limited and dated. Future research should explore examining sexual health behaviors specifically among adolescent males. While this present study will add to the literature of what is known

about influences of condom use behaviors among this population, the latest data are now 10 years old. More recent data are warranted to provide up-to-date information about what is influencing condom use behaviors. Perhaps a qualitative approach to examine what influences condom use behaviors among a similar population would provide additional information. Focus groups and interviews with African American males living in Mobile, Alabama might yield additional information. This approach could support the current study findings by providing further evidence of the need to emphasize healthy relationships and the focus to engage older adolescent males in prevention efforts. Also, this approach could add new insight into personal, environmental and behavioral factors that influence condom use behaviors.

Next, additional research into the correlation between relationship attachment/dynamics and condom use behaviors among other groups of adolescent boys would be useful. The study population is not generalizable to all adolescent boys. However, this research is beneficial in understanding if and how dating relationships influence condom use behaviors among adolescent boys. The results of the current study suggest the need to emphasize healthy dating relationships in efforts to encourage condom use to prevent negative outcomes associated with risky sex. With approximately 10 states mentioning the term "healthy relationship" in their sex education programs (Shapiro & Brown, 2018), there is certainly room for expansion of this more comprehensive sexuality education approach into current curricula.

Lastly, given the vast data from the Mobile Youth Study, there is opportunity to investigate and examine if the same factors are consistently significant among all 2006–2011 MYS participants. Future research could examine the same study measures among all adolescent males and females that participated in the original study. Comparing results would help determine if risky sexual behaviors prevention strategies should vary and how prevention strategies should differ among gender.

**Recommendations for Public Health Practice and Policy.** The state of Alabama does not currently require that sex education be taught in public schools. Currently, if school systems choose to incorporate sexuality education into their curriculum, Alabama code title 16. Education §16-40a-2, requires emphasis on the following: abstinence from sexual intercourse is the only completely effective protection against unwanted pregnancy and STIs; and abstinence from sexual intercourse outside of lawful marriage is the expected social standard for unmarried school-aged adolescents. As it relates to the instruction material, the law states that sex education curriculum should be age appropriate and emphasize abstinence as the only complete reliable method of prevention and the



importance of self-control. The law also states that statistics should be based on the latest medical information. Information concerning the laws related to the financial responsibility associated with pregnancy and childrearing, laws prohibiting sexual abuse, and information on how to cope with unwanted physical and verbal sexual exploitation must be included. Lastly, the law states that information should emphasize, from a public health perspective, that homosexuality is not an acceptable lifestyle and homosexual conduct is a criminal offense under state law.

Given the current law, the first recommendation is for public officials with decision-making power to pass legislation to update existing sexuality education laws. However, modernizing the language is essential, this does not change the type of sexuality education offered in the school system to comprehensive nor does it address mandating sexuality education in schools. This is problematic because it does not guarantee that children and adolescents in Alabama are exposed to sexuality education. While there are many issues that have higher priority among elected officials, it is imperative for Alabama's state and local officials to make sexuality education a priority. If addressed, the adverse outcomes associated with risky sexual behaviors could be reduced, which could have a positive impact on a myriad of areas such as healthcare utilization and spending, unemployment rates, high school graduation rates, college attendance and even mental health.

It is recommended that public health practitioners and health educators in Alabama continue to advocate for comprehensive sexuality education. The continued dissemination of accurate and comprehensive data is necessary to move the needle towards extensive sexuality education. Additionally, public health practitioners and health educators should also consider innovation strategies to reduce risky sexual behaviors among adolescent males specifically. Achieving *Healthy People 2030* goals and closing the gap between sexual health outcomes may require extensive sexuality and health education beyond traditional prevention strategies.

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