EXAMINING THE DETERMINANTS OF CONDOM USE AMONG AFRICAN AMERICAN COLLEGE STUDENTS ATTENDING PREDOMINANTLY WHITE INSTITUTIONS

by

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A DISSERTATION

Submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Department of Health Science in the Graduate School of The University of Alabama

TUSCALOOSA, ALABAMA

2016
ABSTRACT

African American college students at predominantly White institutions (PWIs) are disproportionately at risk for experiencing negative sexual health outcomes. African Americans between the ages of 18 and 24 are disproportionately affected by unplanned pregnancy and sexually transmitted infections, which are associated with risky sexual behaviors, including sex without a condom. The risks and stress associated with living at the intersection of both African American risk factors and college risk factors may play a role in the sexual behavior of African American college students.

The purpose of this study was to examine the determinants of condom use among African American undergraduates at predominantly White Institutions (PWIs). This study used the constructs of the Theory of Planned Behavior (TPB) to examine the factors that contribute to condom use. An added factor the study examined was the relationship between different types of stress and condom use. The relationship between stress, intention to use condoms, and actual condom use was also investigated.

The study employed a cross-sectional design and used surveys to collect data on African American college students between the ages of 18 and 24 years old at PWIs. The survey was disseminated through Qualtrics online survey software. The sample of 202 students engaged in a range of sexual behaviors (vaginal, oral, and anal sex) and had inconsistent condom use during these activities. The study found that constructs of the Theory of Planned Behavior, namely intentions and attitudes, were independently significant at predicting condom use. However, the interaction between intentions and
overall stress was more significant in predicting condom use among African American college students attending PWIs over the past 30 days.

The study findings have promising implications for health education practitioners, university stakeholders, and researchers who are interested in reducing sexual health disparities. Coordinated efforts are needed to reduce the risk factors that contribute to unsafe sexual behaviors among college students, especially among those at greater risk such as African American college students at PWIs.
DEDICATION

This dissertation is dedicated to all of the young black women who never believed that they could become more than the hand that they were dealt and to my mother who always believed in me, especially when I did not believe in myself.
LIST OF ABBREVIATIONS AND SYMBOLS

STI       Sexually transmitted infections
PWI       Predominantly White institution
HBCU      Historically Black Colleges and Universities
TPB       Theory of Planned Behavior
CDC       Centers for Disease Control and Prevention
HIV       Human immunodeficiency virus
ADPH      Alabama Department of Public Health
USDE      United States Department of Education
ACKNOWLEDGEMENTS

This dissertation process has taught me a whole new level of appreciation for Dante’s Inferno. Like Dante, there was a period of time when I was not exactly sure where I was going, what I was doing, or what could possibility be next. Similar to Dante I had a guide. However, where Dante had one Virgil, I had countless. At each stage of “hell,” each of my Virgils had a flashlight pointing towards the end result. Individually, these flashlights may not have always been the most powerful of lights, but together they created a bright beam constantly pushing me forward, even when I felt I had no more energy on which to go.

I would like to thank my amazing dissertation chair, Dr. Paschal, without whom I am unsure if I would have been able to make it. Thank you for caring about your students beyond the research. Thank you for allowing me to cry when I needed it, and always encouraging me especially after the passing of my grandfather, the attempted break in at my apartment, and my constant health issues that just made life very difficult. Thank you for being such a wonderful Virgil. I would like to thank Dr. Payne-Foster. You are such a wonderful mentor, role model, boss, and friend. You have transcended every role that you have filled for me. I can never express how much it means to me, that you took me under your wing and mentored me since my first semester here. Your sense of humor, research agenda, and passion for the work you do is so inspiring, and if I am ever lucky enough to make one tenth of the impact on another student that you have made on me, I will consider myself successful. I have learned so much from you, thank you.
Dr. Leeper, thank you for working with me for the past few years, reading all of my very long assignments, and making time for when you do really did not have any. I appreciate the work you do, both for doctoral students and rural communities. Dr. Usdan, thank you for your feedback, your wisdom, and your dry sense of humor. I know our cohort was extremely talkative, but thank you for providing a space where we could become comfortable enough to constantly talk. Dr. Gordon, thank you for your feedback, insight, and time. I appreciate the unique perspective you always provide.

I would like to thank Dr. Cori Purdue, who has been the advisor of almost every organization I worked with at The University of Alabama. You are one of the key reasons why the University of Alabama has become home. Dr. Goodliffe, thank you for your continued supported of graduate students, for helping me when bedbugs were coming out of my ceiling, when I had the issue with out-of-state tuition, and when my grandfather passed. Holly Hallmann, thank you for giving me first graduate assistantship. Before anyone even knew my name, you took a chance on me. Thank you for helping me during the bedbug/apartment catastrophe, the stalker, and always being a shoulder upon which I can cry. I really appreciate you

My African American Graduate Student Association friends, especially Dr. Valencia Tamper, Coddy Carter, Pandora White, and Phylisicia Carter, I love you guys. You have always been there for me, and I am so honored and privileged to be able to call you my friends. Dr. Qshequilla Mitchell and Dr. Maggie Shields, thank you for being wonderful mentors and friends to me! Antonio Gardner thank you for being such a wonderful friend, some people are not lucky enough to have someone that can goes through every stage of their PhD process with them. Erial Ramsey, I don’t even know
where to begin with how much your friendship has meant to me during every stage of my academic life. You are just pure awesomeness.

My Graduate Student Association, Tide Together, Graduate Ambassadors, my mentees, my mentors, Dr. Mugoya, Dr. Thoma, Dr. Guyotte, Dr. Jones, Kirsten (KD) Smith, Erial Ramsey, my amazing graduate assistant Michaela Postell, the men of Omega Psi Phi, Men of Alpha Phi Alpha, Men of Phi Beta Sigma, Women of Alpha Kappa Alpha, Women of Delta Sigma Theta, Black Student Union, the Psychology Department, April Iwin, Marcy Huey, Jean Swindle, Ms. Moore, Women of Zeta Phi Beta, Ini Ikpe, Ibukun Afon, Lexus Davis, African Student Union, Tanta Miles, Catrina Turner, JaMichael Carrol, Chris Spencer, University of Alabama NPHC, Housing Staff, Dr. Sharifa Love-Rutledge, April Caddell, and my sorors, the Women of Sigma Gamma Rho Sorority Incorporated- Thank you.

I would like to thank my Mom, Uncle, Dad, Nnagi, Grandma, Grandpa, all nine of my siblings- Folu, Yewande and DC, Seyi, Teresa, Hamza, Gaza, Asiya, Bilal, and Rachel, my nephew (thank you Yewande and DC for the pictures), Grammy, Stephanie, Morrice, Obi, Auntie Toyin, Auntie Joke, etc., etc. I love you guys! I want to thank my social network; my sands, Big Sister, the Harbor and all the people who have helped me get to this point in my life. I know that I did not get to this point alone. I am so lucky to have met each one of my Virgils and I thank you from the bottom of my heart.
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CHAPTER 1 – INTRODUCTION

Background

Having sex without a condom is one of the most expensive health behaviors impacting the United States. The United States spends about $15.7 billion annually on the treatments of sexually transmitted infections (STIs) (Centers for Disease Control and Prevention (CDC), 2012). The CDC (2012) as well as Healthy People 2020 (USDHSS, 2014) indicate that African Americans between the ages of 15 and 24 are at a disproportionately high risk of having unintended pregnancies and acquiring STIs such as chlamydia, gonorrhea, and human immunodeficiency virus (HIV) (CDC, 2012). Acquisition of STIs and unplanned pregnancy are associated with risky sexual behavior, including sex without a condom (CDC, 2012). College students in particular engage in a variety of behavior that put them at risk to have an unplanned pregnancy or an STI, including low levels of condom use (Adefuye, Abiona, Balogun, & Lukobo-Durrell, 2009; Bearak, 2014; Bogaert & Fisher, 1995; Brown & Vanable, 2007; Cooper, 2002; D. Smith & Roberts, 2009; Snipes & Benotsch, 2013; Strote, Lee, & Wechsler, 2002; Trepka et al., 2008). African American college students at predominantly White institutions (PWIs) are at the intersection of multiple risk factors both in terms of stress levels and risky sexual behavior (Adefuye et al., 2009; Adimora et al., 2002; Adimora & Schoenbach, 2005; Anderson, 2003; Bearak, 2014; Bogaert & Fisher, 1995; Bogart, Cecil, Wagstaff, Pinkerton, & Abramson, 2000; Carruthers, 1974; Cokley, McClain, Enciso, & Martinez, 2013; Cooper, 2002; Crosby, Yarber, Sanders, & Graham, 2005; Dauria et al., 2015; Desiderato & Crawford, 1995;
Duncan et al., 2002; D. Smith & Roberts, 2009; Trepka et al., 2008; Washington, Wang, & Browne, 2009).

**Predictors of Condom Use**

The Theory of Planned Behavior (TPB) has been widely used to predict a number of sexual health behaviors among college-age adults, including premarital sex, intention to use condom, HIV/AIDS prevention behavior, and the use of contraceptives (Bogart et al., 2000; Bosompra, 2001; Cha, Doswell, Kim, Charron-Prochownik, & Patrick, 2007; de Visser & Smith, 2004; Kanu & Kanu, 2000). The TPB has four constructs, attitudes, social norms, perceived behavioral control, and intentions (Ajzen, 1991; Ajzen & Driver, 1992; Ajzen, 2002). Each of these have individually been able to predict condom use, but the four constructs together are better able to predict condom use (Ajzen & Fishbein, 1980; Ajzen, 1991; Ajzen & Driver, 1992; Ajzen, 2002; Asare, 2015; Cha et al., 2007; Collins & Carey, 2007; Molla, Åstrøm, & Brehane, 2007; Wise, Goggin, Gerkovich, Metcalf, & Kennedy, 2006). Research has shown that attitudes influence condom usage. For instance, the more positive the attitude is towards condom use, the more likely an individual is to buy and use condoms (Grossman et al., 2008; Manlove, Ikramullah, & Terry-Humen, 2008; Ronis, 2013; Sarkar, 2008; Wulfert & Wan, 1993). Attitudes are formed by a series of beliefs and result in value being placed on the outcome of the behavior. They are someone’s favorable or unfavorable opinion towards condom use (Ajzen, 1991; Ajzen & Driver, 1992; Ajzen, 2002). In the same fashion, social norms have been shown to influence condom usage. Those who believed that their peers did not use condoms or approve of condom use were less likely to use them (Brooks-Gunn & Furstenberg Jr, 1989; Buhi & Goodson, 2007; Grossman et al., 2008; Martens, Page, Mowry, & Damann, 2006; Sarkar, 2008; Trepka et al., 2008). Perceived behavioral control over the use of condoms has been the strongest predictor of
intentions to use condoms (Jessor & Jessor, 1977; Kanu & Kanu, 2000; Sarkar, 2008). Studies have found that individuals who intend to use condoms are more likely to use them (Baele, Dusseldorp, & Maes, 2001; Gazabon, Morokoff, Harlow, Ward, & Quina, 2007; Maharaj & Cleland, 2006; Ronis, 2013).

Outside of the TPB constructs, other factors also influence condom use. Poor self-regulation, peer pressure, alcohol and drug use, and knowledge of one’s risk for negative sexual health outcomes (i.e. pregnancy and STIs) are significant predictors of sex without a condom (Biglan et al., 1990; Brooks-Gunn & Furstenberg Jr, 1989; Buhi & Goodson, 2007; Crockett, Raffaelli, & Shen, 2006; DiClemente, 1991; Elkington, Bauermeister, & Zimmerman, 2011; Jessor & Jessor, 1977; Peterson, Rothenberg, Kraft, Becker, & Trotter, 2009; Sarkar, 2008). Additionally, exposure to sexually explicit websites has been correlated with decreased condom use and other risky sexual behaviors (Braun-Courville & Rojas, 2009). Among college students, Wetherill, Neal, and Fromme (2009) found that liberal sexual values and unsafe sexual behaviors in high school predicted unsafe sexual behaviors in college (e.g., unprotected sex, multiple sexual partners, and alcohol consumption or illicit drug use before engaging in sexual activity). In addition, sexual communication with a sexual partner and one’s parents are often able to predict condom use (Brooks-Gunn & Furstenberg Jr, 1989; Buhi & Goodson, 2007; Cooper, 2002; Desiderato & Crawford, 1995; DiClemente, 1991; Elkington et al., 2011; Gillmore, Chen, Haas, Kopak, & Robillard, 2011; Goldman, Martin, Bryand, DiClemente, & Ditrinco, 2014; Romer et al., 1999; Sarkar, 2008; Teitelman, Ratcliffe, Morales-Aleman, & Sullivan, 2008; Wetherill, Neal, & Fromme, 2010). Other factors that influence condom use include: cost, gender, educational level, condom efficacy, religious ideology, gender roles, domestic violence, socioeconomic status, partner characteristics, age, condom allergies, depression, and social
anxiety (Adimora et al., 2002; Adimora et al., 2013; Adimora & Schoenbach, 2005; Lester, 2014; Manlove et al., 2008; Sarkar, 2008; Seth, Raiji, DiClemente, Wingood, & Rose, 2009; Teitelman et al., 2008; Wetherill et al., 2010).

**African Americans and Sexual Health Behaviors**

Certain subgroups of the American population have disproportionate rates of negative sexual health outcomes. African Americans in particular have disproportionately high rates of unplanned pregnancies and STIs (CDC, 2013, CDC, 2014). Some of the risk factors for this population include sexual networks, concurrent sexual partnerships, and relatively low marriage rates (Adimora et al., 2002; Adimora, Schoenbach, & Floris-Moore, 2009; Adimora & Schoenbach, 2005; Gibson-Davis, Edin, & McLanahan, 2005; S. S. Kelley, Borawski, Flocke, & Keen, 2003; Liljeros, Edling, & Amaral, 2003; Pattillo, 2013; Raley, 1996; Sarkar, 2008). Disproportionate rates of incarceration, racial discrimination, poverty, a low ratio of male to females, de facto racial segregation, and structural violence add to the risk (Adimora et al., 2009; Adimora et al., 2013; Adimora & Schoenbach, 2005; Bauermeister, Zimmerman, & Caldwell, 2011; Bird & Bogart, 2005; Bowleg, Teti, Malebranche, & Tschann, 2013; Dauria et al., 2015; Farmer, Nizeye, Stulac, & Keshavjee, 2006; Galtung, 1969; T. C. Green et al., 2012; Hogben & Leichliter, 2008; Romer et al., 1999; Sarkar, 2008; Schnittker, Massoglia, & Uggen, 2011; Vaughan, Rosenberg, Shouse, & Sullivan, 2014; Wynne & Currie, 2011). Because of these additional risks associated with being African American, it has been suggested that STI prevention efforts consider ethnicity (Randolph, Torres, Gore-Felton, Lloyd, & McGarvey, 2009).

Similarly, African Americans in Alabama disproportionately suffer from negative sexual health outcomes. For instance, African Americans represent 26% of Alabama’s population, but
account for approximately 50.3% of the Chlamydia infections (Alabama Department of Public Health [ADPH], 2014). Negative sexual health outcomes such as chlamydia and gonorrhea are disproportionately high among African Americans between the ages of 15 and 24 (ADPHb, 2015). Yet, such health outcomes are problematic for the state as a whole (ADPHA, 2015; CDC, 2011). Alabama is ranked third in the United States for chlamydia and gonorrheal infections and 15th for primary and secondary syphilis infections (CDC, 2013). Alabama has high rates of unplanned pregnancies and STIs (ADPH, 2014).

**African American College Students**

College represents a significant time of flux for many students; it is an opportunity for new experiences, personal freedom, and identity development (Scott-Sheldon, Carey, & Carey, 2008). Due to this flux, college students commonly engage in behaviors such as drug or alcohol use before sex. These behaviors are associated with risky sexual behaviors, including lack of condom use (Cooper, 2002; Douglas et al., 1997; Jessor & Jessor, 1977; J. E. Lewis, Maria-Jose Miguez-Burbano, & Malow, 2009; Mohler-Kuo, Lee, & Wechsler, 2003; Scott-Sheldon et al., 2008; Siegel, Klein, & Roghmann, 1999; Strote et al., 2002).

The risks and stress associated with living at the intersection of both African American risk factors and college risk factors may play a role in the sexual behavior of African American college students. Research suggests that individuals with high levels of stress engage in more frequent sexual activity, have more sexual partners, and report lower levels of condom use (Alvy et al., 2011; Elkington, Bauermeister, & Zimmerman, 2010; Folkman, Chesney, Pollack, & Phillips, 1992; K. S. Hall, Kusunoki, Gatny, & Barber, 2014; Hulland et al., 2014; Martin, Pryce, & Leeper, 2005; Parsons et al., 2005; Reid, Dovidio, Ballester, & Johnson, 2014; Seth et al., 2009; Stevens-Watkins, Brown-Wright, & Tyler, 2011; Truong et al., 2006). Racism-related
stress in particular has been associated with higher risky sexual behavior, namely low levels of condom use, multiple sex partners, and substance use before engaging in sexual behavior (Bowleg et al., 2014; Elkington et al., 2010; E. L. Fields et al., 2013; Hood, Brevard, Nguyen, & Belgrave, 2013; Krieger, 1999; Mincey & Norris, 2014; H. F. Myers, 2009; Roberts et al., 2012; Rosenthal et al., 2014). College students from segregated neighborhoods, especially African Americans students, experience higher levels of stress than students in other racial/ethnic groups (Charles, Dinwiddie, & Massey, 2004). This stress has been associated with family issues linked to violence and disorder from living in poor segregated neighborhoods that have relatively high crime levels (Charles et al., 2004).

Stress levels may be higher among particular subgroups of African American college students such as those at PWIs. Those who attend PWIs are more likely to face issues of racism and discrimination on a regular basis (Patton, Bridges, & Flowers, 2011). These students have reported feeling uncomfortable, isolated, tokenized, and stressed (Erwin, Jones, Kilian, & Woodie, 2004; Fries-Britt & Griffin, 2007; L. Jones, Castellanos, & Cole, 2002; Negga, Applewhite, & Livingston, 2007; Neville, Heppner, Ji, & Thye, 2004; Watkins, Green, Goodson, Guidry, & Stanley, 2007). African American college students who attend PWIs have many risk factors for a negative sexual health outcome namely: African American, between the ages of 18 and 24, sexually active and at a PWI (Adimora et al., 2009; Adimora & Schoenbach, 2005; Bauermeister et al., 2011; Bowleg et al., 2014; Calloway, Long-White, & Corbin, 2014; CDC, 2012; Chao, Mallinckrodt, & Wei, 2012; Darbes, Crepaz, Lyles, Kennedy, & Rutherford, 2008; Egan, 1997; Foreman, 2003; Fries-Britt & Griffin, 2007; K. M. Green, Doherty, Fothergill, & Ensminger, 2012; T. C. Green et al., 2012; E. M. Hall & Witherspoon, 2015; N. M. Hall & Witherspoon, 2011; K. S. Hall et al., 2014; Hogben & Leichliter, 2008; Hood et al., 2013; R. L.
Johnson, Douglas, & Nelson, 1992). This combination of factors may affect the sexual behaviors of these students.

**Study Purpose**

The purpose of this study was to examine the determinants of condom use among African American undergraduates at PWIs. This study used the constructs of the Theory of Planned Behavior (TPB) to examine the factors that contribute to condom use. An added factor that this study examined was the relationship between different types of stress and condom use. The relationship between stress, intention to use condoms, and actual condom use was also examined. Little is known about African American students attending PWIs and their health behaviors, especially as it pertains to condom use (Adimora & Schoenbach, 2005; Biddix, Matney, Norman, & Martin, 2014; Burns & Dillon, 2005; Calloway et al., 2014; Duncan et al., 2002; Erwin et al., 2004; Fogel, Fajiram, & Morgan, 2009; N. M. Hall & Witherspoon, 2011; Hightow et al., 2005; Kanekar, 2009; Negga et al., 2007; O'Hara, Armeli, Scott, Covault, & Tennen, 2015; Younge, Corneille, Lyde, & Cannady, 2013).

**Significance**

There is a lack of information in the research literature about the health behaviors of African American college students, especially about those who are enrolled in PWIs (Adimora & Schoenbach, 2005; Biddix et al., 2014; Burns & Dillon, 2005; Calloway et al., 2014; Duncan et al., 2002; Erwin et al., 2004; Fogel et al., 2009; N. M. Hall & Witherspoon, 2011; Hightow et al., 2005; Kanekar, 2009; Negga et al., 2007; O'Hara et al., 2015; Younge et al., 2013). This study adds to the research literature by providing information about the sexual health behaviors of African American college students at PWIs. In addition, this research examined the influence of stress on condom use. This research addressed three Healthy People 2020 objectives, indicated in
Table 1.1 (USDHHS, 2014a; USDHHS, 2014b). The study also addressed three Healthy Campus 2020 objectives, which are indicated in Table 1.2: STD-1, HIV-17 a and b, and RP-1 (ACHA, 2012).

Table 1.1: Healthy People 2020 Objectives Addressed by Study

<table>
<thead>
<tr>
<th>Objective</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV-17</td>
<td>Increase the proportion of sexually active persons who use condoms</td>
</tr>
<tr>
<td>FP-10</td>
<td>Increase the proportion of sexually active persons aged 15 to 19 years who use condoms to both effectively prevent pregnancy and provide barrier protection against disease</td>
</tr>
<tr>
<td>FP-11</td>
<td>Increase the proportion of sexually active persons aged 15 to 19 years who use condoms and hormonal or intrauterine contraception to both effectively prevent pregnancy and provide barrier protection against disease</td>
</tr>
</tbody>
</table>

Source: USDHHS, 2014a; USDHHS, 2014b

Table 1.2: Health Campus 2020 Objectives Addressed by Study

<table>
<thead>
<tr>
<th>Objective</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV-17a</td>
<td>Increase the proportion of sexually active students who report using condoms, most of the time or always, for vaginal intercourse in the last 30 days</td>
</tr>
<tr>
<td>HIV-17b</td>
<td>Increase the proportion of sexually active students who report using condoms, most of the time or always for anal intercourse in the last 30 days</td>
</tr>
<tr>
<td>RP-1</td>
<td>Decrease the proportion of female students who report an unintended pregnancy in the last 12 months</td>
</tr>
</tbody>
</table>

Source: ACHA, 2012
This study will promote research that explores the sexual behavior of African American students attending PWIs and provide valuable data needed to create interventions for sexual health. The study provides information that will better inform health education efforts and develop targeted approaches to reducing sexually risky behaviors in this population.

**Research Questions**

This study investigated the following research questions:

1. To what extent do attitudes, subjective norms, perceived behavioral control, and intentions predict condom use among African American undergraduate students at predominantly White institutions?

2. Is there a relationship between stress levels and condom use among African American undergraduate students at predominantly White institutions?

3. Do stress levels moderate the relationship between attitudes, social norms, perceived behavioral control, intention, and condom use among African American undergraduate students at predominantly White institutions?

**Study Design**

The study employed a cross-sectional design and used surveys to collect data on African American college students between the ages of 18 and 24 years old attending PWIs. The instrument used in this study was based on items from four established scales: the Intent to Condom Use Inventory based on the Theory of Planned Behavior (Kanu and Kanu, 2000); the Social Readjustment Rating Scale Modified For College Students (Holmes & Rahe, 1967; Zitzow, 1984); the Minority Stress Scale (Smedley, Myers, and Harrell, 1993); and the American College Health Association- National College Health Assessment (American College Health Association, 2015). The instrument was piloted to ensure face validity, appropriate readability,
and suitable completion time. The survey instrument was disseminated through the Qualtrics online survey software to 311 students, 202 of which met the inclusion criteria.

**Delimitations**

Delimitations are those characteristics that limit the scope and define the boundaries of the study (Simon, 2011). While several variables influence condom use, this study focused on those specifically related to the TPB constructs and stress. Only students who attended institutions accredited by the Southern Association of College and Schools (SACS) in the state of Alabama were eligible to participate. In addition, the institutions had to have at least a level two designation (i.e., the institutions must offer at least a bachelor’s degree). Students had to be between the ages of 18 and 24, enrolled at a PWI, and an undergraduate.

**Limitations**

Limitations are the potential weaknesses in the study; these are factors that are often beyond the control of the researcher (Simon, 2011). There were no incentives provided to students directly from the study, which might have limited the number of students recruited. Participant responses were self-reported, which has the potential for dishonest and/or inaccurate responses (Sharma & Petosa, 2014). The results may not be generalized beyond the study participants. The use of a cross-sectional design, which despite being commonly employed in social and behavioral science research, inhibits the ability to infer causation or establish a temporal relationship between variables (Simons-Morton, McLeroy, & Wendel, 2011). Finally, the Theory of Planned Behavior has inherent limitations such as the assumption that individuals are mindful of their behaviors and their consequences. Consequently, the Theory of Planned Behavior does not account for affective factors that may influence behavioral intention such as fear, threat, or mood (Ajzen, 1991; Ajzen & Driver, 1992; Ajzen, 2002).
Assumptions

The following assumptions were made when interpreting the study results. It was assumed that participants responded to the survey questions honestly and accurately. It was assumed that students had the capacity to interpret and understand the survey items. The TPB is a robust model that has accurately and consistently predicted behavioral intention and behavior for condom use in many populations (Ajzen, 2002; Asare, 2015; Cha et al., 2007; Simons-Morton et al., 2011).

Key Terms

• Achievement Stress - reflects the student’s concerns about the relative inadequacy of his or her academic preparation and ability that are compounded by group membership and family social class background (Smedley, Myers, & Harrell, 1993)
• Role Strain – captures the perceptions of negative relations among students from different racial and ethnic groups, primarily with White students (Smedley et al., 1993)
• Predominantly White Institutions (PWI) – describes an institution of higher learning in which Whites account for 50% or greater of the student enrollment (Brown & Dancy, 2010).
• Psychology Participant Pool- refers to a network of students currently enrolled in Psychology courses.
• Race Related Stress - refers to concerns related to personal experiences of prejudice and discrimination based on the person’s group membership (Smedley et al., 1993)
• Sexual Behavior- includes oral sex, vaginal intercourse, and anal intercourse
• Sexually Transmitted Infections (STIs) - refers to sexually transmitted diseases or infections that are passed from one person to another through sexual contact (CDC, 2012)
• Snowball Sampling- refers to non-probability sampling where existing study subjects recruit future subjects from among their acquaintances (Biernacki & Waldorf, 1981)

• Social Climate Stress - refers to the perception of the campus environment is unwelcoming to members of the student’s racial or ethnic group (Smedley et al., 1993)

• Stress - describes a physical, mental, or emotional factor that causes bodily or mental tension (National Institute of Mental Health, 2015)

• Theory of Planned Behavior (TPB) - focuses on theoretical constructs concerned with individual motivational factors as determinants of the likelihood of performing a specific behavior. Assumes that the best predictor of a behavior is behavioral intention, which in turn is determined by attitude toward the behavior, social normative perceptions regarding it, and the perceived control over performance of the behavior (Ajzen, 1991; Ajzen & Driver, 1992; Ajzen, 2002)

• TPB- Attitudes - describes an individual's positive or negative evaluation of self-performance of the particular behavior. The concept is the degree to which performance of the behavior is positively or negatively valued (Ajzen, 1991; Ajzen & Driver, 1992; Ajzen, 2002).

• TPB- Intentions - indicates an individual's readiness to perform a given behavior. It is assumed to be an immediate antecedent of behavior. It is based on attitude toward the behavior, subjective norm, and perceived behavioral control, with each predictor weighted for its importance in relation to the behavior and population of interest (Ajzen, 1991; Ajzen & Driver, 1992; Ajzen, 2002).

• TPB- Perceived Behavioral Control - refers to an individual's perceived ease or difficulty of performing the particular behavior. It is assumed that perceived behavioral control is
determined by the total set of accessible control beliefs (Ajzen, 1991; Ajzen & Driver, 1992; Ajzen, 2002).

• TPB- Subjective Norms - refers to an individual's perception about the particular behavior, which is influenced by the judgment of significant others (e.g., parents, spouse, friends, teachers) (Ajzen, 1991; Ajzen & Driver, 1992; Ajzen, 2002).

• Within Group Stress - captures perceived pressure to conform to the norms of the student’s group regarding language, behaviors, and ways of thinking (Smedley et al., 1993)

Summary

College student report low levels of condom use, which puts them at risk for getting STIs and having unplanned pregnancies(Adefuye et al., 2009; Adimora & Schoenbach, 2005; Asare, 2015; Bogart et al., 2000; Brown & Vanable, 2007; Bryant, 2009; CDC, 2012; Eberhardt, Rice, & Smith, 2003; Hogben & Leichliter, 2008; Patton et al., 2011; Scott-Sheldon et al., 2008). African American college students who attend predominantly White institutions are at the intersection of multiple risk factors both in terms of stress levels and risky sexual behavior. This study examined the relationship between the Theory of Planned Behavior, stress, and condom use among African American college students at predominantly White institutions. A brief overview of the study methods was provided, followed by the delimitations, limitations, assumptions, and key terms.
CHAPTER 2 - LITERATURE REVIEW

Introduction

The purpose of this study was to examine the determinants of condom use among African American undergraduates attending predominantly White institutions (PWIs). This study will utilize the Theory of Planned Behavior (TPB) (Ajzen, 1991; Ajzen & Driver, 1992; Ajzen, 2002) which has been widely used to predict a number of sexual health behaviors among college-age adults, including premarital sex, intention to use condoms, HIV/AIDS prevention behavior, and the use of contraceptives (Bosampra, 2001; Bogart, Cecil & Pinkerton, 2000; Cha, Doswell, Kim, Charron-Prochonik, & Patrick, 2007; DeVisser & Smith, 2004; Kanu & Kanu, 2000). In addition, the relationship between stress, intention to use condoms, and actual condom use was examined. Little is known about African American students health behaviors, especially as it pertains to condom use (Biddix, Metney, Norman, & Martin, 2014).

This chapter discusses the negative health effects of unprotected sex, the prevalence of these effects in the African American population between the ages of 15 and 24, as well as the relationship between stress and sexual behavior. In addition, this chapter addresses the history of African Americans at predominantly White institutions in Alabama, and the stress related to being a minority at a predominantly White institution. Finally, this chapter examines the Theory of Planned behavior and how it has been used in public health, especially in health education and health promotion, to address condom usage in African American college students.

Sex without a condom is one of the most expensive health behaviors. The United States spends about $15.7 billion annually (CDC, 2012a). African Americans are disproportionately
affected by sexually transmitted infections (STIs) and unplanned pregnancy. The Centers for Disease Control and Prevention (CDC) (2012) and Healthy People 2020 (USDHSS, 2014) indicate that African Americans between the ages of 15 and 24 are at high risk of acquiring STIs such as chlamydia, gonorrhea, and human immunodeficiency virus (HIV). Alcohol use, sexual behavior, and a failure to use protection (such as condoms) are common behaviors among college students (Cooper, 2002). Research suggests that prevention efforts for young adults need to consider ethnicity (Randolph, Torres, Gore-Felton, Lloyd, et al., 2009).

Stress may play a role in the sexual behaviors of African American college students. Recent research suggests that individuals with high levels of stress engage in more frequent sexual activity than individuals with lower stress levels (K. S. Hall et al., 2014). Stress related to racism has also been associated with sexual behavior (Bowleg et al., 2014). African American students at predominantly White institutions (PWI) have reported feeling uncomfortable, isolated, and stressed (Erwin et al., 2004).

Sexually Transmitted Infections and Diseases

Unprotected sex is one of the most important public health issues facing America today. It is estimated that young people between the ages of 15 and 24 acquire nearly half of the 20 million new STIs annually (CDC, 2014). In 2011, women 20 to 24 years old had the highest rate of chlamydia compared with any other age and sex group, while men in the same age range had the second highest rate (CDC, 2014). Gonorrhea rates for 15 to 19 year old women had the second highest rate compared to the other age and sex groups (CDC, 2014). In 2011, women and men between the ages of 20-24 had the highest rate of infections in the nation (CDC, 2014). The rate of syphilis infection has also increased in recent years and is highest in women between 20-24 years old (CDC, 2014).
Alabama has the third highest chlamydia and gonorrhea rates in the United States, and the 15th highest syphilis rate (CDC, 2013). In 2014, there were 28,351 total cases of chlamydia in Alabama; 72% occurred between the ages of 15 to 24 (ADPH, 2015). In 2014, women between the ages of 20 and 24 had the highest rate of chlamydia compared with any other age and sex group in Alabama, while women 15 to 19 years old had the second highest rate (ADPH, 2015). Gonorrhea was the most prevalent in women aged 20 to 24 year olds (ADPH, 2015).

Chlamydia rates among African Americans are higher than their White counterparts. Chlamydia is six and nine times higher in African American women and men, respectively (CDC, 2014). Chlamydia rates are highest among 15 to 19 year old African Americans than other age groups; these rates are almost six and 11 times higher in female and male African Americans than Whites in this age group. Among African Americans between 20 and 24 years old, the rate of chlamydia is approximately 4.8 times higher in females and seven times higher in males compared to their White counterparts (CDC, 2014).

Chlamydia rates among African Americans are higher than their White counterparts in Alabama. African Americans are approximately 26% of Alabama’s population but account for 50.3% of the Chlamydia infections in 2013 (ADPH, 2014). The chlamydia rate is eight times higher in African Americans than in Whites (ADPH, 2014). African American women account for 33.8% of chlamydia infections, which is eight times higher than White women. African American men have a chlamydia rate that is approximately 10.5 times the rate in White men (ADPH, 2014).

Gonorrhea rates are higher among African Americans than Whites. Approximately 67% of gonorrhea cases occur among African Americans (CDC, 2014). Gonorrhea is 15.2 and 19.4 times higher in female and male African Americans, respectively, than their White counterparts.
Among African Americans between 15-19 years old, the rate of gonorrhea is approximately 15.9 times higher in females and 30.3 times higher in males compared to Whites in this age group (CDC, 2014). Among African Americans between 20-24 years old, the rate is 12.1 and 20.4 times higher than whites.

Gonorrhea rates are higher among African Americans than Whites in Alabama. Approximately 61.4% of Alabama gonorrhea cases in 2013 occurred among African Americans, and 65.1% of gonorrhea infections occurred in 15 to 24 year olds (ADPH, 2014). Gonorrhea is 12.6 and 28.3 times higher in female and male African Americans, respectively, than their White counterparts (ADPH, 2014).

The overall syphilis rates for African Americans in 2011 was seven times the overall rate for Whites, which is a decrease from the 2010 overall rate of 7.9 (CDC, 2014). Among African American men, the overall rate of syphilis is 6.1 times their White counterparts, while the overall women’s rate was 17 times their White counterparts (CDC, 2014). African American men between the ages of 15-19 had a rate that is 16 times the rate of their White counterparts, while African American women in that same age category had a rate that was 30 times that of their White counterparts (CDC, 2014).

African American’s accounted for 62.3% of the primary and secondary syphilis infections in Alabama during 2013. The overall syphilis rates in Alabama for African Americans in 2013 were seven times the overall rate for Whites and men had a rate that was 7.89 that of women (ADPH, 2014). Among African American men in Alabama, the overall rate of syphilis is 6.64 times their White counterparts, while the overall African American women’s rate was 14.5 times their White counterparts (ADPH, 2014).
In 2010, adolescents and young adults between the ages of 13-24 comprised 17% of the US population, but accounted for an estimated 26% of all new HIV infections (CDC, 2014); of these, African Americans accounted for an estimated 57% of all new HIV infections (CDC, 2014). Women accounted for 20% of the estimated new HIV infections in 2010 and 24% of those living with HIV in 2009 (CDC, 2014). The overall rate of HIV infections in African American women is 20 times that of their White counterparts. The Centers for Disease Control and Prevention (2014) estimates that one in 16 African American men and one in 32 African American women will be diagnosed with HIV in their lifetimes.

Almost 60% of those who are HIV positive are unaware of their status (CDC, 2014). In general, new HIV infections among women are attributed to heterosexual contact; in 2010, 84% of new infections in women were due to heterosexual contact (CDC, 2014). African American men who have sex with men (MSM) accounted for 72% of the new HIV infections among African Americans and 36% of all new infections among all gay and bisexual men (CDC, 2014). Gay and bisexual male African Americans between 13 to 24 years old accounted for 55% of the new HIV infections in gay and bisexual males in this age group (CDC, 2014).

In Alabama, African Americans are 27% of the population, but account for 72% of all new HIV infections and represent 64% of all persons living with HIV/AIDS (ADPH, 2015). Since 1982, there have been 19,197 HIV infections in Alabama; it is estimated that 14%, or 2,372 individuals are unaware of their positive status. African Americans in Alabama are seven times more likely to become infected with HIV than non-African Americans (ADPH, 2015). About 56% of all new infections are within the men who have sex with men population and 23% are from heterosexual contact. Many men who have sex with men also report engaging in heterosexual sex. African American males in Alabama who are between the ages of 15 and 29
are ten times more likely to get HIV than any other age and sex group. African American women are eight times more likely to become infected with HIV compared to their White female counterparts (ADPH, 2015).

Table 2.1: Alabama HIV statistics

<table>
<thead>
<tr>
<th></th>
<th>Incidence in 2014</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cases</td>
<td>%</td>
</tr>
<tr>
<td>African American Men</td>
<td>323</td>
<td>58</td>
</tr>
<tr>
<td>African American Women</td>
<td>77</td>
<td>13.8</td>
</tr>
<tr>
<td>Other Men</td>
<td>132</td>
<td>23.7</td>
</tr>
<tr>
<td>Other Women</td>
<td>25</td>
<td>4.9</td>
</tr>
<tr>
<td>Total Men</td>
<td>455</td>
<td>81.7</td>
</tr>
<tr>
<td>Total Women</td>
<td>102</td>
<td>18.3</td>
</tr>
<tr>
<td>Total</td>
<td>557</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: ADPH, 2015

An HIV-infected individual who is also infected with another STI is more likely to transmit HIV through sexual contact than another HIV-infected person who does not have another STI (CDC, 2014). Individuals who are infected with other STIs such as chlamydia, gonorrhea, or syphilis are at least 2 to 5 times more likely than the uninfected to acquire HIV when exposed through sexual contact (CDC, 2012). This is due to STIs increasing the individual’s susceptibility to HIV infection by creating breaks in the genital tract lining or skin. These breaks create a portal of entry for HIV. In addition, the inflammation that is common with many STIs increases the concentration of cells in genital secretions that can serve as targets for HIV (CDC, 2014).

Since 1982, about 37% of births in the United States were unintended at the time of conception (Mosher, Jones, Abma, & National Center for Health Statistics (US), 2012). The overall proportion of unplanned pregnancies has not significantly declined since 1982 but among
white non-Hispanic women the proportion of unplanned pregnancy has significantly declined (Mosher et al., 2012). Among teen mothers 15 to 19 years old, four out of five pregnancies were unintended (Mosher et al., 2012). Among 20 to 24 year olds 50% of pregnancies were unintended. Among African American women 47% of pregnancies were wanted and planned and 45% were unplanned or mistimed (Mosher et al., 2012). Of women that had an unplanned pregnancy, 36% had stopped using contraceptives because they did not believe that they could get pregnant, 25% were black and 49% were Hispanic (Mosher et al., 2012). Women who were more likely to have an unintended pregnancy had lower education levels, low income, and were cohabiting (CDC, 2014). Furthermore, women who were more likely to have an unintended birth were between the ages of 20-34 (68%), unmarried (62%), and African American (22%) (Mosher et al., 2012).

**Contextual Factors and Other Contributors**

African Americans are disproportionately affected by negative sexual health outcomes despite reporting higher levels of condom use (Gillmore et al., 2011; Herbenick et al., 2010). It has been suggested that prevention efforts for young adults need to consider ethnicity, to be more culturally competent and able to address the additional risks associated with different ethnic groups (Randolph et al., 2009). There are many components that contribute to the sexual health disparities present in the African American community. Some of these components are sexual networks, concurrent sexual partnerships, and relatively low marriage rates among African Americans compared to Whites. Sexual networks are social network that are defined by the sexual relationships between a set of individuals, it is the connection between the individual and the larger population; they are vital in the spread of STIs(Adimora et al., 2009; Adimora & Schoenbach, 2005; Liljeros et al., 2003). Concurrent sexual partnerships are where an individual
has more than one sexual relationship at the same time, which contributes to the spread of STIs (Adimora et al., 2002; Adimora et al., 2009; Adimora & Schoenbach, 2005; S. S. Kelley et al., 2003; Sarkar, 2008). The literature has also shown that African Americans are less likely to get married compared to their White counterparts, which may contribute to some of the sexual health disparities (Gibson-Davis et al., 2005; Pattillo, 2013; Raley, 1996; Sarkar, 2008).

Disproportionately high rates of incarceration among African Americans, racial discrimination, and poverty add to the web of factors that contributes to the disproportionately high STI and unplanned pregnancy rates (Adimora et al., 2009; Adimora et al., 2013; Bauermeister et al., 2011; Bowleg et al., 2013; Dauria et al., 2015; T. C. Green et al., 2012; Sarkar, 2008; Schnittker et al., 2011). Systematic and institutionalized racial discrimination, along with the distrust of institutions that accompany it, contributes to health disparities that are present (Adimora et al., 2009; Bazargan, Kelly, Stein, Husaini, & Bazargan, 2000; Bird & Bogart, 2005; Hogben & Leichliter, 2008; Sarkar, 2008; Wynne & Currie, 2011). Likewise, poverty impacts’ where a person can live and is often confounded with housing instability, decreased access to healthcare, and destabilizes relationships between and within families (Adimora et al., 2009; Sarkar, 2008; Vaughan et al., 2014). Additional factors that contribute to the health disparities include a low ratio of men to women, de facto racial segregation, and structural violence (Adimora et al., 2009; Romer et al., 1999). Structural violence is a social system that is characterized by inequalities in power and life opportunities of a sufficient magnitude that restricts a group of people from realizing their full potential and puts them in harm’s way. The system is structural because it is embedded in the political and economic organization of the social world; it is violent because it causes injury to people, typically not
those who are responsible for perpetuating the inequalities (Adimora et al., 2009; Farmer et al., 2006; Galtung, 1969)

**Condom Use**

Consistent condom use is a powerful protective sexual behavior (R. L. Johnson et al., 1992). There are two types of condoms, male and female condoms. If a woman uses a female condom properly, it is considered as effective as a male condom (Bounds, 1997). For the purposes of this study condom use refers to the male latex condom. Consistent and correct use of the male latex condom can reduce the risk of STI transmission such as HIV, Gonorrhea, Chlamydia, and pregnancy (Centers for Disease Control and Prevention (CDC), 2010). According to the National Survey of Sexual Health and Behavior (NSSHB), 2010 report, one in four acts of vaginal intercourse is protected in the United States; among singles it is one in three (Herbenick et al., 2010). Of the 62 million women between the ages of 15 and 44, 62% reported using contraceptives; among these women only 18% reported using a male condom with their partner (Herbenick et al., 2010).

Despite reporting the most condom usage, African Americans have the most negative sexual health outcomes (Herbenick et al., 2010). The highest proportion of condom use over the last 10 vaginal events were by those who identified as African American (30.9%), followed by Hispanic American (25.4%) and Other (22.9%). Individuals who were single reported using a condom 46.7% over the past 10 vaginal events. Among those individuals who were single, but in a relationship, they reported using condoms 24.1% of the time during the past 10 vaginal events (Herbenick et al., 2010).

Approximately 12.7% of women and 3.6% of men reported having anal sex. Among those who engaged in anal sex, condom usage was reported 20.3% of the time, with men
reporting more frequent condom use than women (25.8% and 13.2%, respectively) (Herbenick et al., 2010). Among men who had sex with men and women, condom use was used 40.0% of the time during anal events in which men were the insertive partners. In the events where men were the receptive partners, 44.1% of anal events utilized a condom (Herbenick et al., 2010). Table 2.2 demonstrates condom use by ethnicity, age, and gender. Table 2.3 also illustrates condom use by partner type, and indicates that individuals between the ages of 18 to 24 do not report using condoms up to 50% of the time.

### Table 2.2: Condom use during most recent vaginal intercourse by age, gender and ethnicity

| Age  | White %  |  |  |  |  |  |  |
|------|----------|  |  |  |  |  |  |
|       | Men      | Women |  |  | Men | Women |  |  |  |  |  |  | Other %  |
| 14-17 | 68.8     | 79.2   |  |  |  |  |  |  |  |  |  |  | 60.0   |
| 18-24 | 46.9     | 36.2   |  |  |  |  |  |  |  |  |  |  | 66.7   |
| 25-29 | 30.4     | 24.8   |  |  |  |  |  |  |  |  |  |  | 30.6   |
| 30-39 | 19.3     | 22.9   |  |  |  |  |  |  |  |  |  |  | 13.3   |
| 40-49 | 19.0     | 11.5   |  |  |  |  |  |  |  |  |  |  | 60.0   |
| 50-59 | 10.0     | 11.4   |  |  |  |  |  |  |  |  |  |  | 20.0   |
| 60-69 | 5.2      | 10.6   |  |  |  |  |  |  |  |  |  |  | 0.0    |
| >70   | 10.0     | 0.0    |  |  |  |  |  |  |  |  |  |  | 0.0    |

Source: Reece, Herbenick, Schick, Sanders, Dodge, and Fortenberry, 2010

### Table 2.3: Condom use during most recent vaginal intercourse by age, gender, and partner type

<table>
<thead>
<tr>
<th>Age</th>
<th>Relationship partner %</th>
<th>Causal partner %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men</td>
<td>Women</td>
</tr>
<tr>
<td>14-17</td>
<td>76.3</td>
<td>63.2</td>
</tr>
<tr>
<td>18-24</td>
<td>22.2</td>
<td>20.0</td>
</tr>
<tr>
<td>25-29</td>
<td>19.8</td>
<td>19.4</td>
</tr>
<tr>
<td>30-39</td>
<td>16.8</td>
<td>15.5</td>
</tr>
<tr>
<td>40-49</td>
<td>14.9</td>
<td>10.9</td>
</tr>
<tr>
<td>50-59</td>
<td>2.2</td>
<td>11.3</td>
</tr>
<tr>
<td>60-69</td>
<td>0.0</td>
<td>8.3</td>
</tr>
<tr>
<td>&gt;70</td>
<td>8.7</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Source: Reece, Herbenick, Schick, Sanders, Dodge, and Fortenberry, 2010
Among men, factors that influence condom use includes drug and alcohol use, being in love, level of difficulty in sexual communication, and partner’s desire to use condoms (MMWR, 1990). Among women, factors associated with condom use include being African American, decreased sexual pleasure when using condoms, being in love, and partner’s unwillingness to use condom (MMWR, 1990). Irregular condom use increases the chance of contracting HIV by 1,000% to 2,000% compared to regular condom use (Kwon et al., 2008). Even behaviors such as just having a condom on hand, is a key preparatory act in relation to actual condom use and potentially protects people in unplanned sexual situations (Arden & Armitage, 2008). Sexual communication is associated with lower HIV risk behavior and safer sex (Quina, Harlow, Morokoff, Burkholder, & Deiter, 2000).

Johnson, Douglas, and Nelson (1992) explored the sexual behaviors of male African American students and their risky sexual behaviors. The students had an average age of 19.98 and 90.3% were sexually active. Of the sexually active men, 36.7% reported consistent condom use, 55% engaged in causal sex, 26.6% engaged in sexual activity in conjunction with using drugs or alcohol, and 21.7% reported having had an STI (R. L. Johnson et al., 1992). Monogamous and non-monogamous men reported similar levels of condom use consistency (R. L. Johnson et al., 1992). Among the non-monogamous men, there was a significant difference in STI acquisition between those who consistently used condoms than those that did not. Those who reported consistent condom use had significantly low rates that those that did not (R. L. Johnson et al., 1992). Men in general report greater temptation for risky sexual behavior than women (Fedding & Rossi, 1999). However, women are more likely to use condoms with non-main partners (Galavotti et al., 1995).
College Students and Risky Sexual Behaviors

According to the US Department of Education (USDE, 2012a), there were approximately 21.7 million undergraduate students enrolled at colleges and universities; According to one study, being a college student is associated with increased risky sexual behavior such as unprotected sex and having multiple partners (Trepka, Kim, Pekovic, Zamar, et al., 2008). The researchers conducted a cross sectional study of 1130 students at a large minority serving institution in Florida. Fifteen percent (15%) of the sample was African American, 62.8% were female, and 94.3% identified as heterosexual (Trepka et al., 2008). Almost half of the surveyed college students who reported being sexually active reported unprotected sex while under the influence of alcohol (Trepka et al., 2008). In addition, even after adjusting for illicit drug use there was a significant association between risky sexual behavior and binge drinking (Trepka et al., 2008).

Cooper (2002) published a study that evaluated alcohol use and risky sexual behavior among college students and youth. She defined risky sexual behavior as having multiple sexual partners, causal or unknown partners, lack of sexual communication, as well as failure to take protective measures such as birth control or use condom. She reviewed studies that examined the association between drinking and engaging in risky sexual behavior. She found that as the likelihood of someone drinking alcohol increased so did the likelihood of having sex. In addition the level of alcohol involvement predicted the level of sexual involvement. There was also evidence that demonstrated that drinking in potentially sexual situations, such as being on a date, was associated with an increased probability of having intercourse. Additionally, drinking prior to intercourse was associated with indiscriminate partner choice as well as less discussions about risk related to sex (Cooper, 2002).
Baldwin and Baldwin (1988) conducted a study that examined the factors that affected AIDS-related risky taking behavior among college students at a University in Southern California. Risky behavior was defined as having casual vaginal sex and not wearing condoms. The most consistent predictors of cautious sexual behavior were age of first intercourse, average number of sexual partners a year, being female, and using a seat belt while driving (Baldwin & Baldwin, 1988). The students in the study scored very high on knowledge about AIDS transmission, and a few reported worrying about the disease and/or assessing themselves as being at risk (Baldwin & Baldwin, 1988). The researchers saw that having accurate knowledge about AIDS transmission did not lead students to engage in markedly safer sexual practices. Students with more knowledge did not avoid causal sexual relationships more or use condoms more than those with less knowledge. The students who felt that they were at high risk of contracting HIV had more sexual partners in the last months (Baldwin & Baldwin, 1988).

Desiderato and Crawford (1995) examined the relationships between disclosure of previous sexually risky behavior to current partners, multiple sexual partners, condoms and alcohol use, and vulnerability to AIDS in unmarried college students. Through the use of an anonymous survey, one third of the 262 sexual active students reported that in the past 11 weeks they had more than one sexual partner and three-fourths of the students reported inconsistent or no condom use (Desiderato & Crawford, 1995). The researchers found students with multiple sexual partners were less likely to disclose about previous partners and times when they failed to use condoms, as well as were more likely to use alcohol prior to sexual activity. Additionally, disclosure about past risky behavior did not appear to lead to higher levels of condom use (Desiderato & Crawford, 1995).
Brown and Vanable (2007) tested the hypothesis that partner types would moderate the effect of alcohol consumption on condom use in college students. They found high rates of alcohol use and unprotected sex among college students. Their sample consisted of 330 students who reported having vaginal sex during their most recent sexual encounter. The sample’s average age was 18.9 years old and 82% was white (Brown & Vanable, 2007). Close to 40% of the participants reported that they did not use condoms during last intercourse. About 32% reported alcohol consumption prior to engaging in sexual activity. Unprotected vaginal sex was just as likely for nondrinking events as for drinking events. In addition, unprotected vaginal sex and alcohol use did not vary by drinking status for sexual behavior involving a steady partner (Brown & Vanable, 2007).

**African American College Students and Sexual Behavior**

In 2011, there were 2.7 million African American college students (USDE, 2012b). About 373,047 of these students were enrolled in the 99 U.S. Historically Black Colleges and Universities (HBCUs) (U.S. Department of Education, White House Initiative on Historically Black Colleges and Universities, 2015). The remaining 2.3 million African American students attended predominantly white institutions (PWI). The African American student population has been largely understudied and, in turn, underserved (Younge et al., 2013). In a study conducted by Younge and colleagues (2013), critical factors relevant to sexual health were identified, which included relationship, developmental, and sociocultural issues (Younge et al., 2013). At a structural level, the study found that small sexual networks and the sex ratio imbalance also impacted partner choice and sexual behaviors among students attending HBCUs. Heightened HIV risk students may be attributed to engaging in sexual intercourse with individuals outside of
the institution, which introduces “higher-risk” individuals into an otherwise small sexual network (Younge et al., 2013).

Burns and Dillion (2005) examined the relationship between frequency of condom use (by self or partner during the past 6 months and lifetime), locus of control, self-efficacy, and future time orientation among African American college students who were single and sexually active during the past year. Data was collected from 154 African American undergraduate students from a southern HBCU, with a mean age of 21.1 years old (Burns & Dillon, 2005). The researchers found that self-efficacy for safe sexual behavior and future time orientation predicted African American college students’ frequency of condom use during the past six months and lifetime, but locus of control did not predict condom use. In addition, Burns and Dillion (2005) found that African American college women with a strong future orientation exhibited more frequent current and past use of condoms in their sexual activities than men who had strong future orientation (Burns & Dillon, 2005). The researchers hypothesized that this could be due to the fact that using condoms in the present protects a woman against possible future negative consequences associated with lack of condom use during sexual activity such as becoming pregnant or acquiring an STI (Burns & Dillon, 2005).

One study examined state surveillance records for new HIV diagnoses in men between the ages of 18 and 30 (Hightow, MacDonald, Pilcher, Foust, et al., 2005). They were able to describe a previously unrecognized epidemic of HIV infection, which primarily affected young African American male college students who had sex with men (Hightow et al., 2005). Their study was significant because previously college students had not been recognized as a group at risk for emerging HIV infections (Hightow et al., 2005). They found that college men who identified as being newly infected with HIV were more likely than non-college men to visit bars.
or dance clubs, and more likely to use ecstasy or other club drugs (Hightow et al., 2005). In addition, these college students were more likely to meet sex partners at these locations.

Moore (2013) found that African American students were more likely to have been tested for STIs than the general student population. However, individuals who reported using condoms were less likely to have ever been tested for chlamydia or gonorrhea; these participants were also motivated to get tested in the next three months (Moore, 2013). Despite some African American students reportedly engaging in safer sexual behaviors, they appear to experience worse health outcomes such as acquiring more STIs.

The low Black male-to-female ratio is an important factor to consider in the sexual dynamics of African American college students (Hou, 2009). The lower percentages of Black males frequently result in men having multiple female partners (Adimora & Schoenbach, 2005) and women not using or enforcing the use of condoms to demonstrate commitment and/or to avoid rejection (Hou, 2009). Espinosa-Hernandez and Leftowitz (2009) recommended that future studies assess if sexual attitudes and behaviors differ within an ethnic group due to stereotypes about them. They suggest that African American men with strong ethnic identities may engage in riskier behaviors as a result of acting on stereotypes about African American men (Espinosa-Hernández & Lefkowitz, 2009). Hou (2009) indicated that future studies sample African American students from PWIs to explore cultural and contextual factors and the roles stereotypes might play on HIV risk behaviors.

One study suggests that a preference for not wearing a condom may be related to a desire for greater intimacy (Duncan, Miller, Barsky, Fomby, et al., 2002). There are many subtle messages that are conveyed when one sexual partner requests that they use a condom (Duncan et al., 2002). A sexual partner may view the request to wear a condom as an indication that the
other partner is cheating on him/her, has an STD, or is only interested in a causal relationship (Duncan et al., 2002). The actual meaning conveyed often depends on the situation and nature of the communication between partners. According to Hou (2009), a fear for some African American women was that their male partners would believe they were unfaithful if they suggested using condoms after consistently not using them. Trust issues often interfere with some African American college students’ ability to engage in safer sex (Duncan et al., 2002).

Few studies have examined the health of African American college students (Negga et al., 2007; Watkins et al., 2007). Even fewer have compared the stress of African American students who attend predominantly White institutions (PWIs) with African American students who attend Historically Black Colleges and Universities (HBCUs) (Negga et al., 2007). A PWI is an institution of higher learning in which Whites account for 50% or greater of the student enrollment (Encyclopedia of African American Education, 2010). In the state of Alabama, there are 21 PWIs that offer four year bachelor degrees or higher. The first HBCU in Alabama was established in 1867 (Alabama State University, 2015). There are now eight HBCUs in the state that offer Bachelor degrees or higher.

**Theory of Planned Behavior**

The Theory of Planned Behavior serves as a relevant framework for understanding how individuals’ attitudes, perceived behavioral control, and social norms relate to their intention to perform a behavior (Ronis, 2013). The Theory of Planned Behavior (TPB) is one of the most widely used social and behavioral theories (Glanz, Reimer, & Viswanath, 2008). The best predictor of behavior, according to the TPB, is one’s intention to perform that behavior (Ajzen, 1991).
The TPB was proposed by Icek Azjen to improve the predictive power of its original version, the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). TPB proposes that behavior is based primarily on intention. Intention is the extent to which someone is ready to engage in a certain behavior or the likelihood that someone will engage in a particular behavior (Fishbein, 1967; Ajzen & Fishbein, 1980). Intention is influenced by attitudes, subjective norms, volitional control, and behavioral control (Fishbein, 1967; Ajzen & Fishbein, 1980). The TPB has been used in several studies to research health behaviors (Ajzen & Fishbein, 1980; Ajzen, 1991; Ajzen & Driver, 1992; Ajzen, 2002; Bosompra, 2001; Cha et al., 2007; Cheung, Chan, & Wong, 1999; Collins & Carey, 2007; Froman & Owen, 1989; Gross, Rocissano, & Roncoli, 1989; Jemmott III et al., 2007; Prochaska et al., 1997; Rawl, Champion, Menon, & Foster, 2000).

The TPB is used to explain behaviors in which individuals can exert self-control (Ajzen, 1991; Ajzen & Driver, 1992). It helps explain the relationship between intention and behavior through perceived behavioral control as well as taking into account social norms and how important they can be in some behavior change (Ajzen, 1991; Ajzen & Driver, 1992). A primary strength of the TPB is its utility in successfully predicting and explaining a wide variety of health behaviors and intentions such as alcohol consumption, breastfeeding, substance use, smoking cigarettes(Ajzen, 1991; Ajzen & Driver, 1992; Ajzen, 2002; Bosompra, 2001; Cha et al., 2007; Cheung et al., 1999; Collins & Carey, 2007; Froman & Owen, 1989; Gross et al., 1989; Jemmott III et al., 2007; Prochaska et al., 1997; Rawl et al., 2000).

Another study explored the constructs that are important in shaping intention to use condoms among a large diverse group of African American adolescents (Wise et al., 2006). The researchers found that condom intentions were
strongly associated with behaviors for the sexually experienced youth (Wise et al., 2006). Condom use intentions in sexually active females was predicted by social norms and condom attitudes, but not perceived behavioral control, while condom use intentions in sexual active male were predicted by all three constructs of TPB (Wise et al., 2006). Among males that were not sexually active, subjective norms and perceived behavioral control were predictive of condom use intentions, while among sexually inexperienced females perceived behavioral control predicted condom use (Wise et al., 2006).

**TPB - Social Norms**

A subjective norm is the perceived social pressure to engage or not to engage in a certain behavior. Normative beliefs are the behaviors that we perceive to be important to the people in our lives (Ajzen, 2002). Grossman found that the difference between consistent and inconsistent condom users was in their perception of the pros and cons of condom use and the social norms for condom use (Grossman et al., 2008). College students have tended to over-estimate their risk of acquiring STIs and underestimate the use of protective behaviors, such as condom use among other students on campus (Martens et al., 2006; Trepka et al., 2008). Lewis, Melton, Succip and Rosenthal (2000) found that African American women do not perceive condom use as normative behavior among their female friends, and recommend that health educators develop programs designed to change the perception of condom use among African American women.

**TPB - Perceived Behavioral Control**

Perceived behavior control is another construct of the TPB and it is the construct that differentiates the TPB from the Theory of Reasoned Action. Behavioral control is the perceived control over the performance of a behavior (Azjen, 2002). Behavioral control is impacted by a set of control beliefs that will help or hinder the performance of that behavior (Azjen, 2002). A
behavior that is under volitional control is one in which a person is able to decide at will to engage in it or not (Ajzen, 1991). A woman may want to use a condom to engage in sexual activities; however, actual male condom use is not necessarily under her control. Condom use is significantly more likely if in addition to the woman’s intention, her male partner also has intentions to use a condom (de Visser & Smith, 2004).

Kanu and Kanu (2000) examined the perceived behavioral control of undergraduate African American students’ intention to use condoms. Based on the sample of 524 undergraduates enrolled in the HBCU, 287 were female, 237 were male participants between 18-24 years old. The researchers found that perceived behavioral control was the strongest factor in predicting behavioral intentions for both male and female participants (Kanu & Kanu, 2000). In addition, attitudes, social norms, and perceived behavioral control all predicted condom use intentions among African American male and female students (Kanu & Kanu, 2000).

TPB - Attitudes

Attitudes are formed by a series of beliefs and result in a value being placed on the outcome of the behavior (Ajzen, 2002). It is one’s favorable or unfavorable opinion regarding the health behavior of Interest (Ajzen, 2011). An attitude is an individual’s personal evaluation of a health behavior that influences a person’s intention or motivation to perform the health behavior.

Research has shown that attitudes influence condom use. For example, beliefs that condoms effectively prevent pregnancy and disease were associated with more consistent condom use (Wulfert & Wan, 1993). Jemmott (2007) found among adolescent Xhosa’s, adolescents who had positive attitudes towards condom use were more likely to then use them. In addition, perceptions of invulnerability to HIV were higher among inconsistent condom users than consistent condom users (Grossman et al., 2008).
Other related factors have also been associated with condom-related behaviors. For instance, many individuals, especially women, feel some discomfort in purchasing condoms (Ronis, 2013). Ronis (2013) found that the lower the reported religiosity of a person, then the more favorable their attitudes were toward birth control and condom use. Other factors that influence condom usage include low levels of neuroticism, frequent parent-child communication about sex, and previous sexual experience using condoms (Ronis, 2013).

**TPB - Intentions**

Behavioral intention is the best determinant of a particular health behavior according to the Theory of Planned Behavior (TPB) (Azjen, 1991). Thus, behavioral intention is the key construct in the theory. It is the perceived likelihood of performing a particular health behavior (Glanz, Reimer, & Viswanath, 2008). Essentially the stronger the intention to perform the behavior the more likely the behavior will be performed. Variance in intention is primarily a function of attitude towards the behavior, subjective norms, and perceived behavioral control, which is the perceived ease in which the behavior can be performed. Ronis (2013) found that after controlling for frequency of sex, individuals who obtained condoms more frequently were more likely to use them. In addition, Ronis (2013) found that college students who reported communicating with their parents about sex also reported feeling greater comfort purchasing condoms compared to those with less communication with parents.

One study found that condom use behavior is predictable from intention with a correlation of .43 (Gazabon et al., 2007). In minority women, the study found that living with a partner and having a higher socioeconomic status were associated with lower levels of condom use (Gazabon et al., 2007). Women who were in steady relationships and live with a partner may be at risk for HIV if they incorrectly perceive that they are at a low level of risk and do not use
condoms as a result (Gazabon et al., 2007). Maharaj and Cleland (2006) found that many times men and women did not use condoms the first time they had sex with a new partner because they did not expect to have intercourse and did not want to destroy the mood that was created. Baele, Dusseldorp, and Maes (2001) found that intentions to use condoms with non-sexually active individuals who are planning on engaging in sexual activity relies more on general efficacy cognitions. Intentions to use condoms in sexually experienced populations depend on the individual’s perceived skill at using a condom.

Jemmott (2007) found that the relationship between perceived behavioral control and attitudes were able to predict intentions among Xhosa adolescents in South Africa. They found that the predictive power of the Theory of Planned Behavior did not differ as a function of gender or sexual experience. There was a difference in the predictive power of the theory of planned behavior between the adolescents who preferred speaking in their native tongue of Xhosa and those who preferred English, where the theory was more predictive with those that preferred English. However a limitation of the study was that the researchers did not look at the subsequent condom use of the sample (Jemmott III et al., 2007).

Molla (2007) found that the Theory of Planned Behavior was applicable to adolescents in rural Ethiopia. In a study of 802 adults with a mean age of 20.7 years and 74.7% of the sample women, attitudes, perceived behavioral control, and social norms accounted for 36% of the observed variance in intentions to use condoms (Molla et al., 2007). In addition intentions, perceived behavioral control, social norms, and attitudes were able to account for 5.3% of the observed variance in actual condom use (Molla et al., 2007). The researchers concluded that the theory of planned behavior provides a fairly accurate description of the cognitive process that
underlies intentions but is less sufficient in accounting for self-reported condom use (Molla et al., 2007).

McEachan, Conner, Taylor, and Lawton (2011) conducted a meta-analysis that explored that efficacy of the Theory of Planned Behavior dependent on behavior and methodological moderators. Moderators such as behavior type, length of follow up, sample age, and behavioral measure were explored hierarchically among prospective tests of the TPB, and when possible the researchers controlled for past behavior. The search yielded 237 prospective tests from 206 articles, among behaviors such as physical activity and dieting the theory of planned behavior was able to explain 23.9% and 21.2% of the observed variance. However the TPB poorly predicted behaviors such as condom use, risk, and abstinence from drugs, where it was able to account for between 13.8% and 15.3% of the observed variance. In addition, McEachan (2011) found difference methodologically, where adolescents populations were better at predicting abstinent sexual behavior than older populations, and behaviors assessed in the shorter terms, and where self-reports were used compared to objective measure were better able to predict outcomes. It should be noted that within the TPB, the relationship between social norms and intention was strongest for predicting safe sexual behavior compared to other types of behavior. In addition, examining additional predictors to behaviors such as sexual behavior in conjunction to the TPB may be useful in explaining more of the observed variance in the actual behavior (McEachan et al., 2011).

**Stress and Sexual Behavior**

Many researchers have explored and established the relationship between stress and sexual behavior. Hall, Kusunaki, Gatny, and Barber (2014), examined the relationship between mental health symptoms and the frequency of sexual intercourse. Using panel data from a
longitudinal, population-based cohort study of 992 women ages 18-20, the researchers examined weekly journals that measured pregnancy history and socio-demographic, relationship, reproductive, mental health, sexual and contraceptive characteristic. Of the women that participated, 31% were African American, 57% reported being enrolled in a two or four year college, 77% were sexually active, and 48% reported having sex without using any type of birth control, including condoms (K. S. Hall et al., 2014). The researchers found that women who reported being stressed or depressed reported a greater number of sexually active weeks compared to women who did not report being stressed (K. S. Hall et al., 2014). Women who reported higher and more stress related symptoms also had an increased frequency of sexual intercourse (K. S. Hall et al., 2014).

Researchers examined stress associated with abuse and sexual behavior. For instance, a group of women with a history of childhood sexual abuse found that daily stress showed a significant and strong mediation effect on sexual arousal function (Zollman, Rellini, & Desrocher, 2013). In their sample of 62 women between the ages of 25-35, 85% had some college education, 11.1% self-identified as African American, and 77.4% reported some sort of childhood abuse. Daily stress had a bigger impact on sexual arousal than posttraumatic stress (Zollman et al., 2013). In another study by Overstreet, Willie, Hellmuth, and Sullivan (2015) on women who were experiencing psychological intimate partner violence, their sample population consisted of 186 HIV-negative community women between the ages of 18 and 54, 175 of whom identified as African American, and 72% of whom had a 12th grade education or less. The researchers found that the greater the severity of psychological impact from intimate partner violence, the more unprotected sexual behavior the women engaged in (Overstreet et al., 2015). One type of post-traumatic stress, the avoidance cluster (e.g. trying to avoid their emotions),
mediated the relationship between psychological intimate partner violence and sexual behavior (Overstreet et al., 2015).

Hamilton and Meston (2013) tested the relationship between chronic stress and sexual arousal, and attempted to explain the relationship. Using a sample of 30 heterosexually active women, two of whom were African Americans, they categorized women into two groups based on their stress levels (average and high stress); then they had the women watch an erotic film (Hamilton & Meston, 2013). During the film, they collected samples of the women’s saliva and measured their genital and psychological arousal. They found that women that had high levels of chronic stress had lower levels of genital arousal. Both psychological (distraction) and hormonal (increased cortisol) factors were related to the lower levels of sexual arousal seen in women high in chronic stress (Hamilton & Meston, 2013).

Another study investigated the high-risk sexual behavior of unprotected anal intercourse from the perspective of the theory of stress and coping (Folkman et al., 1992). They found no direct relationship between stress and unprotected anal sex in 398 non-monogamous gay and bisexual men (91% of whom were White). However there was a relationship between the ways in which the men coped with stress and high-risk sexual behavior (Folkman et al., 1992). Unprotected anal intercourse was negatively associated with spiritual activities and seeking social support. Unprotected anal sex was positively associated with self-controlling coping, positive appraisal, and using sex as a coping mechanism. This study suggests that social aspects of coping may be key in understanding the differences between those that engaging in high-risk sexual behavior to cope with stress and those who do not. The researchers suggest that people who cope by keeping their feelings to themselves may find it difficult to have conversations about unsafe sex (Folkman et al., 1992).
Elkington, Bauermeister and Zimmerman (2010) found that a greater amount of psychological distress was associated with increased frequency of intercourse, decreased condom use, and an increased number of partners. The researchers prospectively examined the mediating or moderating role of substance use over four years using a sample of 850 urban youth. Substance use fully mediated the relationship between psychological distress, intercourse frequency, and condom use (Elkington et al., 2010). Additionally, substance use partially mediated the relationship between psychological distress and number of sexual partners (Elkington et al., 2010).

In another study, the Alvy et al., (2011) examined the association between depression and sexual risk among high-risk men who have sex with men. They used a national sample of 1,540 men who had sex with men and reported sex and drug use with sexual partners. They found that depression was related to HIV transmission risk, but was mediated by self-efficacy and cognitive escape (Alvy et al., 2011). Sixteen percent (16%) of the sample was between the ages of 18 and 25, and 32% were Black (Alvy et al., 2011).

Hulland, et al., (2014) examined the association between stress levels and coping strategies used as predictors of sexual risk behavior engagement. The study was conducted over 24 months among 701 African American adolescent females whose average age of 17.6 years old. Global stress and individual coping methods were not associated with differences in condom use, however higher levels of interpersonal stress were associated with a lower proportion of condom use, inconsistent condom use, and not using a condom at all during last sexual encounter (Hulland et al., 2014).

Mincey and Norris (2014) used data from the National Longitudinal Study of Adolescent Health to examine whether and how differences exist in sexual health among African American
women. They examined the responses of 425 Black women of different ages. The researchers found that African American adult women between the ages of 18-27 engaged in more risky sexual behavior than young adult Black women between the ages of 25 and 34 (Mincey & Norris, 2014). They suggested that emerging young Black women may not have access to the same types of sexual health resources and may not fully comprehend the effects of perilous sexual behavior as their slightly older counterparts do (Mincey and Norris, 2014). They found that depressive symptoms in African women aged 18-27 were significantly associated with being in a casual sexual relationship when they were emerging adults.

The study by Mincey and Norris (2014) also found was that African American women who reported that their parents did not adequately provide for them engaged in more risky sexual behavior. In addition, emerging adults who did not have a strong social network reported more engagement in risky sexual behavior. Conversely, Reidy, Brookmeyer, Gentile, Berke, and Zeichner (2015) found that men who believed they were less masculine than the typical man and experienced distress stemming from that, engaged in more high-risk sexual behaviors and were diagnosed with more STIs.

Racism-Related Stress and Sexual Behavior

In African Americans, stress associated with racial/ethnic discrimination (i.e., racism-related stress) has been linked to sexual behavior. For example, one study found that in a sample of 526 Black heterosexual men, racial discrimination-based traumatic stress had a relationship with sexual risk behavior (Bowleg et al., 2014). Post-traumatic stress mediated the relationship between everyday racial discrimination and sexual risk behaviors such as unprotected vaginal and anal sex (Bowleg et al., 2014). According to Bowleg, et al. (2014), posttraumatic stress symptoms are not extraordinary for many urban Black men.
Another study examined if discrimination-related trauma was associated with unprotected anal sex when compared to non-discrimination related trauma by examining 131 African American men who reported having sex with men (E. L. Fields et al., 2013). They found that men who had experienced discrimination related interpersonal trauma in their lifetimes were more likely to have engaged in unprotected anal intercourse in the past three months (E. L. Fields et al., 2013). This research is consistent with studies that used the Minority Stress Model, which indicates that sexual minorities who experience discrimination-related stressors show greater adverse mental health outcomes (Herek, Gillis, & Cogan, 1999; Krieger, 1999). Research suggests that increased sexual risky behavior is a potential maladaptive avoidance or escape for coping with stressors such as discrimination (E. L. Fields et al., 2013; Herek et al., 1999; Martin et al., 2005; Parsons et al., 2005).

One study tested whether discrimination predicted condom use, risky sexual partners, and self-reported STI diagnosis among young, pregnant, socioeconomically disadvantaged, minority women (Rosenthal et al., 2014). The study interviewed 885 mostly Latina and Black women between the ages of 14 and 21 years old who were in their 2nd and 3rd trimesters of pregnancy. Everyday discrimination reported during the second and third trimester of pregnancy significantly predicted greater odds of having risky partners and contracting STI during the third trimester of pregnancy. Risky sexual partners in this study was defined as partners who had other sexual partners, was an intravenous drug user, HIV positive, has ever had an STI, a man who has ever had sex with other men, or has been in prison. The researchers controlled for known predictors of sexual risk including sexual risk knowledge, condom use norms, attitudes, barriers, and self-efficacy. In addition, they controlled for participant characteristics that can affect sexual risk such as food insecurity, employment status, relationship status, age, born in or
outside the United States, and race/ethnicity. Their results indicated that lifetime history of STIs and discrimination predicted a new STI diagnosis by the third trimester. The results were similar regardless of and whether the participants attributed the discrimination to racism verses other factors (Rosenthal et al., 2014).

Steven-Watkins, Brown-Wright, and Tyler (2011) examined the association between the number of lifetime sexual partners and race-related stress among African American adolescents. They examined 201 high school juniors and seniors at two urban high schools in the southeastern region of the United States. After controlling for gender and age at first intercourse, race-related stress significantly predicted the number of sexual partners. African American adolescent males reported higher race related stress and a higher number of sexual partners compared to African American females. The researchers suggested that teaching African American adolescents adaptive coping strategies to manage race-related stress could serve as a useful behavioral intervention to prevent risky sexual behaviors among African American adolescents (Stevens-Watkins et al., 2011).

Roberts, et al., (2012) found that there is a relationship between African American experiences with racial discrimination and their subsequent risky sexual behavior, namely unprotected sex, among a sample of 745 African American youth from Iowa and Georgia (Roberts et al., 2012). More than 88% of the youths in their sample reported at least some experience with racial discrimination (Roberts et al., 2012). Greater perceived discrimination reported at age 10 or 11 predicted more sexual risk taking in African American youths at age 18 or 19 (Roberts et al., 2012).

Another study examined the relationship between race-related and general stressors with psycho-educational adjustment in African American students (Neville et al., 2004). The
researchers collected data from 260 African American students who attended a PWI in the Midwest. The findings indicated high levels of perceived stress in race related stressors, interpersonal stressors, and academic stressors. Nonetheless, the African American students who had high levels of distress often did not acknowledge the high levels of race-related or academic stress (Neville et al., 2004).

Social Climate Stress

Social Climate stress refers to the perception that students may have that the campus environment is unwelcoming to members of their racial and ethnic group (Smedley et al., 1993). In terms of the health college students, Negga, Applewhite, and Livingston (2007) collected data from 344 undergraduates at a HBCU, and 165 undergraduates from a PWI. Results indicated that 94% and 17%, respectively, were African American. The top four sources of stress for African American students who attended the HBCU were death of a relative, low grades, time management, and boyfriend/girlfriend issues. Among African American students who attended the PWI, the top four sources of stress were low grades, time management, death of a relative, and class load. African American students attending the PWI reported lower levels of social support than the African American students who attended the HBCU. In addition, self-esteem was not significantly correlated with stress among students enrolled in the PWI but was among students at the HBCU. Negga, et al., (2007) suggest that African American students attending a PWI may need additional culturally sensitive counseling services that deals with issues of racial discrimination, isolation, and coping.

Jones, Castellones, and Jones (2002) interviewed 35 students of different ethnic backgrounds, including African Americans, Asian-Pacific Americans, Chicano/Latinos, and Native Americans, to explore their college experiences at a PWI. Most of the students reported
that there was a lack of support for diversity on campus. They also questioned the university’s commitment to diversity, especially related to faculty representation. Several also perceived their campuses were generally unwelcoming to racial/ethnic minorities. Students also reported a sense of “not belonging and feeling different”. One of the African American students in the study reported that the “administration spoke a lot about diversity but acted minimally towards creating a culturally tolerant and sensitive environment” (L. Jones et al., 2002). Students indicated not feeling a sense of collaborative effort to interact, unite, and form coalitions to address diversity. The feelings of isolation were sources of stress for these students (L. Jones et al., 2002).

**Interracial Stress**

Interracial stress captures perceptions of negative relations among students from different racial and ethnic groups, primarily with White students (Smedley et al., 1993). Interracial stress among African American students at PWIs has also been validated in research. Fries-Britt and Griffith (2007) interviewed nine African American students who attended a large public university and belonged to an honors program. Students discussed the pressure to constantly be aware of their actions and not exhibit stereotypical behavior. They believed their status as honor students accentuated this need (Fries-Britt & Griffin, 2007). Students also expressed the need to “code switch” or change their behavior depending on who was around, as well as the feeling of being a token, and only being invited to participate with certain events because they were Black and could “fit in” or adapt to the dominant culture (Fries-Britt & Griffin, 2007). The students mentioned the need to constantly prove themselves because they perceived others assumed they got into the school and honors program because of affirmative action. In turn, these perceptions sometimes caused students to doubt themselves (Fries-Britt & Griffin, 2007). The researchers indicated that the time and energy that African American students put into dispelling myths and
stereotypes about African Americans could potentially divert energy from studying (Fries-Britt & Griffin, 2007).

Minimal representation of ethnic minority students on campus can create additional expectations for highly involved students to represent ethnic minority communities in higher education (L. Jones et al., 2002). These students may feel an obligation to represent others and voice themselves to make a difference in the African American community. Moreover, research has also indicated that many African American students report “feeling like an outsider” at events that were not minority-specific, and admit to limiting their interaction across campus to exclusively ethnic-specific events and organizations (L. Jones et al., 2002). In addition, students reported being viewed as the “expert in their culture” and being asked to provide the “minority” perspective in class. Such views and requests have made them feel isolated and like “the token” (L. Jones et al., 2002). Collectively, these perceptions and experiences create stress among many African Americans at PWIs.

Watkins, Green, Goodson, Guldry, and, Stanley (2007) interviewed 24 Black men from an HBCU and 22 from a PWI were interviewed about sources of stress. Black men from the PWI reported more school-related stress than those attending the HBCU. Their sense of stress was connected to several sources including the following factors: their reports of racism; feeling like they were “carrying the weight of other Black students” (i.e., believing their actions would be used as the standard by which Whites judged or stereotyped all Blacks); “not falling into the stereotype” (i.e., being cautious about not acting in a way that was consistent with negative stereotypes of Blacks); and “not acting too White” (i.e., acting in a way that was representative of mainstream and not in a way that represented their ethnic culture) (Watkins et al., 2007). Both
groups of men affirmed that they did not devote time to worrying about their stressors, but rather focused on their work and other activities.

**Within Group Stress**

Within Group Stress refers to perceived pressure to conform to the norms of the student’s racial or ethnic group regarding language, behavior, and ways of thinking (Smedley et al., 1993). Ladwig and King (1992) found that among African American high school students there was a strong “black on black” pressure to not excel in school. To excel in school was a “white” trait, the researchers found that in those schools, there were not only low aspiration levels but classrooms were segregated by race (Ladwig & King, 1992).

Landor et al., (2013) analyzed data from a longitudinal sample of 767 African American families and found that families displayed preferential treatment towards offspring based on skin tones. They found that sons with darker skin tones received higher quality parenting and more warnings about the potential perils of interacting with other racial and ethnic groups compared to sons with lighter skin tones. Conversely, daughters with lighter skin tones received higher quality parenting compared to daughters with darker skin tones. Additionally, the gender of the child moderated the relationship between primary caregiver skin tone and the amount of warnings given about interactions outside of the black community. Where, the darker the complexion of the primary caregiver the more warnings they provided to their daughters. The lighter the complexion of the primary caregiver, the more warnings they provided to their sons. The researchers concluded that the results of their study suggested that colorism continues to be a salient issue within the African American community (Landor et al., 2013).
Achievement Stress

Achievement stress reflects the student’s concerns about the relative inadequacy of his or her academic preparation and ability that are compounded by group membership and family social class background (Smedley et al., 1993). Wheeler (2010) found that high academic achievement among adolescent women was significantly associated with lower odds of having sex for the first time and substance use. The study found that early sexual behavior was strongly associated with subsequent substance use and vice versa (Wheeler, 2010). Patrick, Maggs, and Abar (2007) found that college students with high academic goals were more likely to report viewing pregnancy and STIs as an important reason to not engage in sexual behavior. They indicated this might be reflective of the fact that individuals who engage in frequent sexual activity often report concern about pregnancy and contracting an STI. Individuals who have established important academic goals may be more conscientious and determined to not be distracted from their goals (Patrick et al., 2007). The researchers also found that students who reported ethical reasons for not engaging in sexual activity had less frequent sex activity, rated dating goals as less important, and reported higher academic goals (Patrick et al., 2007).

Summary

Sexually transmitted infections and disease rates in the US, Alabama, and among African Americans were discussed as consequences of sexually risky behaviors. As a sexually risky behavior, not using condoms during sexual intercourse was covered in this chapter. Contextual factors and other contributors of sexually risky behaviors among African Americans were discussed. Because stress is disproportionately high among African Americans and has been linked to sexual behavior, this relationship was explored, especially in how it affects African American college students who might be at higher risk for both. The constructs of the Theory of
Planned Behavior were reviewed as predictors of condom use in addition to the concept of stress. Finally, the rationale was provided for focusing on African American undergraduate students as the priority population for the proposed study. The purpose of this study was to examine the determinants of condom use among African American undergraduate students at predominantly White institutions. The methodology for this study will be presented in Chapter 3.
CHAPTER 3 - METHODOLOGY

The purpose of this study was to examine the determinants of condom use among African American undergraduate students attending predominantly White institutions (PWIs). This study utilized the Theory of Planned Behavior (TPB) (Ajzen, 1991; Ajzen & Driver, 1992; Ajzen, 2002) which has been widely used to predict a number of sexual health behaviors among college-age adults, including premarital sex, intention to use condoms, HIV/AIDS prevention behavior, and the use of contraceptives (Bosampra, 2001; Bogart, Cecil & Pinkerton, 2000; Cha, Doswell, Kim, Charron-Prochonik, & Patrick, 2007; DeVisscher & Smith, 2004; Kanu & Kanu, 2000). In addition, the relationship between stress, intention to use condoms, and actual condom use was examined. Little is known about African American students and their health behaviors, especially as it pertains to condom use (Biddix, Metney, Norman, & Martin, 2014).

The purpose of this chapter is to outline the methodology of this research study. This chapter will discuss the research design, the population on which the study focuses, and information about the instruments used. In addition, this chapter will discuss the specific sample for this study, recruitment techniques, and the process to modify the instrument. Following these, the chapter will discuss data collection, data analysis, Institutional Review Board (IRB) approval, and the timeline for the estimated duration of the study. This chapter will conclude with a review of the chapter.

Research Questions

This study investigated the following research questions:
To what extent do attitudes, subjective norms, perceived behavioral control, and intentions predict condom use among African American undergraduate students attending predominantly White institutions?

Is there a relationship between stress levels and condom use among African American undergraduate students attending predominantly White institutions?

Do stress levels moderate the relationship between attitudes, social norms, perceived behavioral control, intention and condom use among African American undergraduate students attending predominantly White institutions?

**Research Design**

This study employed a quantitative, non-experimental, cross-sectional survey design. A cross-sectional design provides a snapshot of the frequency of a health behavior in a population at a given time (Cottrell & McKenzie, 2011; Hennekens, 1987). A cross-sectional study may be descriptive and used to assess the distribution of a particular disease or health behavior in a population (Cottrell & McKenzie, 2011; Hennekens, 1987). It can also be used to investigate the association between a punitive risk factor and a health outcome (Cottrell & McKenzie, 2011; Hennekens, 1987). This study design is limited in its ability to draw conclusions about causality because risk factors and outcomes are being measured at the same time (Cottrell & McKenzie, 2011; Hennekens, 1987).

**Population**

The priority population for this study was African American undergraduates between the ages of 18 and 24 and who attended colleges and universities in the state of Alabama. In Alabama, there are 78 post-secondary institutions that are recognized by the US Department of Education (US Department of Education [USDE], 2015). A graphical representation of the
Alabama undergraduate student population is provided below in Graph 1. During the 2012-2013 academic year, there were 410,233 post-secondary students in Alabama, of which 350,776 were undergraduate students (USDE, 2015). Of these undergraduates, there were 102,759 African American students (37,734 men and 65,025 women) (USDE, 2015). Among the 36 institutions that offered baccalaureate degrees during 2012-2013, there were 202,454 undergraduate students during the 2012-2013 academic year; of these 58,025 were African American (22,870 men and 35,155 women) (USDE, 2015). The nine Historically Black Colleges and Universities (HBCUs) in Alabama during the 2012-2013 academic year had a total of 20,611 undergraduate students, of which 18,867 were African American (8,693 men and 10,174 women). The 27 PWIs in Alabama that offered baccalaureate degrees had a total of 181,843 undergraduate students, of which 39,158 were African American (14,177 men and 24,981).

Graph 3.1: 2013-2014 Alabama Undergraduate Student Population by Institution Type


Sample

The sample consisted of African American undergraduate students between the ages of 18 and 24 who attended predominantly White institutions (PWIs) in Alabama. A systematic approach was used in selecting the colleges and universities they attended. The institutions must
be accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACS). SACS is the recognized regional accrediting body for those institutions which award associate, baccalaureate, master’s, or doctoral degrees in 11 southern states: Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Virginia (SACS, 2014). In the state of Alabama there are 54 institutions that are SACS-accredited (SACS, 2014).

In addition to attending a SACS-accredited PWI, students can also be members of a Black Greek lettered organization that is part of the National Pan-Hellenic Council (NPHC). Although it was not required that students belong to an NPHC organization, special emphasis was placed on recruiting black students through these organizations. In order to join a NPHC organization, a student must attend a college or university that offers bachelor degree programs or higher. Therefore, only institutions with a level 2 designation or higher were eligible to participate in the study. Institutions with level 2 designations offer baccalaureate degrees, while institutions with level 3 designations offer baccalaureate and master degrees. Institutions with level 4 designations offer baccalaureate, master, and education specialist degrees. Institutions with level 5 designations offer baccalaureate, master, and three or fewer doctoral degrees. Institutions with a level 6 designation offer baccalaureate, master’s, and four or more doctoral degrees. Thirty institutions had level 2 designation or higher in Alabama. Of these 30 institutions, eight were HBCU and 22 were PWIs.

Out of the 22 PWIs in Alabama that are accredited by SACS, 13 had NPHC organizations on campus (Table 3.1). The average number of NPHC chapters at each eligible institution was six. However, most of these institutions did not publish the specific number of NPHC students they had online. Only two universities indicated the number of NPHC students. Based on the
The average percent of NPHC members at the two universities, and the student population at each university during the 2013-2014 academic year, the estimated number of NPHC members for each institution is provided in Table 3.1 below (USDE, 2015; University of Alabama, 2015; Troy University, 2015). In the course of obtaining IRB permission, it came to the researcher’s attention that one of the institutions was considered a predominantly Black institution. Another institution rejected the IRB request due to the low number of potential participants and their confidentiality.

### Table 3.1 PWIs in Alabama with NPHC Organizations

<table>
<thead>
<tr>
<th>Institution name</th>
<th>Total student</th>
<th>African American undergraduate students</th>
<th>Number of NPHC Chapters</th>
<th>Estimated NPHC members</th>
</tr>
</thead>
<tbody>
<tr>
<td>The University of Alabama</td>
<td>36155</td>
<td>3764</td>
<td>8</td>
<td>157</td>
</tr>
<tr>
<td>Auburn University</td>
<td>25912</td>
<td>1591</td>
<td>9</td>
<td>112</td>
</tr>
<tr>
<td>The University of Alabama at Birmingham</td>
<td>18698</td>
<td>3555</td>
<td>8</td>
<td>81</td>
</tr>
<tr>
<td>Troy University</td>
<td>16316</td>
<td>8642</td>
<td>8</td>
<td>71</td>
</tr>
<tr>
<td>University of South Alabama</td>
<td>16055</td>
<td>2858</td>
<td>8</td>
<td>71</td>
</tr>
<tr>
<td>Jacksonville State University</td>
<td>8659</td>
<td>2532</td>
<td>7</td>
<td>38</td>
</tr>
<tr>
<td>The University of Alabama in Huntsville</td>
<td>7348</td>
<td>911</td>
<td>5</td>
<td>32</td>
</tr>
<tr>
<td>University of North Alabama</td>
<td>7100</td>
<td>929</td>
<td>6</td>
<td>31</td>
</tr>
<tr>
<td>Auburn University at Montgomery</td>
<td>4334</td>
<td>1451</td>
<td>5</td>
<td>19</td>
</tr>
<tr>
<td>University of Montevallo</td>
<td>2620</td>
<td>389</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>Spring Hill College</td>
<td>1319</td>
<td>230</td>
<td>2</td>
<td>6</td>
</tr>
</tbody>
</table>


Two of the 11 institutions, Troy University and The University of Alabama, reported the number of students that were a part of NPHC organizations. Students who were a part of NPHC made up .31% to .56% of the total student population at these two institutions, an average of
.43%. Across all 11 institutions, based on their reported population sizes, there was an estimated 25,923 of African American students.

The power (1-β) of a statistical test refers to the probability of rejecting a false hypothesis (Type II error), or finding a difference or relationship between the factors investigated (Daniel & Cross, 2013). Power analyses are generally conducted prior to data collection in order to determine the appropriate sample size to make the outcome meaningful. The greater the power the higher the likelihood it is that the outcome is correct. However, as power increases the chance of having a Type I error also increases. A Type I error, is the probability of declaring a difference when it does not exist (Daniel & Cross, 2013). In public health, including health education & promotion, a power level of .80 is considered adequate and acceptable (Graviter & Wallnau, 2005). Sample sizes can be determined by specifying the desired power level, the alpha level (to monitor type I errors), and the estimated effect size. The effect size is the strength of the relationship and it is related to the coefficient of determination (R^2) in relation to linear regression models. The estimated effect size for this study is .15, where a small effect size is considered to be an R^2=.02, a medium effect size is around R^2=.13, and a large effect size is anything over R^2=.26 (Cohen, Cohen, West, & Aiken, 2003). Using the last research question of this study, a power analysis was conducted with G*Power version 3.1.9.1 (Faul, Erdfelder, Buchner, & Lang, 2009) to calculate the sample size for a linear multiple regression with the designated parameters (11 predictors; α = .05; effect size=.15; Power=.80). The calculation yielded a sample size range of n= 200 to 250. Due to the necessary sample size and the recommendation of the University of Alabama’s IRB to protect the anonymity and confidentiality of the participants, recruitment occurred from all 11 institutions with eligible students.
The inclusion criteria for student participation in this study included the following.

- Attend a SACS accredited institution in the state of Alabama
- Enrolled in an institution that offers baccalaureate degrees and higher
- Attend a predominantly White university
- Have undergraduate student status
- Between the ages of 18 and 24

**Instrument**

A survey was developed to include items that pertained to the four constructs of the Theory of Planned Behavior (TPB) (i.e., attitudes toward the behavior, subjective norms, perceived behavioral control, and behavioral intention) and which assessed stress (Ajzen, 1991; Ajzen & Driver, 1992; Ajzen, 2002). To assess the constructs of the TPB, the instrument included the “Intent to Condom Use Inventory” (Kanu and Kanu, 2000). To assess stress, the instrument included two scales: the Social Readjustment Rating Scale (Holmes & Rahe, 1967) and the Minority Student Stress Scale (Smedley, Myers, & Harrell, 1993). Additionally, questions pertaining to condom use and demographics were taken from the American College Health Association’s National College Health Assessment (ACHA-NCHA) (ACHA-NCHA, 2014).

**Intent to Condom Use Inventory**

The Intent to Condom Use Inventory was based on the Theory of Planned Behavior (Kanu & Kanu, 2000). It is a 62-item inventory that was developed from salient beliefs obtained from 10 open-ended questions about condom use and HIV risk behaviors. It was first utilized in a study with 524 African American undergraduates between the ages of 18-24, predominantly from HBCUs in non-metropolitan regions in the South. The scale addressed attitudes towards
condom use, subjective norms, perceived behavioral control, and behavioral intention towards using condoms on a five-point Likert scale (Kanu & Kanu, 2000). The Cronbach Alpha of reliability coefficient for the instrument was .90. The instrument had items that pertain to behavioral intentions, which is the likelihood of using condoms (Table 3.2). Attitudes are the personal evaluation of using condoms, and these items are in Table 3.3. Subjective norms are the belief that key people in one’s life approve or disapprove of using condoms during sexual intercourse; it also assesses the motivation to behave in a way that gains the approval of those significant persons (Table 3.4). Perceived behavioral control is the belief that one has and can exercise control over using condoms (Table 3.5).

<table>
<thead>
<tr>
<th>Table 3.2 Intent to Condom Use Inventory- Behavioral Intention</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
</tr>
<tr>
<td>Perceived likelihood of performing behavior</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
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<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Source: Kanu & Kanu, 2000
<table>
<thead>
<tr>
<th>Definition</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal evaluation of the behavior</td>
<td>I believe that using a condom does not make sex less pleasurable.</td>
</tr>
<tr>
<td></td>
<td>I believe that using condoms to avoid HIV/STD is too much trouble.</td>
</tr>
<tr>
<td></td>
<td>Condoms cost too much.</td>
</tr>
<tr>
<td></td>
<td>I believe it would be embarrassing to get a condom.</td>
</tr>
<tr>
<td></td>
<td>I believe that putting on a condom interrupts the smooth flow of sex.</td>
</tr>
<tr>
<td></td>
<td>I believe I would be at risk of getting HIV/STD if I have sex without a condom.</td>
</tr>
<tr>
<td></td>
<td>If I were to have sex, it would be insulting if my partner insisted we use a condom.</td>
</tr>
<tr>
<td></td>
<td>I believe that it would be difficult to use a condom every time one has sex.</td>
</tr>
<tr>
<td></td>
<td>I believe it is easy to talk to a partner using about using a condom.</td>
</tr>
<tr>
<td></td>
<td>It is the responsibility of the man to get a condom.</td>
</tr>
<tr>
<td></td>
<td>It is important to use a condom every time a person has sex.</td>
</tr>
<tr>
<td></td>
<td>I am afraid of getting HIV/STDs.</td>
</tr>
<tr>
<td></td>
<td>I believe if I always used a condom with a sex partner, it would greatly reduce my chances of getting HIV/STD.</td>
</tr>
<tr>
<td></td>
<td>It is important to use condoms correctly.</td>
</tr>
<tr>
<td></td>
<td>I believe I could persuade a partner that condoms should be used.</td>
</tr>
<tr>
<td></td>
<td>I believe I would go with my partner to get condoms.</td>
</tr>
</tbody>
</table>

Source: Kanu & Kanu, 2000
## Table 3.4 Intent to Condom Use Inventory- Subjective Norms

<table>
<thead>
<tr>
<th>Definition</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beliefs about whether key people approve or disapprove of the behavior; motivation to behave in a way that gains their approval</td>
<td>Most people who are important in my life think I should use a condom every time I have sex.</td>
</tr>
<tr>
<td></td>
<td>Most people who are important to me disapprove of my using a condom</td>
</tr>
<tr>
<td></td>
<td>My close friends expect their partners to accept using condoms.</td>
</tr>
<tr>
<td></td>
<td>My friends believe I should always use a condom, if I were to have sex.</td>
</tr>
<tr>
<td></td>
<td>Most women want their partners to use condoms</td>
</tr>
<tr>
<td></td>
<td>My friends do not believe in using condoms for sex.</td>
</tr>
<tr>
<td></td>
<td>My health teacher believes that using condoms for sex is smart.</td>
</tr>
<tr>
<td></td>
<td>My friends believe that it is stupid to not use condoms.</td>
</tr>
<tr>
<td></td>
<td>My religion thinks I should use a condom every time I have sex.</td>
</tr>
<tr>
<td></td>
<td>Doing what my parents (s)/guardian(s) want is important to me.</td>
</tr>
<tr>
<td></td>
<td>My friends believe that having sex with a new partner without using condoms is risky for getting HIV/STD.</td>
</tr>
<tr>
<td></td>
<td>If I were to have sex, my parents/guardians would want me to use a condom.</td>
</tr>
<tr>
<td></td>
<td>Doing what my friends want me to do is important to me.</td>
</tr>
<tr>
<td></td>
<td>My close friends think that it is not embarrassing to get a condom.</td>
</tr>
<tr>
<td></td>
<td>My friends think that teenagers who use condoms are smart.</td>
</tr>
<tr>
<td></td>
<td>My friends believe that using condoms is too much trouble.</td>
</tr>
<tr>
<td></td>
<td>Generally speaking, I want to do what most of my parents/guardians think I should do.</td>
</tr>
<tr>
<td></td>
<td>Generally speaking, I want to do what my health teacher thinks I should do.</td>
</tr>
<tr>
<td></td>
<td>Generally speaking, I want to do what my close friends think I should do.</td>
</tr>
</tbody>
</table>

Source: Kanu & Kanu, 2000
Table 3.5 Intent To Condom Use Inventory- Perceived Behavioral Control

<table>
<thead>
<tr>
<th>Definition</th>
<th>Questions</th>
</tr>
</thead>
</table>
| Belief that one has, and can exercise control over performing the behavior | I would feel comfortable getting a condom.  
I would not have sex if my partner refused to use a condom.  
I feel confident in my ability to use a condom correctly.  
I would feel comfortable getting condoms.  
If I were to have sex and my partner refused to use a condom, I feel like I could not do anything about it.  
I am comfortable discussing the importance of using condoms with a partner.  
If I were to have sex, I would be able to insist that we use condoms. |

Source: Kanu & Kanu, 2000

Social Readjustment Rating Scale

The Social Readjustment Rating Scale (SRRS) by Holmes and Rahe (1967) was created to quantify social and life stressors and their relationship with negative health outcomes. Studies have found modest correlations between the SRRS scores and heart attacks, broken bones, diabetes, multiple sclerosis, tuberculosis, complications of pregnancy and birth, decline in academic performance, employee absenteeism, and other difficulties (Carruthers, 1974; Clifford, Weaver, & Hay, 1989; Hojat, Garrity & Ries, 1985; Gonnella, Erdmann, & Vogel, 2003; Holmes & Rahe, 1967; Svensson & Theorell, 1983; Tennant, 1999). The scale was developed with men as participants but has since been validated in studies with women. In addition, it has been used with different populations in Japan, Latin America, Europe, and Malaysia (Ametz, et al., 1987; Miller & Rasmussen, 2010; Rahe, 1969). The modified scale that was used in this study includes social and life stressors items that are more appropriate to the college student population (Zitzow, 1984). It consists of 35 life events ranging from “change of major” to “death of close family member (Clements & Turpin, 1996; Insel & Roth, 1985; Linden, 1984; Zitzow, 1984).
The modified SRRS scale was designed for individual students and student service practitioners to easily measure students’ self-assessment of stress within academic, social, personal, and family-home environments (Zitzow, 1984). The modified SRRS was developed and administered to 1,146 college students to yield a summary of individual life events. Like the original scale it provides an individualized stress rating for each life event and allows for an overall stress assessment (Holmes & Rahe, 1967; Zitzow, 1984). It provides practitioners and students with a collective summary of the frequency and intensity of a student participation in certain life events. It also provides norms for stress intensity among college students (Zitzow, 1984). Since its modification, the SRRS for college student has been utilized in over 50 studies and on populations such as students of African descent, British university students, students that gamble, and college student social support groups (Batenburg & Das, 2014; Clements & Turpin, 1996; Lightsey, 2002; Kranzler, Scott, Tennen, Feinn, Williams et al., Covault, 2012).

On the SRRS, life events are assigned a score with the most disruptive life event receiving a higher score than less disruptive events (Clements & Turpin, 1996; Insel & Roth, 1985; Linden, 1984; Zitzow, 1984). Thus, “death of a close family member” would receive a score of 100, while “minor traffic violations” would receive a score of 20. Results with scores score below 150 are classified as having mild stress, which is associated with a 30% probability of getting sick in the near future. Scores between 150 and 300 represent moderate levels of stress and is associated with a 50% probability of getting sick in the near future. Scores above 300 represent a severely high stress level that is associated with an 80% chance of getting sick in the near future. The scale typically has students indicate their stressors during the past or previous year (Clements & Turpin, 1996; Ross, Niebling, & Heckert, 1999). However some studies asked students to report whether the events occurred in the past six months or if they anticipated them.
occurring in the next 6 months (Neely, Schallert, Mohammed, Roberts, & Chen, 2009).

Stressors were assessed for the past eight years in one study (Batenburg & Das, 2014). The items from the SRRS scale are in Table 3.6.

<table>
<thead>
<tr>
<th>Table 3.6 The Social Readjustment Rating Scale Modified for College Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Death of a close family member</td>
</tr>
<tr>
<td>Death of a close friend</td>
</tr>
<tr>
<td>Divorce between parents</td>
</tr>
<tr>
<td>Serious legal problems</td>
</tr>
<tr>
<td>Major personal injury or illness</td>
</tr>
<tr>
<td>Responsibilities for others, such as children/spouse</td>
</tr>
<tr>
<td>Threat to major source of income</td>
</tr>
<tr>
<td>Difficulty with roommate(s)</td>
</tr>
<tr>
<td>Change in health of a family member</td>
</tr>
<tr>
<td>Pregnancy</td>
</tr>
<tr>
<td>Sexual problems</td>
</tr>
<tr>
<td>Serious disagreements with parents</td>
</tr>
<tr>
<td>Change in lifestyle for financial reasons</td>
</tr>
<tr>
<td>Difficulty in identifying a major</td>
</tr>
<tr>
<td>Serious argument with close family member</td>
</tr>
<tr>
<td>Problems with a girlfriend or boyfriend</td>
</tr>
<tr>
<td>Having to repeat a course</td>
</tr>
<tr>
<td>Increased workload at school</td>
</tr>
<tr>
<td>Outstanding personal achievement</td>
</tr>
<tr>
<td>First semester in college</td>
</tr>
<tr>
<td>Change in living conditions</td>
</tr>
<tr>
<td>Serious disagreements with an instructor</td>
</tr>
<tr>
<td>Lower grades than expected</td>
</tr>
<tr>
<td>Change in sleeping habits</td>
</tr>
<tr>
<td>Change in social habits</td>
</tr>
<tr>
<td>Change in eating habits</td>
</tr>
<tr>
<td>Chronic car problems</td>
</tr>
<tr>
<td>Change in number of family get togethers</td>
</tr>
<tr>
<td>Too many missed classes</td>
</tr>
<tr>
<td>Change in plans for a major</td>
</tr>
<tr>
<td>Dropped more than one class</td>
</tr>
<tr>
<td>Minor traffic violations</td>
</tr>
</tbody>
</table>

Zitzow, 1984
**Minority Stress Scale**

Smedley, Myers, and Harrell (1993) developed the Minority Stress Scale to reflect unique and minority-specific stressors that minority students experience as well as the generic student role stresses that are compounded by race. The scale was created to determine and quantify the additional risk for poor college adjustment among minority students beyond that which is attributable to general student role strain and episodic life event stresses experienced by students (Smedley et al., 1993). Responses to survey items such as “too many people of my race are employed in low-status jobs at the university” and “being the first in my family to attend college” are presented on a six-point Likert scale that starts at zero (does not apply) to five (extremely stressful) (Smedley, Myers, & Harrell, 1993). The scale consists of five factors: social climate stresses, interracial stresses (role strain stress), racism and discrimination stress (racism-related stress), within-group stresses, and achievement stresses.

The Minority Stress Scale was originally used to examine the role of stress and coping on the adjustment of freshman students to college. The survey was conducted at a large, predominantly White university where the student population consisted of 7.1 percent African American (Smedley et al., 1993) (Smedley et al., 1993)(Smedley et al., 1993). The scale consists of 37 items that were obtained from issues and experiences garnered from a previous pilot study. The five subscales of the instrument have Cronbach alpha reliability coefficients that range from .76 to .93. This scale has been used on African American, Latino, Asian, and East Asian students (Byrd & McKinney, 2012; Chao et al., 2012; Cokley et al., 2013; B. J. Jones, 2014; Nora & Cabrera, 1996).
## Table 3.7 Minority Stress Scale- Social Climate Stress

<table>
<thead>
<tr>
<th>Definition</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stems from one’s relationships with others and from the social environment; an event does not have to occur in order for one to experience stress, the threat of an event can be sufficient (Kreiger, 2001)</td>
<td>The university does not have enough professors of my race</td>
</tr>
<tr>
<td></td>
<td>Few students of my race are in my classes</td>
</tr>
<tr>
<td></td>
<td>Racist policies and practices of the university</td>
</tr>
<tr>
<td></td>
<td>The university lacks concern and support for the needs of students of my race</td>
</tr>
<tr>
<td></td>
<td>Seeing members of my race doing low status jobs and Whites in high status jobs on campus</td>
</tr>
<tr>
<td></td>
<td>Few courses involve issues relevant to my ethnic group</td>
</tr>
<tr>
<td></td>
<td>Negative attitudes/treatment of students of my race by faculty</td>
</tr>
<tr>
<td></td>
<td>White students and faculty expect poor academic performance from students of my race</td>
</tr>
<tr>
<td></td>
<td>Pressure that what &quot;I&quot; do is representative of my ethnic group's abilities, behavior, and so on</td>
</tr>
<tr>
<td></td>
<td>Tense relationships between Whites and minorities at the university</td>
</tr>
<tr>
<td></td>
<td>The university is an unfriendly place</td>
</tr>
</tbody>
</table>

Smedley, Myers, and Harrell, 1993

## Table 3.8 Minority Stress Scale- Intercultural Stress

<table>
<thead>
<tr>
<th>Definition</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refers to having difficulties with other racial and ethnic groups including having White friends, a White-oriented campus climate etc</td>
<td>Difficulties with having White friends</td>
</tr>
<tr>
<td></td>
<td>Negative relationships between different ethnic groups at the university</td>
</tr>
<tr>
<td></td>
<td>The White-oriented campus culture of the university</td>
</tr>
<tr>
<td></td>
<td>Having to live around mostly White people</td>
</tr>
<tr>
<td></td>
<td>The lack of unity/ supportiveness among members of my race at the university</td>
</tr>
<tr>
<td></td>
<td>Trying to maintain my ethnic identity while attending the university</td>
</tr>
<tr>
<td></td>
<td>Having to always be aware of what White people might do</td>
</tr>
</tbody>
</table>

Smedley, Myers, and Harrell, 1993
### Table 3.9 Minority Stress Scale- Racism and Discrimination Stress (Racism Related Stress)

<table>
<thead>
<tr>
<th>Definition</th>
<th>Questions</th>
</tr>
</thead>
</table>
| Concerns related to personal experiences of prejudice and discrimination based on the person’s group membership (Arbona & Jimenez, 2014) | Being treated rudely or unfairly because of my race  
Being discriminated against  
White people expecting me to be a certain way because of my race (i.e., stereotyping)  
Others lacking respect for people of my race  
Having to "prove" my abilities to others (i.e., work twice as hard) |

Smedley, Myers, and Harrell, 1993

### Table 3.10 Minority Stress Scale- Within-Group Stress

<table>
<thead>
<tr>
<th>Definition</th>
<th>Questions</th>
</tr>
</thead>
</table>
| Captures perceived pressure to conform to the norms of the student’s group regarding language, behaviors, and ways of thinking (Arbona & Jimenez, 2014). | People close to me thinking I'm acting "White  
Pressures to show loyalty to my race (e.g., giving back to my ethnic group community  
Pressures from people of my same race (e.g., how to act, what to believe  
Relationships between males and females of my race (e.g., lack of available dating partner) |

Smedley, Myers, and Harrell, 1993

### Table 3.11 Minority Stress Scale- Achievement Stress

<table>
<thead>
<tr>
<th>Definition</th>
<th>Questions</th>
</tr>
</thead>
</table>
| A demand related to academics that tax or exceed the available resources (internal or external) as cognitively appeared by the student involved; reflects perception of individual’s academic frustration, conflict, pressure and anxiety (Bisht, 1989) | Doubts about my ability to succeed in college  
Feeling less intelligent or less capable than others  
My family has very high expectations for my college success  
My academic background for college being inadequate  
My family does not understand the pressures of college (e.g., amount of time or quiet needed to study)  
Being the first in my family to attend a major university |

Smedley, Myers, and Harrell, 1993
National College Health Assessment Questions

The National College Health Assessment (NCHA), conducted by the American College Health Association (ACHA), is a nationally recognized research survey that can assist researchers in collecting data about student’s health habits, behaviors, and perceptions (ACHA, 2015). It addresses a wide range of health issues including alcohol and drug use, sexual health, mental health, exercise and nutrition, and condom use. The specific items from the instrument that were used in this study are in Table 3.12.

Table 3.12 Condom Use Questions from ACHA-NCHA

<table>
<thead>
<tr>
<th>Question</th>
<th>Response Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within the last 12 months, with how many partners have you had oral sex, vaginal intercourse, or anal intercourse? (If you did not have a sex partner within the last 12 months, please enter 0)</td>
<td></td>
</tr>
<tr>
<td>Within the last 12 months, did you have sexual partner(s) who were male? Female? Transgender? Did you use a condom?</td>
<td></td>
</tr>
<tr>
<td>Within the last 30 days, did you have oral sex? vaginal intercourse? or anal intercourse?</td>
<td></td>
</tr>
<tr>
<td>How often did you use a condom?</td>
<td></td>
</tr>
<tr>
<td>In the last 30 days, how often did you or your partner(s) use a condom or other protective barrier (e.g. male condom, female condom, dental damn, or glove)?</td>
<td></td>
</tr>
<tr>
<td>Did you or your partner use a method of birth control to prevent pregnancy the last time you had vaginal intercourse?</td>
<td></td>
</tr>
</tbody>
</table>

Source: ACHA, 2015

The ACHA-NCHA also collects demographic information on students including whether individuals belong to a fraternity or sorority, year in school, and socioeconomic background (ACHA, 2015). An interdisciplinary team of college health professionals developed the ACHA-NCHA and then pilot tested the survey during the 1998-1999 academic year. Since that time the survey has continued to be implemented and rigorously tested (ACHA, 2015). The ACHA-NCHA is reliable, valid, and of empirical value for representing the nation’s students (ACHA,
The demographic questions from the ACHA-NCHA that were used for the proposed study are listed in Table 3.13.

Table 3.13 Demographic questions from ACHA-NCHA

<table>
<thead>
<tr>
<th>Questions</th>
<th>Answer Choices</th>
</tr>
</thead>
<tbody>
<tr>
<td>How old are you?</td>
<td>18 years old, 19 years old, 20 years old, 21 years old, 22 years old, 23 years old, 24 years old, Other</td>
</tr>
<tr>
<td>What is your year in school?</td>
<td>1st year undergraduate; 2nd year undergraduate; 3rd year undergraduate; 4th year undergraduate; 5th year undergraduate</td>
</tr>
<tr>
<td>What is your enrollment status?</td>
<td>Part time; Full time; Other</td>
</tr>
<tr>
<td>How do you usually describe yourself?</td>
<td>White; Black; Biracial; Hispanic or Latino; Asian</td>
</tr>
<tr>
<td>What is your relationship status?</td>
<td>Not in a relationship; in a relationship but not living together; in a relationship and living together</td>
</tr>
<tr>
<td>What is your marital status?</td>
<td>Single; Married/Partnered; Separated; Divorced</td>
</tr>
<tr>
<td>Where do you currently live?</td>
<td>Campus residence hall; Fraternity or Sorority house; Other college/university housing; Parent/guardian’s home; Other off-campus housing; Other</td>
</tr>
<tr>
<td>How many hours a week do you work for pay?</td>
<td>0 hours; 1-9 hours; 10-19 hours; 20-29 hours; 30-39 hours; 40 hours; more than 40 hours</td>
</tr>
<tr>
<td>How many hours a week do you volunteer?</td>
<td>0 hours; 1-9 hours; 10-19 hours; 20-29 hours; 30-39 hours; 40 hours; more than 40 hours</td>
</tr>
</tbody>
</table>

Source: ACHA, 2015

Modification of Instrument

To ensure that the current instrument was relevant in terms of terminology, readability, comprehension, length, completion time, and other issues, the instrument was piloted on seven students who attended a PWI. Piloting an instrument on a small sample is recommended for such purposes (Sharma & Petosa, 2014; Suskie, 1996). In the pilot process, students were instructed to circle words they did not understand or statements that were unclear. They were timed to determine approximately how much time it would take to complete the instrument. The survey
took approximately 12 minutes to complete. The students were also asked to provide suggestions for improving the instrument (Sharma and Petosa, 2014). The participants were recruited through modified snowball sampling (Beamon, 2014; Bell, 2014; Brown, Thomas, Willis, & Sutton, 2014; Weekes, Haas, & Gosselin, 2014). Both male and female students were recruited to participate and the survey was administered individually as students were recruited. The pilot study took place at the university, a public library, Panera Bread, Starbucks, and Barnes and Noble.

**Recruitment**

Data collection occurred between September 27, 2015 and December 5, 2015. The researcher used a variety of recruitment methods to recruit from the 11 universities and colleges. She used face-to-face recruitment methods such as attending African American student organization meetings, National PanHellenic Council (NPHC) sorority and fraternity events, and snowball methodology. Events that the researcher attended varied depending on the institution and the organization. Some events were social in nature, and at these the researcher distributed information about the study, a weblink to the Qualtrics survey, and her business cards. Other events were more professional in nature such as educational programs, philanthropic events, and regional conferences in which African American students hosted or attended. The same study information was provided at these events. An itemized list of specific activities utilized during the recruitment period is listed in Appendix P.

In addition to face-to-face recruitment, letters were emailed to the National PanHellenic Council coordinators at each eligible institution, as well as to each of the undergraduate NPHC chapters. Information about the study, an appeal to participate, the researcher’s contact information, and a weblink to the Qualtrics survey were provided in the correspondence.
Reminders about the surveys were emailed to the participating NPHC organizations at participating institutions as well as to individual students who provided the researcher with their contact information.

In addition to face-to-face recruitment and email correspondence, the researcher employed additional recruitment methods. The researcher contacted students through phone calls, emails, and social media. These methods were used in the initial contact and/or in follow-up with students. A psychology participant research pool was also utilized to recruit students into the study.

The snowball methodology was employed through the use of chapter advisors of the NPHC, sorority sisters of the researcher, and social media. Specifically, the researcher reached out to African American Students through Facebook, Instagram, and Twitter, as well as multiple Group Me groups. Through the researcher’s social media presence, which includes over two thousand Facebook friends, over 1000 Instagram followers, and over 400 twitter followers were potentially reached; the researcher connected to undergraduate African American students and requested that they take the survey, if they met the eligibility requirements. The social media indirect methods continued throughout the data collection period.

To help with outreach at participating institutions, the researcher obtained the support of her sorority sisters (who are BGLO members) at the University of Alabama and at other universities to distribute flyers in multicultural centers, Greek houses, and events. Several sorority sisters had indicated commitment to this effort and enlisted others to help. In addition, members of other BGLOs assisted the researcher with her recruitment efforts in their GroupMe’s, organization events, and regional meetings.
A master’s program student also assisted in the study recruitment. She participated in the recruitment aspect of this study as part of her Independent Study course in the master’s program. The student was pursuing her master’s degree in health sciences at the University of Alabama. Her research interests included the health impact of stress, sexual health, and health disparities, particularly among African Americans. She also had a background in health promotion and wellness, including healthy living initiatives and campus outreach. She had organized multiple safe sex forums on campus for African American students, and had a vast connection to the African American undergraduate student population both at the University of Alabama and multiple institutions within the state of Alabama. Specifically, the student assisted in sending emails, passed out flyers, and traveled with the researcher to the designated campuses across Alabama. She helped collect email addresses, distribute information about the study, and answer questions about the purpose of the study. In addition, the student also utilized her social media presence on Facebook, Instagram, and Twitter to notify students about the study and invite them to participate.

Data Collection

Data collection occurred through the Qualtrics online system. Qualtrics is a web-based survey tool, which offers the ability to create, edit, and distribute surveys that can range from simple to complex (Qualtrics, 2013). The software enables users to do many kinds of online research and analyses including market research, customer satisfaction and loyalty testing, and employee evaluations (Qualtrics, 2013; Wall Street Journal, 2012). Qualtrics has been used to collect data on African Americans, college students, sexual health, stress, and HIV risk behaviors (Abughosh, Wu, Peters, Hawari, & Essien, 2012; Arnetz et al., 1987; Backonja, Royer, & Lauver, 2014; Fletcher, 2013; Friedman et al., 2014; Herman et al., 2011; Janevic et al., 2012;
The response rate from online surveys used with college students is typically 33% (Nulty, 2008). The study participants were informed about Qualtrics through the recruitment process and the weblink that was provided to them.

Each participant at his/her convenience and privacy clicked on the link provided by the researcher and took the Qualtrics survey. When participants clicked on the weblink to the survey, they were greeted with a consent page that summarized the study and explained their rights as participants. In addition, the consent page reminded the participants that they should take the survey alone and in a private setting because of the personal nature of the questions. If an individual agreed to participate, then the student continued with the study. The participants then answered the inclusion criteria questions. If participants were ineligible to participate in the study, they were thanked for their willingness to participate, but told that they were ineligible and that the survey will end for them. Only students who consented to participate and met the inclusion criteria were able to proceed. Within the consent form on the first page and on the final page of the survey, the researcher’s contact information was provided to the participants so that they can contact her for any questions. Students that completed the survey were free to skip any questions they did not feel comfortable answering and were free to discontinue completion of it at any time. At the end of the survey, each participant was thanked for their participation.

Participant Protection

Students were asked to take the survey alone in a setting that was private and comfortable to them. Studies have shown that participants are more forthcoming with sensitive information on web-based surveys compared to other modes of data collection (Knapp, Whitter, Seeley, & St.
Disclosure in web-based surveys that address high-risk sexual behavior has been shown to be greater than in face-to-face data collection (Gerbert, et al., 1999). This is attributed to the impression that web-based surveys provide greater anonymity (Gerbert, et al., 1999).

In order to protect the information of the students, survey data was contained within a password-protected SPSS file on a secure computer. There was no way to link study participants with their survey results since the surveys did not contain identifying information. In addition, the sample participants were recruited from 11 institutions across the state of Alabama with no way to identify which institution the student attended. The data from the study was entered automatically from Qualtrics into SPSS on the researcher’s computer.

**IRB Approval**

Institutional Review Board approval from The University of Alabama was granted in August of 2015. IRB approval was then obtained from the other 10 institutions. Study approval and documentation are located in Appendix F through O.

**Data Analysis**

Using SPSS for IBM Statistics, Version 21.0 (IBM Corp, 2012), data analysis was performed on the completed and cleaned data set. Descriptive analyses were performed on several variables to describe the sample population. Additionally, frequencies, t-tests, preliminary correlations, regressions, and chi-squared analyses were performed to determine the basic relationships between variables. An exploratory factor analysis was conducted to ensure that related questions loaded together. Cronbach’s Alpha of reliability assessed the reliability of each scale in this study and of the overall instrument. It also measured the consistency of participant responses to the entire scale. An acceptable internal consistency for an instrument is a
reliability score of at least .60 (Hair, Black, Babin, Anderson, & Tatham, 2006). Below are the research questions and how the data was analyzed to answer the questions.

**Research Question 1:** To what extent do attitude, subjective norms, perceived behavioral control, and intentions predict condom use among African American undergraduate students attending predominantly White institutions?

- **Null Hypothesis:** Attitude toward condom use, subjective norms, perceived behavioral control, and intentions to use condoms will not significantly predict condom use among African American students attending predominantly White institutions.

- **Alternative Hypothesis:** Attitude toward condom use, subjective norms, perceived behavioral control, and intentions to use condoms will significantly predict condom use among African American students attending predominantly White institutions.

The purpose of Research Question 1 was to determine how much of the variance in condom use the Theory of Planned Behavior would explain for African American undergraduates who attend PWIs. Correlations were conducted between each of the constructs of the TPB as well as between each construct and condom use percent for each type of sexual behavior. In addition, multiple regressions were conducted that incorporated the four constructs and determined their relationship with condom use. Correlation analyses are helpful in measuring the strength of the relationship between variables. In this study the researcher used using Pearson’s correlation (Daniel & Cross, 2013). Linear multiple regression attempts to model the relation between two or more explanatory variables (in this case the constructs) and a response variable by fitting a linear equation to the observed data. Its aim is to provide an estimate of the magnitude and significance of hypothesized causal connection between sets of variables (Bullmore, Horwitz, Honey, Brammer, Williams, & Sharma, 2000; Stein, Wiedholz, Basset, Weinberger, Zink,
Mattay, & Meyer-Lindenberg, 2007). The p-values and percent variance explained were used to determine statistical and practical significance. The assumptions for this research questions are that the continuous predictors are normally distributed, homogeneity of variances exist, the data have a linear relationship, and the data are independent.

**Research Question 2:** Is there a relationship between stress levels and condom use among African American undergraduates attending predominantly White institutions?

- **Null Hypothesis:** There is no significant relationship between stress and condom use in African American undergraduate students attending predominantly White institutions.
- **Alternative Hypothesis:** There is a significant relationship between stress and condom use in African American undergraduate students attending predominantly White institutions.

The purpose of Research Question 2 was to determine the relationship between stress levels and condom use that have been suggested in the literature (Alvy et al., 2011; E. L. Fields et al., 2013; Folkman et al., 1992; Hood et al., 2013; Mincey & Norris, 2014; Roberts et al., 2012; Rosenthal et al., 2014). This analysis identified the strongest correlation between type of stress and condom usage. Pearson correlation analysis was used to measure the strength of the association between items (Wall, 2015). The assumptions of the Pearson correlation analysis are that the variables are either interval or ratio measurements, the variables are normally distributed, and there is a linear relationship between the variables. In addition, the test assumes that outliers are either kept to a minimum or they are removed, and that there is a homoscedasticity of the data (Laerd, 2013).

**Research Question 3:** Do stress levels moderate the relationship between attitudes, social norms, perceived behavioral control, intention and condom use among African American undergraduate students attending predominantly White institutions?
• **Null Hypothesis:** The relationship between the TPB constructs (attitudes, perceived behavioral control, subjective norms, and intentions) and condom use will not be significantly stronger or weaker for different levels of stress among African American undergraduate students attending predominantly White institutions.

• **Alternative Hypothesis:** The relationship between the TPB constructs (attitudes, perceived behavioral control, subjective norms, and intentions) and condom use will be significantly stronger or weaker for different levels of stress among African American undergraduate students attending predominantly White institutions.

The third research question determined if the Theory of Planned Behavior in conjunction with stress was able to account for more of the observed variance. A moderated multiple regression was conducted to address this research question. A moderated multiple regression analysis allows for the simple relationship between the independent and dependent variables to depend on the level of another independent variable (Erwin & McClelland, 2001). A moderator is a variable that changes the relationship between an independent variable and a dependent variable. A significant interaction between the moderator and independent variable means that the effect of the independent variable on the dependent variable changes depending on the level of the moderator (Louis, 2009). The moderated relationship is also known as an interaction. In this study, stress was investigated as a potential moderator in the relationship between intention, attitudes, perceived behavioral control, and social norms on actual condom use. This is the research question on which the power analysis was based. In moderated linear regressions, in order to have a significant interaction the independent variables do not need to be correlated with each other or with the dependent variable (Louis, 2009).
Conclusion

The methodology for the study was discussed in this chapter. The purpose was to examine the determinants of condom use among African American students attending predominantly White institutions. This study used a cross-sectional survey design to collect data through Qualtrics. The survey included items from four existing instruments. It was piloted and modified accordingly. Data was analyzed using SPSS 21.0. Results from the analyses will follow in Chapter 4.
CHAPTER 4 - RESULTS

The purpose of this study was to examine the determinants of condom use among African American undergraduates attending predominantly White institutions (PWIs). This study utilized the Theory of Planned Behavior (TPB) (Ajzen, 1991; Ajzen & Driver, 1992; Ajzen, 2002) which has been widely used to predict a number of sexual health behaviors among college-age adults, including premarital sex, intention to use condoms, HIV/AIDS prevention behavior, and the use of contraceptives (Bosampra, 2001; Bogart, Cecil & Pinkerton, 2000; Cha, Doswell, Kim, Charron-Prochonik, & Patrick, 2007; DeVisser & Smith, 2004; Kanu & Kanu, 2000). In addition, the relationship between stress, intention to use condoms, and actual condom use was examined.

The purpose of this chapter is to provide the results of this study. All quantitative analyses were performed on SPSS version 21.0. This chapter will discuss the outcome variables used, reliabilities of the instruments used, as well as the overall instrument. This chapter also will describe the demographics of the sample population, college related demographics, and an overview of the sample’s sexual behavior. The results of the analyses for each research question will also be presented.

Sample Characteristics

Overall, 311 students accessed the weblink to the survey. However, 108 did not give consent to participate (9), did not attend a PWI (44), were not African American (12), or did not answer any stress questions from the Social Readjustment Rating Scale Modified for College Students or the Minority Stress Scale (43). Therefore, they were excluded from data analysis.
Students were recruited from 11 PWI institutions across the state of Alabama with Institutional Review Board permission obtained from each institution.

Table 4.1 Demographic Characteristics of Study Sample (N=203)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender Identity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>61</td>
<td>30.0</td>
</tr>
<tr>
<td>Female</td>
<td>142</td>
<td>70.0</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>41</td>
<td>23.0</td>
</tr>
<tr>
<td>19</td>
<td>29</td>
<td>16.3</td>
</tr>
<tr>
<td>20</td>
<td>22</td>
<td>12.4</td>
</tr>
<tr>
<td>21</td>
<td>21</td>
<td>11.8</td>
</tr>
<tr>
<td>22</td>
<td>34</td>
<td>19.1</td>
</tr>
<tr>
<td>23</td>
<td>17</td>
<td>9.6</td>
</tr>
<tr>
<td>24</td>
<td>14</td>
<td>7.9</td>
</tr>
<tr>
<td><strong>Relationship status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not in a relationship</td>
<td>116</td>
<td>62.4</td>
</tr>
<tr>
<td>In a relationship but not living together</td>
<td>56</td>
<td>30.1</td>
</tr>
<tr>
<td>Living together</td>
<td>14</td>
<td>7.5</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>181</td>
<td>97.3</td>
</tr>
<tr>
<td>Married/Partnered</td>
<td>5</td>
<td>2.7</td>
</tr>
</tbody>
</table>

Two hundred and three students (N=203) participated in the survey. Among these, 70% were women, the mean age was 20.24 (SD=2.094), and 62.4% were not in a relationship (Table 4.1). Further, 42.9% were in a National PanHellenic Council organization, 40.3% did not work, 60.7% lived off campus, and 24.9% were 4th year undergraduates (Table 4.2).

In terms of sexual behavior, 80.4% of participants had at least one sexual partner in the past year (Table 4.3). The number of sexual partners over the past 12 months ranged from 0 to 109. The total number of sexual partners summed the number of sexual partners during oral, vaginal, and anal sex the past 12 months. The number of sexual partners over the past 30 days ranged from 0 to 31. In terms of oral sex, 62.0% of the participants had between 1 and 5 partners...
over the past 12 months and 53.7% had between 1 and 5 partners the past 30 days. In terms of vaginal sex, 59.5% of the participants had between 1 and 5 partners in the past 12 months, and 42.9% had between 1 and 5 vaginal sex partners in the past 30 days. In terms of anal sex, 8.9% of the participants had between 1 and 5 anal sex partners over the past 12 months while 4.4% had between 1 and 5 anal sex partners over the past 30 days. When partner gender was cross tabulated with participant gender, nine women reported having female sexual partners compared to 52 men who reported women as their sexual partners (Table 4.3a). Conversely, five men reported having male sexual partners compared to 120 women who reported having male sexual partners. Seven women and two men reported having both male and female sexual partners in the past 12 months.

Table 4.4 provides descriptive results for condom use during sexual behaviors (oral, vaginal, and anal sex) over the past 12 months and 30 days. The distributions of the outcome variables were skewed, normally distributed data usually has a skew value between -2 and 2 (D. George, 2003). The distributions for percent condom use during sexual behaviors were leptokurtic. Leptokurtic occurs when the kurtosis has a value greater than 3 (DeCarlo, 1997). In order to address the non-normality of the sample, the square root of the variables were taken (and since the data has a positive skewness), it was transformed using the square root method (Tabachnick & Fidell, 2007). Due to the low number of participants who engaged in anal sex over the past 12 months and 30 days, no analyses were conducted on only anal sex variables. Analyses were conducted on oral, vaginal, and anal sex combined the last 30 days and 12 months.
<table>
<thead>
<tr>
<th>Characteristics</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NPHC membership</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>87</td>
<td>42.9</td>
</tr>
<tr>
<td>No</td>
<td>116</td>
<td>57.1</td>
</tr>
<tr>
<td><strong>Year in School</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st year undergraduate</td>
<td>43</td>
<td>24.3</td>
</tr>
<tr>
<td>2nd year undergraduate</td>
<td>31</td>
<td>17.5</td>
</tr>
<tr>
<td>3rd year undergraduate</td>
<td>26</td>
<td>14.7</td>
</tr>
<tr>
<td>4th year undergraduate</td>
<td>44</td>
<td>24.9</td>
</tr>
<tr>
<td>5th year undergraduate</td>
<td>33</td>
<td>19.6</td>
</tr>
<tr>
<td><strong>Enrollment Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full time</td>
<td>173</td>
<td>93.5</td>
</tr>
<tr>
<td>Part time</td>
<td>6</td>
<td>3.2</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>3.2</td>
</tr>
<tr>
<td><strong>Living situation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Campus residence hall</td>
<td>69</td>
<td>37.7</td>
</tr>
<tr>
<td>Fraternity or Sorority house</td>
<td>3</td>
<td>1.7</td>
</tr>
<tr>
<td>Off campus housing</td>
<td>111</td>
<td>60.7</td>
</tr>
<tr>
<td><strong>Hours worked per week</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>77</td>
<td>40.3</td>
</tr>
<tr>
<td>1-10</td>
<td>13</td>
<td>6.8</td>
</tr>
<tr>
<td>11-20</td>
<td>54</td>
<td>27.2</td>
</tr>
<tr>
<td>21-30</td>
<td>22</td>
<td>11.5</td>
</tr>
<tr>
<td>31-40</td>
<td>24</td>
<td>12.6</td>
</tr>
<tr>
<td>41+</td>
<td>20</td>
<td>1.6</td>
</tr>
<tr>
<td><strong>Hours volunteered per week</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>89</td>
<td>46.6</td>
</tr>
<tr>
<td>1-10</td>
<td>88</td>
<td>46.1</td>
</tr>
<tr>
<td>11-20</td>
<td>29</td>
<td>6.8</td>
</tr>
<tr>
<td>21-30</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>31-40</td>
<td>3</td>
<td>1.6</td>
</tr>
<tr>
<td>41+</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Characteristics</td>
<td>12 months</td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>Percent</td>
</tr>
<tr>
<td><strong>Number of Total Sexual partners</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>39</td>
<td>19.6</td>
</tr>
<tr>
<td>1-5</td>
<td>108</td>
<td>54.3</td>
</tr>
<tr>
<td>6-10</td>
<td>30</td>
<td>15.1</td>
</tr>
<tr>
<td>11-15</td>
<td>7</td>
<td>3.5</td>
</tr>
<tr>
<td>16-20</td>
<td>4</td>
<td>2.0</td>
</tr>
<tr>
<td>21-25</td>
<td>8</td>
<td>4.0</td>
</tr>
<tr>
<td>26-30</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>30+</td>
<td>3</td>
<td>1.5</td>
</tr>
<tr>
<td><strong>Number of Oral sex partners</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>60</td>
<td>29.6</td>
</tr>
<tr>
<td>1-5</td>
<td>126</td>
<td>62.1</td>
</tr>
<tr>
<td>6-10</td>
<td>11</td>
<td>5.4</td>
</tr>
<tr>
<td>11-15</td>
<td>3</td>
<td>1.5</td>
</tr>
<tr>
<td>16-20</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>21-25</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>26-30</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>31+</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td><strong>Number of Vaginal Sex partners</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>56</td>
<td>27.6</td>
</tr>
<tr>
<td>1-5</td>
<td>121</td>
<td>59.5</td>
</tr>
<tr>
<td>6-10</td>
<td>16</td>
<td>7.9</td>
</tr>
<tr>
<td>11-15</td>
<td>3</td>
<td>1.5</td>
</tr>
<tr>
<td>16-20</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td>21-25</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td>26-30</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>30+</td>
<td>4</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Number of Anal Sex partners</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>183</td>
<td>90.1</td>
</tr>
<tr>
<td>1-5</td>
<td>18</td>
<td>8.9</td>
</tr>
<tr>
<td>6-10</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td>11-15</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>16-20</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>21-25</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>26-30</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>30+</td>
<td>1</td>
<td>.5</td>
</tr>
</tbody>
</table>
Table 4.3a  Gender of Sexual Partner by Participant Gender

<table>
<thead>
<tr>
<th>Participants</th>
<th>Gender of Sexual Partners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
</tr>
<tr>
<td>Male</td>
<td>5</td>
</tr>
<tr>
<td>Female</td>
<td>120</td>
</tr>
</tbody>
</table>

There were eight outcome variables that were the basis of the analyses, which are provided in Table 4.4. The percent of condom usage over the past year ranged from 0 to 100%, from never using a condom during oral sex to always using a condom during a particular sexual behavior. After controlling for individuals that did not have sex of any kind over the past 12 months, measures of central tendency of condom use were examined.

Only participants who reported having oral, vaginal, or anal sex the past 12 months were asked about their sexual behavior over the past 30 days. Those individuals were asked both about their number of sexual partners and percentage of condom use during their particular sexual behavior the past 30 days. The variable “percent condom use with anal, oral, and vaginal sex over the past 12 months” was the percent condom usage during all forms of sexual behavior over the past 12 months. The variable “percent condom use with anal, oral, and vaginal sex the past 30 days” was the percent condom use during all forms of sexual behavior over the past 30 days.
Table 4.4 Outcome Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>% Zero</th>
<th>Std. D</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent condom usage with oral sex the past 12 months</td>
<td>164</td>
<td>5.79</td>
<td>76.8</td>
<td>0.22</td>
<td>3.99</td>
<td>14.40</td>
</tr>
<tr>
<td>Percent condom usage with vaginal sex the past 12 months</td>
<td>164</td>
<td>16.60</td>
<td>30.5</td>
<td>0.32</td>
<td>1.99</td>
<td>2.29</td>
</tr>
<tr>
<td>Percent condom usage with anal sex the past 12 months</td>
<td>20</td>
<td>5.95</td>
<td>93.9</td>
<td>0.22</td>
<td>12.71</td>
<td>162.27</td>
</tr>
<tr>
<td>Percent condom usage with oral sex the past 30 days</td>
<td>102</td>
<td>7.13</td>
<td>85.3</td>
<td>0.25</td>
<td>3.45</td>
<td>10.11</td>
</tr>
<tr>
<td>Percent condom usage with vaginal sex the past 30 days</td>
<td>120</td>
<td>13.94</td>
<td>46.7</td>
<td>0.31</td>
<td>2.25</td>
<td>3.47</td>
</tr>
<tr>
<td>Percent condom usage with anal sex the past 30 days</td>
<td>9</td>
<td>10.50</td>
<td>70.0</td>
<td>0.31</td>
<td>3.16</td>
<td>9.97</td>
</tr>
<tr>
<td>Percent condom use with anal, oral, and vaginal sex the past 12 months</td>
<td>164</td>
<td>12.36</td>
<td>29.8</td>
<td>0.26</td>
<td>2.51</td>
<td>5.28</td>
</tr>
<tr>
<td>Percent condom use with anal, oral, and vaginal sex the past 30 days</td>
<td>123</td>
<td>12.21</td>
<td>49.6</td>
<td>0.28</td>
<td>2.46</td>
<td>4.72</td>
</tr>
</tbody>
</table>

All of the outcome variables had non-normal distributions in terms of skewness and kurtosis (Table 4.4). Of the individuals who were sexually active in the past 12 months, 29.8% of them did not use a condom during any form of sexual behavior. Conversely, of the individuals that were sexually active the past 30 days, 49.6% of them did not use a condom during any of their sexual behavior. In order to address this, only individuals with at least one sexual partner in the past 12 months were included in the analysis. In addition, the square roots were taken for all the condom use percentages in order to make the outcomes closer to normal (Table 4.4a). All of the regression analyses that were conducted on these outcome variables used the backward method (A. Fields, 2005).
Table 4.4a Outcome Variables, Square Root  

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>% Zero</th>
<th>Std. D</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent condom usage with oral sex the past 12 months</td>
<td>164</td>
<td>8.37</td>
<td>76.8</td>
<td>0.23</td>
<td>3.39</td>
<td>10.74</td>
</tr>
<tr>
<td>Percent condom usage with vaginal sex the past 12 months</td>
<td>164</td>
<td>25.65</td>
<td>30.5</td>
<td>0.32</td>
<td>1.48</td>
<td>0.89</td>
</tr>
<tr>
<td>Percent condom usage with anal sex the past 12 months</td>
<td>20</td>
<td>1.40</td>
<td>93.9</td>
<td>0.08</td>
<td>10.07</td>
<td>114.63</td>
</tr>
<tr>
<td>Percent condom usage with oral sex the past 30 days</td>
<td>102</td>
<td>8.19</td>
<td>85.3</td>
<td>0.26</td>
<td>3.26</td>
<td>9.15</td>
</tr>
<tr>
<td>Percent condom usage with vaginal sex the past 30 days</td>
<td>120</td>
<td>20.30</td>
<td>46.7</td>
<td>0.31</td>
<td>1.74</td>
<td>1.71</td>
</tr>
<tr>
<td>Percent condom usage with anal sex the past 30 days</td>
<td>10</td>
<td>13.15</td>
<td>70.0</td>
<td>0.31</td>
<td>2.92</td>
<td>8.78</td>
</tr>
<tr>
<td>Percent condom use with anal, oral, and vaginal sex the past 12 months</td>
<td>164</td>
<td>21.95</td>
<td>29.8</td>
<td>0.28</td>
<td>1.70</td>
<td>1.93</td>
</tr>
<tr>
<td>Percent condom use with anal, oral, and vaginal sex the past 30 days</td>
<td>123</td>
<td>18.47</td>
<td>49.6</td>
<td>0.30</td>
<td>1.84</td>
<td>2.14</td>
</tr>
</tbody>
</table>

**Psychometric Properties**  

The survey used in this study consisted of three scales: Intent to Condom Use Inventory, Social Readjustment Rating Scale Modified for College Students, and the Minority Stress Scale. In addition, items from the American College Health Association’s National College Health Assessment (ACHA-NCHA) were used. The items from the ACHA-NCHA included the outcome variables and demographics; however, the demographic questions were not included in the reliability analysis. All of the instruments had previously established measures of reliability and validity in African American college populations. For this study, internal consistency reliability was determined for each scale using Cronbach’s Alpha. The reliabilities for each scale,
the selected items from the ACHA-NCHA, as well as the overall instrument are located in Table 4.5. Cronbach’s Alpha of Reliability is considered to be acceptable at .70, good at .80 or higher, and excellent at .90 or higher (George and Mallery, 2003; Gliem and Gliem, 2003). The reliability of the ACHA-NCHA test items may be lower than expected because only certain items were selected from the overall instrument. The main instruments that this instrument was composed of were all in the acceptable range. The overall instrument with the exception of the items selected from the ACHA-NCHA had a reliability that is considered good. Table 4.5a shows the reliability of the subscales of the Intent to Condom Use Inventory; attitudes, social norms, perceived behavioral control, and intentions. The Social Readjustment Scale Modified for College Students does not have subscales; therefore, no subscale reliabilities were conducted. Table 4.5b shows the reliabilities of the subscales of the Minority Stress Scale: social climate stress, interracial stress, racism related stress, within group stress, and achievement stress.
Table 4.5 Reliabilities of the Scales

<table>
<thead>
<tr>
<th>Scale</th>
<th>Cronbach’s Alpha</th>
<th>Level of Acceptability</th>
<th>Std. Deviation</th>
<th>Hotelling T-squared sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intent to Condom Use Inventory</td>
<td>.800</td>
<td>Good</td>
<td>14.85</td>
<td>.001</td>
</tr>
<tr>
<td>Social Readjustment Scale</td>
<td>.788</td>
<td>Acceptable</td>
<td>4.63</td>
<td>.001</td>
</tr>
<tr>
<td>Minority Stress Scale</td>
<td>.941</td>
<td>Excellent</td>
<td>23.59</td>
<td>.001</td>
</tr>
<tr>
<td>ACHA-NCHA</td>
<td>.697</td>
<td>Acceptable</td>
<td>103.75</td>
<td>.001</td>
</tr>
<tr>
<td>Overall instrument*</td>
<td>.896</td>
<td>Excellent</td>
<td>31.83</td>
<td>.001</td>
</tr>
</tbody>
</table>

*Tests were conducted with the selected ACHA-NCHA items excluded

Table 4.5a Reliabilities of the Intent to Condom Use Inventory Subscales

<table>
<thead>
<tr>
<th>Construct</th>
<th>Cronbach’s Alpha</th>
<th>Level of Acceptability</th>
<th>Hotelling T-squared sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>.724</td>
<td>Acceptable</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Social Norms</td>
<td>.689</td>
<td>Acceptable</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Intentions</td>
<td>.828</td>
<td>Good</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Perceived Behavioral Control</td>
<td>.705</td>
<td>Acceptable</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Table 4.5b Reliabilities of the Minority Stress Scale

<table>
<thead>
<tr>
<th>Construct</th>
<th>Cronbach’s Alpha</th>
<th>Level of Acceptability</th>
<th>Hotelling T-squared sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Climate Stress</td>
<td>.897</td>
<td>Excellent</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Interracial Stress</td>
<td>.872</td>
<td>Good</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Racism- Related Stress</td>
<td>.917</td>
<td>Excellent</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Within Group Stress</td>
<td>.849</td>
<td>Good</td>
<td>.202</td>
</tr>
<tr>
<td>Achievement Stress</td>
<td>.735</td>
<td>Acceptable</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>
Research Questions

Research Question 1. The first research question asked, “To what extent do attitude, subjective norms, perceived behavioral control, and intentions predict condom use among African American undergraduate students attending predominantly White institutions?” The descriptive statistics for the predictor variables for the Theory of Planned Behavior are in Table 4.6. The variable labeled “Social Norms” is the average score of all of the social norm questions; “Attitudes” is the average score of all the attitude questions. “Perceived Behavioral Control” is the average score of all the perceived behavioral control questions. “Intentions” is the average score of all the Intention questions. For each construct, the results of the questions were summed and then divided by the number of questions asked. All of the construct questions were scored on a 5-point Likert scale in which 1=strongly disagree and 5=strongly agree. Recodes were conducted for some questions because they were inversely related. For instance, for the item, “condoms are expensive,” student may strongly agree with this statement, but it was inversely related to the bulk of questions (e.g., “I feel comfortable asking my partner to use a condom”). All of the TPB variables had normal distributions (DeCarlo, 1997; D. George, 2003).

Table 4.6 Theory of Planned Behavior Predictor Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Norms</td>
<td>3.66</td>
<td>0.44</td>
<td>0.32</td>
<td>-0.39</td>
</tr>
<tr>
<td>Attitudes</td>
<td>4.00</td>
<td>0.44</td>
<td>-0.12</td>
<td>-0.71</td>
</tr>
<tr>
<td>Perceived Behavioral Control</td>
<td>3.84</td>
<td>0.58</td>
<td>-0.94</td>
<td>1.87</td>
</tr>
<tr>
<td>Intentions</td>
<td>3.88</td>
<td>0.68</td>
<td>-0.16</td>
<td>-0.62</td>
</tr>
</tbody>
</table>

Correlations were conducted between each of the constructs of the Theory of Planned Behavior. All of the predictor variables were significantly correlated with each other at the p <
.01 level (Table 4.8). The results of the individual regressions between each TPB construct and each outcome variable were conducted before the overall regressions.

Table 4.7 Correlations Between The Theory of Planned Behavior Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Social Norms</th>
<th>Attitudes</th>
<th>Perceived Behavioral Control</th>
<th>Intentions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Norms</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Attitudes</td>
<td>0.42**</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Perceived Behavioral Control</td>
<td>0.21**</td>
<td>0.48**</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Intentions</td>
<td>0.40**</td>
<td>0.62**</td>
<td>0.60**</td>
<td>1</td>
</tr>
</tbody>
</table>

**Correlation is significant at the .01 level (2 tailed)**

A regression analysis was conducted. The TPB variables social norms, attitudes, and perceived behavioral control were significant predictors of intentions (p < .001) and accounted for 73.3% of the observed variance in intentions.

Table 4.8 provides the results of the TPB model and percent condom use with percent condom use during oral sex for both 30 days and 12 months. In the regression containing all of the constructs of the Theory of Planned Behavior and condom use with oral sex in the last 12 months, the final model was significant (p=.011). In the final model, intentions was significant and able to explain 3.4% of the observed variance in percent condom use during oral sex the past 12 months. In the regression with all the constructs of the Theory of Planned Behavior and condom use with oral sex in the last 30 days, neither the model nor any variables within the model acquired significance.
Table 4.8 Regression Results for TPB and Condom Use During Oral Sex in Last 12 months and 30 Days

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable</th>
<th>Beta</th>
<th>P</th>
<th>Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 Months</td>
<td>Initial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perceived Behavioral Control</td>
<td>-0.001</td>
<td>0.99</td>
<td>.018</td>
</tr>
<tr>
<td></td>
<td>Social Norms</td>
<td>0.02</td>
<td>0.813</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attitude</td>
<td>0.057</td>
<td>0.572</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intentions</td>
<td>0.162</td>
<td>0.147</td>
<td></td>
</tr>
<tr>
<td>Final</td>
<td>Intentions</td>
<td>.201</td>
<td>.011*</td>
<td>.034</td>
</tr>
<tr>
<td>30 days</td>
<td>Initial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Norms</td>
<td>-0.157</td>
<td>0.142</td>
<td>.032</td>
</tr>
<tr>
<td></td>
<td>Perceived Behavioral Control</td>
<td>-0.141</td>
<td>0.26</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attitude</td>
<td>0.156</td>
<td>0.219</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intentions</td>
<td>0.215</td>
<td>0.125</td>
<td></td>
</tr>
<tr>
<td>Final</td>
<td>Constant</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significance at p < .05

Table 4.9 provides the results of the TPB model and percent condom use during vaginal sex for the past 12 months and 30 days. In the regression with all the constructs of the Theory of Planned Behavior and condom use percent with vaginal sex over the past 12 months, each model was significant. All models were significant, with the initial at p=.002 and the final at p < .001. The final model with intentions explained 8.9% of the observed variance. In the regression with all the constructs of the Theory of Planned Behavior and percent condom use with vaginal sex over the past 30 days, all models were significant, with the initial model at p=.025 but none of the predictors were significant and the final model at p=.002. In the final model, attitudes explained 7.0% of the observed variance.
Table 4.9  Regression Results for TPB and Condom Use during Vaginal Sex in Last 12 Months and 30 Days

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable</th>
<th>Beta</th>
<th>P</th>
<th>Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 months</td>
<td>Initial</td>
<td>Social Norms</td>
<td>-.060</td>
<td>.470</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Attitude</td>
<td>.097</td>
<td>.324</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Perceived Behavioral Control</td>
<td>-.064</td>
<td>.511</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intentions</td>
<td>.307</td>
<td>.005**</td>
</tr>
<tr>
<td>Final</td>
<td>Intentions</td>
<td></td>
<td>.308</td>
<td>&lt;.001**</td>
</tr>
<tr>
<td>30 days</td>
<td>Initial</td>
<td>Social Norms</td>
<td>-.047</td>
<td>.626</td>
</tr>
<tr>
<td></td>
<td>Perceived Behavioral Control</td>
<td>-.028</td>
<td>.802</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attitude</td>
<td>.0172</td>
<td>.183</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intentions</td>
<td>.201</td>
<td>.083</td>
<td></td>
</tr>
<tr>
<td>Final</td>
<td>Attitudes</td>
<td></td>
<td>.279</td>
<td>.002**</td>
</tr>
</tbody>
</table>

**Significance p < .005

In the regression with all the constructs of the Theory of Planned Behavior and condom use with oral, vaginal, and anal sex over the past 12 months all models were significant (Table 4.10), with the initial at p=.002 and the final p < .001. The final model with intentions explained 9.2% of the observed variance. In the regression with all the constructs of the Theory of Planned Behavior and condom use with oral, vaginal, and anal sex in the last 30 days, all models were significant, with the initial at p=.013 and the final at p=.001. In the final model, attitudes explained 7.7% of the observed variance.
### Table 4.10 Regression Results for TPB and Condom Use, Oral, Vaginal, and Anal Sex in Last 12 Months and 30 Days

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable</th>
<th>Beta</th>
<th>P</th>
<th>Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 months</td>
<td>Initial Perceived Behavioral Control</td>
<td>-0.047</td>
<td>0.629</td>
<td>.081</td>
</tr>
<tr>
<td></td>
<td>Social Norms</td>
<td>-0.031</td>
<td>0.707</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intentions</td>
<td>0.046</td>
<td>.008*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attitude</td>
<td>0.1</td>
<td>0.308</td>
<td></td>
</tr>
<tr>
<td>Final</td>
<td>Intentions</td>
<td>.313</td>
<td>&lt;.001**</td>
<td>.092</td>
</tr>
<tr>
<td>30 days</td>
<td>Initial Social Norms</td>
<td>-0.084</td>
<td>0.38</td>
<td>.073</td>
</tr>
<tr>
<td></td>
<td>Perceived Behavioral Control</td>
<td>-0.079</td>
<td>0.483</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intentions</td>
<td>0.185</td>
<td>0.146</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attitude</td>
<td>0.239</td>
<td>.036*</td>
<td></td>
</tr>
<tr>
<td>Final</td>
<td>Attitude</td>
<td>.290</td>
<td>.001**</td>
<td>.077</td>
</tr>
</tbody>
</table>

*Significant p < .05  
**Significant p < .005

**Research Question 2.** The second research question was “Is there a relationship between stress levels and condom use among African American undergraduates attending predominantly White institutions?” The descriptive statistics of the stress outcome variables are in table 4.11. The variable “overall stress” is from the Social Readjustment Rating Scale that was modified for college students. The scale had three categories of scores: low stress =0 to 150, medium stress=150 to 300, and high stress= ≥300. The variables “social climate stress,” “interracial stress,” “race-related stress,” “within group stress,” and “achievement stress” are the average scores for each type of stress question. The results of the questions were summed and then divided by the number of questions asked. All of the stress questions were scored on a 5-point Likert scale in which 1=strongly disagree and 5=strongly agree. All of the stress variables had a normal distribution (DeCarlo, 1997; D. George, 2003). Overall stress had a mean of 308.30, median of 276.5, and multiple modes. Among participants who had at least one sexual partner in the last 12 months, the mean was 322.5, the median was 285.0, and the mode was 237. In order to assess the overall stress scores on a similar scale as the minority stress variables, the scores were divided by 100.
Social Climate stress had a mean of 3.45 and median of 3.54. Among participants who had at least one sexual partner in the last 12 months, the mean was 3.50 and the median was 3.55. Interracial stress had a mean of 3.16 and median of 3.29. Among students who had at least one sexual partner in the last 12 months, the mean was 3.18 and the median was 3.29. Racism-Related stress had a mean of 3 and median of 3.42. Among students who had at least one sexual partner over the past 12 months, the mean was 3.44 and the median was 3.6. For within group stress mean, the mean was 3.16 and the median was 3.25. Among participants who had at least one sexual partner in the last 12 months, the mean was 3.1 and the median was 3.25. For achievement stress, the mean was 3.1 and the median was 3.0. Among students who had at least one sexual partner in the last 12 months, the mean was 3.1 and the median was 3.0.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Stress</td>
<td>3.08</td>
<td>0.22</td>
<td>1.08</td>
<td>1.57</td>
</tr>
<tr>
<td>Social Climate Stress</td>
<td>3.45</td>
<td>0.78</td>
<td>-0.61</td>
<td>1.38</td>
</tr>
<tr>
<td>Interracial Stress</td>
<td>3.16</td>
<td>0.92</td>
<td>-1.03</td>
<td>2.02</td>
</tr>
<tr>
<td>Racism-Related Stress</td>
<td>3.43</td>
<td>1.07</td>
<td>-0.77</td>
<td>0.50</td>
</tr>
<tr>
<td>Within Group Stress</td>
<td>3.17</td>
<td>1.09</td>
<td>-0.54</td>
<td>0.25</td>
</tr>
<tr>
<td>Achievement Stress</td>
<td>3.11</td>
<td>0.87</td>
<td>-0.26</td>
<td>1.70</td>
</tr>
</tbody>
</table>

Correlations were conducted between each stress variable. The correlations are located in Table 4.12. All of the predictor variables were significantly correlated with each other at the p < .01 two tailed level except for within group stress and overall stress. The results of the individual regression analyses between each stress and each outcome variable were conducted.
Table 4.12 Correlations Between Stress Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Overall Stress</th>
<th>Social Climate Stress</th>
<th>Interracial Stress</th>
<th>Racism-Related Stress</th>
<th>Within Group Stress</th>
<th>Achievement Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Stress</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Social Climate Stress</td>
<td>.26**</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Interracial Stress</td>
<td>.20**</td>
<td>.60**</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Racism-Related Stress</td>
<td>.23**</td>
<td>.64**</td>
<td>.71**</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Within Group Stress</td>
<td>.02</td>
<td>.44**</td>
<td>.59**</td>
<td>.66**</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Achievement Stress</td>
<td>.23**</td>
<td>.20**</td>
<td>.41**</td>
<td>.49**</td>
<td>.48**</td>
<td>1</td>
</tr>
</tbody>
</table>

**Correlation is significant at the .01 level (2-tailed).

In the regression models, the p-values and percent variance explained was used to determine statistical and practical significance (Table 4.13). In the regression model using all the stress variables for condom use percent during oral sex in the last 12 months, the final model was significant (p=.021). In the final model, overall stress predicted 2.8% of the observed variance in condom use with oral sex in the last 12 months. In the regression model with all the stress variables and condom use during oral sex over the past 30 days, the final regression model was not significant (p=.066).
In the regression models for stress and percent condom during vaginal sex in the last 12 months and 30 days were significant (Table 4.14). In the context of this study, no correlation was found for condom use and stress have during vaginal sex.
## Table 4.14 Regression Results for Stress and Condom Use During Vaginal Sex in Last 12 Months and 30 Days

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable</th>
<th>Beta</th>
<th>P</th>
<th>Adjusted R^2</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 months</td>
<td>Initial</td>
<td>Racism-Related Stress</td>
<td>-0.20</td>
<td>0.143</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social Climate Stress</td>
<td>-0.08</td>
<td>0.445</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within-Group Stress</td>
<td>0.08</td>
<td>0.513</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Achievement Stress</td>
<td>0.09</td>
<td>0.392</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Interracial Stress</td>
<td>0.10</td>
<td>0.39</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Overall Stress</td>
<td>0.15</td>
<td>0.098</td>
</tr>
<tr>
<td></td>
<td>Final</td>
<td>Constant</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>30 days</td>
<td>Initial</td>
<td>Racism-Related Stress</td>
<td>-0.20</td>
<td>0.143</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social Climate Stress</td>
<td>-0.08</td>
<td>0.445</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within-Group Stress</td>
<td>0.08</td>
<td>0.513</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Achievement Stress</td>
<td>0.09</td>
<td>0.392</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Interracial Stress</td>
<td>0.01</td>
<td>0.39</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Overall Stress</td>
<td>0.15</td>
<td>0.098</td>
</tr>
<tr>
<td></td>
<td>Final</td>
<td>Constant</td>
<td>.</td>
<td>.</td>
</tr>
</tbody>
</table>

None of the regression models with all the stress variables for oral, vaginal, and anal sex in the last 12 months was significant (Table 4.15). Achievement stress was retained in the model.

In the regression model with all the stress variables with condom use percent during oral, vaginal, and anal sex in the last 30 days the final model was not significant.
Table 4.15 Regression Results for Stress and Condom Use During Oral, Vaginal, and Anal Sex in Last 12 Months and 30 Days

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable</th>
<th>Beta</th>
<th>P</th>
<th>Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 months Initial</td>
<td>Racism-Related Stress</td>
<td>-0.202</td>
<td>0.134</td>
<td>.009</td>
</tr>
<tr>
<td></td>
<td>Social Climate Stress</td>
<td>-0.071</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within-Group Stress</td>
<td>0.091</td>
<td>0.432</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Achievement Stress</td>
<td>0.095</td>
<td>0.337</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interracial Stress</td>
<td>0.111</td>
<td>0.35</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall Stress</td>
<td>0.146</td>
<td>0.097</td>
<td></td>
</tr>
<tr>
<td>30 days Initial</td>
<td>Racism-Related Stress</td>
<td>-0.158</td>
<td>0.28</td>
<td>-.017</td>
</tr>
<tr>
<td></td>
<td>Social Climate Stress</td>
<td>-0.055</td>
<td>0.688</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interracial Stress</td>
<td>-0.006</td>
<td>0.965</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Achievement Stress</td>
<td>0.082</td>
<td>0.457</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall Stress</td>
<td>0.101</td>
<td>0.334</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within-Group Stress</td>
<td>0.154</td>
<td>0.234</td>
<td></td>
</tr>
<tr>
<td>Final</td>
<td>Constant</td>
<td>.</td>
<td>.</td>
<td>.000</td>
</tr>
</tbody>
</table>

Research Question 3. The third research question was “Do stress levels moderate the relationship between attitudes, social norms, perceived behavioral control, intention and condom use among African American undergraduate students attending predominantly White institutions?” The descriptive statistics for the predictor variables for both the Theory of Planned Behavior and the stress variables are in Tables 4.6 and 4.11. Correlations were conducted between the TPB variables and the stress variables and are provided in Table 4.16.

Table 4.16 Correlations between TPB and Stress Variables

<table>
<thead>
<tr>
<th></th>
<th>Social Norms</th>
<th>Attitudes</th>
<th>Perceived Behavioral Control</th>
<th>Intentions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall stress</td>
<td>-.005</td>
<td>.057</td>
<td>-.055</td>
<td>.045</td>
</tr>
<tr>
<td>Interracial Stress</td>
<td>-.010</td>
<td>-.025</td>
<td>-.117</td>
<td>-.088</td>
</tr>
<tr>
<td>Racism-Related Stress</td>
<td>.066</td>
<td>-.015</td>
<td>-.035</td>
<td>-.013</td>
</tr>
<tr>
<td>Within Group Stress</td>
<td>.079</td>
<td>.043</td>
<td>.021</td>
<td>.129*</td>
</tr>
<tr>
<td>Achievement Stress</td>
<td>.039</td>
<td>.105</td>
<td>.059</td>
<td>.116</td>
</tr>
<tr>
<td>Social Climate Stress</td>
<td>.039</td>
<td>-.064</td>
<td>-.141*</td>
<td>-.146*</td>
</tr>
</tbody>
</table>

*Correlation is significant at p < .05 (one-tailed)

Regression models with all predictor variables were conducted for each outcome variable. The significant predictors are in Table 4.17. The model for percent condom use with
oral sex in the last 12 months was significant (p=.004). The final model had overall stress (p=.016) and intentions (p=.025), and also explained 6.0% of the observed variance. The final model for percent condom use with oral sex in the last 30 days was not significant (p=.065).
Table 4.17 Regression Results for TPB and Stress for Condom Use During Oral Sex in Last 12 Months and 30 Days

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable</th>
<th>Beta</th>
<th>P</th>
<th>Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 months</td>
<td>Initial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within-Group Stress</td>
<td>0.028</td>
<td>.809</td>
<td>.046</td>
</tr>
<tr>
<td></td>
<td>Social Norms</td>
<td>0.032</td>
<td>.723</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attitudes</td>
<td>0.060</td>
<td>.577</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Achievement Stress</td>
<td>0.073</td>
<td>.466</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Achievement Stress</td>
<td>0.082</td>
<td>.457</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall Stress</td>
<td>0.101</td>
<td>.334</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intentions</td>
<td>0.139</td>
<td>.236</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within-Group Stress</td>
<td>0.154</td>
<td>.234</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall Stress</td>
<td>0.177</td>
<td>.048*</td>
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</tr>
<tr>
<td></td>
<td>Interracial Stress</td>
<td>0.208</td>
<td>.085</td>
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<tr>
<td></td>
<td>Final</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall Stress</td>
<td>0.182</td>
<td>.025*</td>
<td>.060</td>
</tr>
<tr>
<td></td>
<td>Intentions</td>
<td>0.196</td>
<td>.016*</td>
<td></td>
</tr>
<tr>
<td>30 days</td>
<td>Initial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Racism-Related Stress</td>
<td>-0.167</td>
<td>.306</td>
<td>.025</td>
</tr>
<tr>
<td></td>
<td>Social Norms</td>
<td>-0.164</td>
<td>.156</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perceived Behavioral Control</td>
<td>-0.144</td>
<td>.272</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within-Group Stress</td>
<td>-0.042</td>
<td>.765</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interracial Stress</td>
<td>-0.003</td>
<td>.986</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Climate Stress</td>
<td>0.035</td>
<td>.82</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall Stress</td>
<td>0.148</td>
<td>.201</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attitudes</td>
<td>0.154</td>
<td>.259</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Achievement Stress</td>
<td>0.175</td>
<td>.167</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intentions</td>
<td>0.176</td>
<td>.240</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Final</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Constant</td>
<td>.</td>
<td>.</td>
<td>.000</td>
</tr>
</tbody>
</table>

*Significant at p < .05

The final model for percent condom use during vaginal sex in the last 12 months was significant (p < .001). Intentions accounted for 7.8% of the observed variance. The final model for condom use with vaginal sex in the last 30 days was significant (p=.003), with attitudes accounting for 6.9% of the observed variance in percent condom use.
Table 4.18 Regression Results for TPB and Stress for Condom Use During Vaginal Sex in Last 12 Months and 30 Days

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable</th>
<th>Beta</th>
<th>P</th>
<th>Adjusted R^2</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 months</td>
<td>Model 1</td>
<td>Racism-Related Stress</td>
<td>-0.218</td>
<td>.103</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Perceived Behavioral Control</td>
<td>-0.056</td>
<td>.588</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social Norms</td>
<td>-0.039</td>
<td>.658</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within-Group Stress</td>
<td>0.006</td>
<td>.960</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social Climate Stress</td>
<td>0.015</td>
<td>.899</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Achievement Stress</td>
<td>0.069</td>
<td>.484</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Attitudes</td>
<td>0.097</td>
<td>.364</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Overall Stress</td>
<td>0.11</td>
<td>.212</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Interracial Stress</td>
<td>0.126</td>
<td>.290</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intentions</td>
<td>0.277</td>
<td>.018</td>
</tr>
<tr>
<td>Final</td>
<td>Model</td>
<td>Intentions</td>
<td>0.290</td>
<td>&lt;.001**</td>
</tr>
<tr>
<td>30 days</td>
<td>Model 1</td>
<td>Racism-Related Stress</td>
<td>-0.162</td>
<td>.281</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social Climate Stress</td>
<td>-0.076</td>
<td>.611</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Perceived Behavioral Control</td>
<td>-0.021</td>
<td>.858</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social Norms</td>
<td>-0.013</td>
<td>.902</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Achievement Stress</td>
<td>0.018</td>
<td>.878</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Interracial Stress</td>
<td>0.032</td>
<td>.820</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Overall Stress</td>
<td>0.076</td>
<td>.482</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intentions</td>
<td>0.128</td>
<td>.357</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Within-Group Stress</td>
<td>0.146</td>
<td>.280</td>
</tr>
<tr>
<td>Final</td>
<td>Model</td>
<td>Attitudes</td>
<td>0.279</td>
<td>.003**</td>
</tr>
</tbody>
</table>

**Significant at p < .005

The final model for condom use with oral, vaginal, and anal sex over the past 12 months was significant (p < .001) (Table 4.19). Intentions predicted 8.1% of the observed variance in oral, vaginal, and anal sex in the past 12 months. The final model for percent condom use with oral, vaginal, and anal sex was significant at (p=.001) and attitudes accounted for 8.1% of the observed variance.
Table 4.19 Regression Results for TPB and Stress for Condom Use During Oral, Vaginal, and Anal Sex in Last 12 Months and 30 Days

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable</th>
<th>Beta</th>
<th>P</th>
<th>Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 months</td>
<td>Initial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Racism-Related Stress</td>
<td>-0.225</td>
<td>.092</td>
<td>.072</td>
</tr>
<tr>
<td></td>
<td>Perceived Behavioral Control</td>
<td>-0.037</td>
<td>.721</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Norms</td>
<td>-0.015</td>
<td>.862</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Climate Stress</td>
<td>0.016</td>
<td>.892</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within-Group Stress</td>
<td>0.02</td>
<td>.858</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Achievement Stress</td>
<td>0.081</td>
<td>.411</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attitudes</td>
<td>0.103</td>
<td>.333</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall Stress</td>
<td>0.111</td>
<td>.206</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interracial Stress</td>
<td>0.143</td>
<td>.230</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intentions</td>
<td>0.26</td>
<td>.260</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Final</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intentions</td>
<td>0.295</td>
<td>&lt;.001**</td>
<td>.081</td>
</tr>
<tr>
<td>30 days</td>
<td>Initial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Racism-Related Stress</td>
<td>-0.159</td>
<td>.273</td>
<td>.037</td>
</tr>
<tr>
<td></td>
<td>Perceived Behavioral Control</td>
<td>-0.082</td>
<td>.484</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Norms</td>
<td>-0.079</td>
<td>.451</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interracial Stress</td>
<td>0.011</td>
<td>.941</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Climate Stress</td>
<td>0.015</td>
<td>.913</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall Stress</td>
<td>0.043</td>
<td>.680</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Achievement Stress</td>
<td>0.062</td>
<td>.578</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within-Group Stress</td>
<td>0.106</td>
<td>.416</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intentions</td>
<td>0.136</td>
<td>.320</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Final</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attitudes</td>
<td>0.26</td>
<td>.035*</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at p < .05
**Significant at p < .005

Interactions

In order to determine if stress moderates the relationship between intentions to use condoms and actual condom use, interaction variables were created, Table 4.20. Two independent variables interact if the effect of one of the variables differs depending on the level of the other variable. All of the interaction variables had a normal distribution (DeCarlo, 1997; D. George, 2003).
Table 4.20 Interaction Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interaction between Intentions and Overall Stress</td>
<td>.019</td>
<td>.994</td>
<td>-.778</td>
<td>5.054</td>
</tr>
<tr>
<td>Interaction between Intentions and Interracial Stress</td>
<td>-.109</td>
<td>1.017</td>
<td>-.108</td>
<td>5.553</td>
</tr>
<tr>
<td>Interaction between Intentions and Racism-Related Stress</td>
<td>-.033</td>
<td>.892</td>
<td>-.182</td>
<td>4.466</td>
</tr>
<tr>
<td>Interaction between Intentions and Within Group Stress</td>
<td>.095</td>
<td>1.041</td>
<td>.246</td>
<td>3.938</td>
</tr>
<tr>
<td>Interaction between Intentions and Achievement Stress</td>
<td>.043</td>
<td>1.021</td>
<td>-.763</td>
<td>6.179</td>
</tr>
<tr>
<td>Interaction between Intentions and Social Climate Stress</td>
<td>-.106</td>
<td>.943</td>
<td>-.884</td>
<td>3.386</td>
</tr>
</tbody>
</table>

Regression analyses were conducted to determine which of the interactions variables predicted condom use. In order to control for multicollinearity, the TPB and stress variables were standardized. None of the interaction models for oral sex (Table 4.21), vaginal sex (Table 4.22), or oral, vaginal, and anal sex (Table 4.23) of the sexual behaviors achieved significance.
Table 4.21 Interactions of TPB and Stress for Condom Use During Oral Sex in Last 12 Months and 30 Days

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable</th>
<th>Beta</th>
<th>p</th>
<th>Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 months</td>
<td>Initial Interaction between Intentions and Racism-Related Stress</td>
<td>-</td>
<td>.197</td>
<td>.024</td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Within Group Stress</td>
<td>0.169</td>
<td>.402</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Overall Stress</td>
<td>0.085</td>
<td>.322</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Achievement Stress</td>
<td>0.12</td>
<td>.224</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Social Climate Stress</td>
<td>0.136</td>
<td>.099</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Interracial Stress</td>
<td>0.215</td>
<td>.130</td>
<td></td>
</tr>
<tr>
<td>Final</td>
<td>Constant</td>
<td>.</td>
<td>.</td>
<td>.000</td>
</tr>
<tr>
<td>30 days</td>
<td>Initial Interaction between Intentions and Racism-Related Stress</td>
<td>-</td>
<td>.357</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Within Group Stress</td>
<td>0.174</td>
<td>.392</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Social Climate Stress</td>
<td>0.132</td>
<td>.897</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Interracial Stress</td>
<td>0.021</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Interracial Stress</td>
<td>0.127</td>
<td>.53</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Achievement Stress</td>
<td>0.163</td>
<td>.185</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Overall Stress</td>
<td>0.179</td>
<td>.119</td>
<td></td>
</tr>
<tr>
<td>Final</td>
<td>Constant</td>
<td>.</td>
<td>.</td>
<td>.000</td>
</tr>
</tbody>
</table>
Table 4.22 Interactions of TPB and Stress for Condom Use During Vaginal Sex in Last 12 Months and 30 Days

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable</th>
<th>Beta</th>
<th>P</th>
<th>Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 months</td>
<td>Initial Interaction between Intentions and Within Group Stress</td>
<td>-</td>
<td>.116</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Racism-Related Stress</td>
<td>0.187</td>
<td>.116</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Social Climate Stress</td>
<td>-</td>
<td>.812</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Overall Stress</td>
<td>0.091</td>
<td>.296</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Interracial Stress</td>
<td>0.112</td>
<td>.296</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Achievement Stress</td>
<td>0.014</td>
<td>.888</td>
<td>.000</td>
</tr>
<tr>
<td>30 days</td>
<td>Initial Interaction between Intentions and Racism-Related Stress</td>
<td>-</td>
<td>.182</td>
<td>.009</td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Within Group Stress</td>
<td>-</td>
<td>.275</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Achievement Stress</td>
<td>0.151</td>
<td>.275</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Social Climate Stress</td>
<td>0.025</td>
<td>.820</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Overall Stress</td>
<td>0.109</td>
<td>.475</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Interracial Stress</td>
<td>0.127</td>
<td>.234</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Final Constant</td>
<td>.</td>
<td>.</td>
<td>.000</td>
</tr>
<tr>
<td>30 days</td>
<td>Final Constant</td>
<td>.</td>
<td>.</td>
<td>.000</td>
</tr>
</tbody>
</table>
### Table 4.23 Interactions of TPB and Stress for Condom Use During Oral, Vaginal, and Anal Sex in Last 12 Months and 30 Days

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable</th>
<th>Beta</th>
<th>P</th>
<th>Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 months</td>
<td>Interaction between Intentions and Within Group Stress</td>
<td>-0.182</td>
<td>0.127</td>
<td>.006</td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Racism-Related Stress</td>
<td>-0.042</td>
<td>0.756</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Social Climate Stress</td>
<td>-0.018</td>
<td>0.855</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Overall Stress</td>
<td>0.106</td>
<td>0.226</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Achievement Stress</td>
<td>0.11</td>
<td>0.273</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Interracial Stress</td>
<td>0.165</td>
<td>0.226</td>
<td></td>
</tr>
<tr>
<td>30 days</td>
<td>Final</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Initial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Constant</td>
<td></td>
<td></td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Racism-Related Stress</td>
<td>-0.212</td>
<td>0.188</td>
<td>.011</td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Within Group Stress</td>
<td>-0.148</td>
<td>0.268</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Achievement Stress</td>
<td>0.006</td>
<td>0.955</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Social Climate Stress</td>
<td>0.091</td>
<td>0.519</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Overall Stress</td>
<td>0.127</td>
<td>0.215</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Interracial Stress</td>
<td>0.234</td>
<td>0.172</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Final</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Constant</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

After the regression models were conducted with the interaction variables, final regressions were conducted with all outcome variables and interaction variables to see which combination of variables were best able to explain condom use (Table 4.24, Table 4.25, and Table 4.26, Table 4.27, Table 4.28, Table 4.29). In order to limit multi-collinearity, the variables were standardized. The regression model for percent condom use during oral sex in the past 12 months was significant (p=.004) (Table 4.24). The variables in the model were intentions (p=.016), overall stress (p=.025). The model explained 6.0% of the observed variance.
Table 4.24  Regression Results for TPB, Stress, and Interactions of TPB and Stress for Condom Use During Oral Sex in Last 12 Months

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable</th>
<th>Beta</th>
<th>P</th>
<th>Adjusted $R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial</td>
<td>Racism-Related Stress</td>
<td>-0.224</td>
<td>0.093</td>
<td>.079</td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Within Group Stress</td>
<td>-0.121</td>
<td>0.321</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Racism-Related Stress</td>
<td>-0.12</td>
<td>0.376</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Social Climate Stress</td>
<td>-0.092</td>
<td>0.434</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Climate Stress</td>
<td>-0.071</td>
<td>0.552</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perceived Behavioral Control</td>
<td>0.035</td>
<td>0.736</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Norms</td>
<td>0.047</td>
<td>0.605</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attitudes</td>
<td>0.052</td>
<td>0.634</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within-Group Stress</td>
<td>0.055</td>
<td>0.644</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Achievement Stress</td>
<td>0.092</td>
<td>0.367</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Overall Stress</td>
<td>0.11</td>
<td>0.22</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Achievement Stress</td>
<td>0.131</td>
<td>0.194</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intentions</td>
<td>0.135</td>
<td>0.263</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall Stress</td>
<td>0.203</td>
<td>.025*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interracial Stress</td>
<td>0.252</td>
<td>.041*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Interracial Stress</td>
<td>0.289</td>
<td>0.057</td>
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</tr>
<tr>
<td>Final</td>
<td>Overall Stress</td>
<td>.182</td>
<td>.025*</td>
<td>.060</td>
</tr>
<tr>
<td></td>
<td>Intentions</td>
<td>.196</td>
<td>.016*</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at p < .05
**Significant at p < .005

The model for percent condom use during oral sex over the past 30 days was significant (p=.019) (Table 4.25). The variables in the model were overall stress (p=.030) and the interaction between intentions and overall stress (p=.025). The model explained .065% of the observed variance.
Table 4.25 Regression Results for TPB, Stress, and Interactions between TPB and Stress for Condom Use During Oral Sex in Last 30 days

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable</th>
<th>Beta</th>
<th>P</th>
<th>Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial</td>
<td>Racism-Related Stress</td>
<td>-0.287</td>
<td>.090</td>
<td>.085</td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Racism-Related Stress</td>
<td>-0.268</td>
<td>.185</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Within Group Stress</td>
<td>-0.221</td>
<td>.168</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Norms</td>
<td>-0.121</td>
<td>.301</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perceived Behavioral Control</td>
<td>-0.097</td>
<td>.448</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within-Group Stress</td>
<td>-0.084</td>
<td>.554</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interracial Stress</td>
<td>0.009</td>
<td>.955</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Social Climate Stress</td>
<td>0.011</td>
<td>.950</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Climate Stress</td>
<td>0.059</td>
<td>.713</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intentions</td>
<td>0.081</td>
<td>.600</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attitudes</td>
<td>0.144</td>
<td>.293</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Interracial Stress</td>
<td>0.192</td>
<td>.362</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Overall Stress</td>
<td>0.212</td>
<td>.078</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall Stress</td>
<td>0.219</td>
<td>.063</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Achievement Stress</td>
<td>0.221</td>
<td>.122</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Achievement Stress</td>
<td>0.269</td>
<td>.046*</td>
<td></td>
</tr>
<tr>
<td>Final</td>
<td>Overall Stress</td>
<td>0.228</td>
<td>.030*</td>
<td>.065</td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Overall Stress</td>
<td>0.236</td>
<td>.025*</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at p < .05

The model for percent condom use with vaginal sex in the last 12 months (Table 4.26) was significant (p < .001). Intentions (p < .001) towards condom use explained 7.8% of the observed variance.
Table 4.2 Regression Results for TPB, Stress, and Interactions between TPB and Stress for Condom Use During Vaginal Sex in Last 12 months

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable</th>
<th>Beta</th>
<th>P</th>
<th>Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial</td>
<td>Racism-Related Stress</td>
<td>-0.226</td>
<td>.089</td>
<td>.080</td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Within Group Stress</td>
<td>-0.177</td>
<td>.144</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Racism-Related Stress</td>
<td>-0.101</td>
<td>.455</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perceived Behavioral Control</td>
<td>-0.025</td>
<td>.811</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Climate Stress</td>
<td>-0.017</td>
<td>.883</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Norms</td>
<td>-0.007</td>
<td>.943</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within-Group Stress</td>
<td>0.04</td>
<td>.732</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Social Climate Stress</td>
<td>0.054</td>
<td>.645</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Achievement Stress</td>
<td>0.082</td>
<td>.421</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Overall Stress</td>
<td>0.104</td>
<td>.248</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attitudes</td>
<td>0.11</td>
<td>.318</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Interracial Stress</td>
<td>0.117</td>
<td>.437</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interracial Stress</td>
<td>0.121</td>
<td>.325</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall Stress</td>
<td>0.139</td>
<td>.121</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Achievement Stress</td>
<td>0.152</td>
<td>.131</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intentions</td>
<td>0.23</td>
<td>.058</td>
<td></td>
</tr>
<tr>
<td>Final</td>
<td>Intentions</td>
<td>.292</td>
<td>&lt;.001**</td>
<td>.078</td>
</tr>
</tbody>
</table>

**Significant at p < .005

The model for percent condom use for vaginal sex in the last 30 days was significant (p=.001) (Table 4.27). The variables in the model were attitudes (p=.002) and the interaction between intentions and overall stress (p=.033). The model explained 10.0% of the observed variance.
Table 4.27 Regression Results for TPB, Stress, and Interactions between TPB and Stress for Condom Use During Vaginal Sex in Last 30 days

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable</th>
<th>Beta</th>
<th>P</th>
<th>Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial</td>
<td>Interaction between Intentions and Within Group Stress</td>
<td>-0.207</td>
<td>0.166</td>
<td>.050</td>
</tr>
<tr>
<td></td>
<td>Racism-Related Stress</td>
<td>-0.201</td>
<td>0.184</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Racism-Related Stress</td>
<td>-0.191</td>
<td>0.26</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Climate Stress</td>
<td>-0.083</td>
<td>0.591</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Achievement Stress</td>
<td>-0.006</td>
<td>0.958</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Norms</td>
<td>-0.004</td>
<td>0.972</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perceived Behavioral Control</td>
<td>0.021</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Achievement Stress</td>
<td>0.028</td>
<td>0.811</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interracial Stress</td>
<td>0.03</td>
<td>0.836</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intentions</td>
<td>0.049</td>
<td>0.739</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Social Climate Stress</td>
<td>0.055</td>
<td>0.736</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall Stress</td>
<td>0.137</td>
<td>0.216</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Overall Stress</td>
<td>0.15</td>
<td>0.182</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within-Group Stress</td>
<td>0.197</td>
<td>0.153</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attitudes</td>
<td>0.222</td>
<td>0.085</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Interracial Stress</td>
<td>0.238</td>
<td>0.188</td>
<td></td>
</tr>
<tr>
<td>Final</td>
<td>Interaction between Intentions and Overall Stress</td>
<td>.196</td>
<td>.033*</td>
<td>.100</td>
</tr>
<tr>
<td></td>
<td>Attitudes</td>
<td>.290</td>
<td>.002**</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at p < .05
**Significant at p < .005

Table 4.27 has a significant interaction between intentions and overall stress, to explore this interaction further, see Graph 4.1. The equation for the model is: % Condom Use For Vaginal Sex The Past 30 Days= .210 + .093*Attitude + .055* Interaction Between Intention And Overall Stress. If we set attitude to its’ mean score of 4.00, set the low stress value to 29 (modified to .29) and the high stress 684 (modified to 6.84), and vary intentions (between 0 and 5). If stress is held constant at both high and low level, the relationship between intentions and percent condom use during vaginal sex in the last 30 days (the slope) varied.
The model for percent condom use during oral, vaginal, and anal sex in the last 12 months was significant (p < .001) (Table 4.2). Intentions accounted for 8.1% of the observed variance.
Table 4.28 Regression Results for TPB, Stress, and Interactions between TPB and Stress for Condom Use During Oral, Vaginal, Anal Sex in Last 12 months

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable</th>
<th>Beta</th>
<th>p</th>
<th>Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial</td>
<td>Racism-Related Stress</td>
<td>-0.228</td>
<td>.084</td>
<td>.097</td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Within</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Group Stress</td>
<td>-0.183</td>
<td>.128</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Racism-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Related Stress</td>
<td>-0.087</td>
<td>.514</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Climate Stress</td>
<td>-0.032</td>
<td>.788</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perceived Behavioral Control</td>
<td>-0.012</td>
<td>.904</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Social</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Climate Stress</td>
<td>-0.005</td>
<td>.969</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Norms</td>
<td>0.012</td>
<td>.897</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within-Group Stress</td>
<td>0.058</td>
<td>.621</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Achievement Stress</td>
<td>0.098</td>
<td>.329</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Overall</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stress</td>
<td>0.111</td>
<td>.212</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attitudes</td>
<td>0.113</td>
<td>.299</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall Stress</td>
<td>0.141</td>
<td>.112</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interracial Stress</td>
<td>0.156</td>
<td>.200</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Achievement Stress</td>
<td>0.157</td>
<td>.116</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interracial Stress</td>
<td>0.188</td>
<td>.208</td>
<td></td>
</tr>
<tr>
<td>Final</td>
<td>Intentions</td>
<td>0.221</td>
<td>.066</td>
<td>.081</td>
</tr>
</tbody>
</table>

*Significant at p < .05
**Significant at p < .005

The model for percent condom use during oral, vaginal, and anal sex in the last 30 days was significant (p=.001) (Table 4.29). The model had attitudes (p=.001) and the interaction between intentions and overall stress (p=.037). The model accounted for 10.9% of the observed variance.
Table 4.29 Regression Results for TPB, Stress, and Interactions between TPB and Stress for Condom Use During Oral, Vaginal, and Anal Sex in Last 30 Days

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable</th>
<th>Beta</th>
<th>p</th>
<th>Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td>Racism-Related Stress</td>
<td>-0.22</td>
<td>.133</td>
<td>.059</td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Within Group Stress</td>
<td>-0.208</td>
<td>.139</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Racism-Related Stress</td>
<td>-0.194</td>
<td>.245</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Norms</td>
<td>-0.061</td>
<td>.575</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perceived Behavioral Control</td>
<td>-0.051</td>
<td>.664</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interracial Stress</td>
<td>0.008</td>
<td>.954</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Achievement Stress</td>
<td>0.031</td>
<td>.789</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Climate Stress</td>
<td>0.031</td>
<td>.827</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Achievement Stress</td>
<td>0.059</td>
<td>.614</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intentions</td>
<td>0.066</td>
<td>.642</td>
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</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Social Climate Stress</td>
<td>0.104</td>
<td>.473</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall Stress</td>
<td>0.104</td>
<td>.330</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Overall Stress</td>
<td>0.133</td>
<td>.210</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within-Group Stress</td>
<td>0.141</td>
<td>.289</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interaction between Intentions and Interracial Stress</td>
<td>0.231</td>
<td>.202</td>
<td></td>
</tr>
<tr>
<td>Final Model</td>
<td>Interaction between Intentions and Overall Stress</td>
<td>.190</td>
<td>.037*</td>
<td>.109</td>
</tr>
<tr>
<td></td>
<td>Attitudes</td>
<td>.268</td>
<td>.035*</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at p < .05
**Significant at p < .005

Conclusion

The purpose of this chapter was to provide the results of the data analyses. All quantitative analyses were performed on SPSS version 21.0. This chapter presented the results for the outcome variables, reliabilities of the instruments, as well as the overall instrument. This chapter also provided results pertaining to the sample’s demographics and sexual behaviors. The
results of the analyses for the three research questions were presented. Discussions of these results are provided in Chapter 5.
CHAPTER 5 – DISCUSSION

The purpose of this study was to examine the determinants of condom use among African American undergraduates attending predominantly White institutions (PWI). The study utilized the Theory of Planned Behavior (TPB) (Ajzen, 1991; Ajzen & Driver, 1992; Ajzen, 2002), which has been widely used to predict a number of sexual health behaviors among college-age adults, including premarital sex, intention to use condoms, HIV/AIDS prevention behavior, and the use of contraceptives (Bosampra, 2001; Bogart, Cecil & Pinkerton, 2000; Cha, Doswell, Kim, Charron-Prochonik, & Patrick, 2007; DeVisser & Smith, 2004; Kanu & Kanu, 2000). In addition, the relationship between stress, intention to use condoms, and actual condom use was examined. This study addressed three research questions: (1) To what extent do attitude, subjective norms, perceived behavioral control, and intentions predict condom use among African American undergraduate students attending predominantly White institutions? (2) Is there a relationship between stress levels and condom use among African American undergraduates attending predominantly White institutions? (3) Do stress levels moderate the relationship between attitudes, social norms, perceived behavioral control, intentions and condom use among African American undergraduate students attending predominantly White institutions? The purpose of this chapter is to evaluate the study results including the hypotheses. In addition, this chapter will identify the theoretical and practical implications of this research, highlight limitations, as well as provide direction for future areas of research.
Sample Characteristics

Two hundred and three (N=203) African American undergraduate students participated in the study. This research is unique in that it studied the constructs of the Theory of Planned Behavior in conjunction to stress in relation to condom use among students were enrolled in predominantly white institutions. Former studies that investigated condom use and sexual behaviors among African American students were conducted at Historically Black Colleges and Universities (Bazargan et al., 2000; Duncan et al., 2002; Payne et al., 2006; Sutton et al., 2011). In addition, the sample size of this study is greater than previous studies (Aronson et al., 2013; Calloway et al., 2014; Duncan et al., 2002; Frye et al., 2012; Helion, Reddy, Kies, Morris, & Wilson, 2008; Hogben & Leichliter, 2008; Locke & Latham, 1990; Roye, Perlmutter Silverman, & Krauss, 2007; Whaley, 1999). The majority of students in the current study were women (70%), single/not in a relationship (62.4%), and did not belong to sororities or fraternities (57.1%). The participants’ ages were between 18 and 24 years old, with most being 18 (20.2%) and 22 (16.7%), and in their fourth (21.7%) and first (21.2%) year of college. The majority was enrolled full-time (93.5%), lived off campus (60.7%), and unemployed (59.7).

Sexual Behaviors among African American Students at PWIs

Most participants in the study had engaged in oral, vaginal, or anal sex. The majority had been sexually active in the last 12 months (80.1%) and 30 days (62.1%). The number of sexual partners in the sample was consistent with previous studies (Bogaert & Fisher, 1995; Desiderato & Crawford, 1995; Fink, Brewer, Fehl, & Neave, 2007; Stevens-Watkins et al., 2011). There was a wide range in the number of sexual partners (0 to 109) in the past 12 months for participants in this study, which is consistent with prior research (Lansford et al., 2010). Most (54.3%) reported engaging in sexual activity with between one and five people in the past 12 months; however,
many (19.6%) reported having no sexual activity during that period. The majority had between 1 and 5 oral sex partners (62.0%) and did not have anal sex (90.1%) in the last 12 months.

The levels of condom use among participants who were sexually active was inconsistent, which is similar to findings in previous research (Desiderato & Crawford, 1995; Dodge et al., 2010; Herbenick et al., 2010). Condom use levels were low for oral, vaginal, and anal sex in the past 12 months, with a mean average of 8.37%, 25.65%, and 1.40%, respectively, speaks to the need to address condom use in African American students attending predominantly white institutions. Condom use was highest during vaginal sex and lowest during anal sex in the past 12 months. These numbers are lower than what previous studies found for African Americans between the ages of 18 and 24 (Adefuye et al., 2009; Anderson, 2003; Dodge et al., 2010; Herbenick et al., 2010), but similar to rates reported by Anderson (2003). The percentage of participants who reported engaging in anal sex at any point is lower than what previous studies have demonstrated (Adefuye et al., 2009; Anderson, 2003). However, the percent of condom use during anal sex in the last 30 days is congruent with Herbenick et al. (2010) and Dodge et al. (2010) at 13%.

**Theory of Planned Behavior and Condom Use**

Research Question #1 examined if the constructs of the Theory of Planned Behavior (attitudes, social norms, perceived behavioral control, and intentions) predicted condom use in different types of sexual behavior (oral, anal, and vaginal). The theory posits that intentions are the primary determinant of behavior. Intentions are influenced by attitudes, social norms, and perceived behavioral control (Ajzen, 1991; Ajzen & Driver, 1992; Ajzen, 2002; Jemmott III et al., 2007). In this study, the alternative hypothesis was supported, which stated, “Attitude toward condom use, subjective norms, perceived behavioral control, and intentions will significantly
predict condom use among African American students attending predominantly White institutions.” Corresponding with previous research, the findings illustrated that social norms, perceived behavioral control, and attitudes were significant predictors of intention to use condoms and accounted for 73.3% of the observed variance in intentions (Jemmott III et al., 2007; Schaalma et al., 2009; Sheeran & Orbell, 1998; Villarruel, Jemmott, Jemmott, & Ronis, 2007).

There was a significant relationship between the constructs of the Theory of Planned Behavior and condom use among African American college students. Specifically, attitudes predicted condom use during vaginal sex in the last 30 days and during oral, vaginal, and anal sex in the past 30 days. Previous research has shown that attitudes influence condom use. For instance, beliefs that condoms effectively prevent pregnancy and disease have been associated with relatively consistent condom use (Wulfert & Wan, 1993). The results of the current study are similar to Jemmott’s (2007) study conducted among Xhosa adolescents in South Africa. In that study, Xhosa adolescents with positive attitudes towards condom use were more likely to use condoms during sex.

In the current study, intention to use condoms was a significant predictor (between 2.4% and 9.2% of the variance) of condom use during oral sex (past 30 days), vaginal sex (the past 12 months), and oral, vaginal, and anal sex (last 12 months). These results are similar to findings in a study conducted in rural Ethiopia in which the constructs of the Theory of Planned Behavior accounted for 5.3% of the observed variance in condom use (Molla et al., 2007). Nevertheless, the low level of explained variance in the current and former study suggests that it would be beneficial to examine additional predictors of sexual behavior in conjunction to the Theory of
Planed Behavior (McEachan et al., 2011). This study examined “stress” as an additional predictor.

**Stress and Condom Use**

Research Question #2 investigated the relationship between stress and condom use among African American undergraduate students. The alternative hypothesis was supported, which stated: “There is a significant relationship between stress and condom use in African American undergraduate students attending predominantly white institutions.” Findings from the current study were consistent with previous research. Research suggests that sexual behavior may be a maladaptive coping mechanism for stress (E. L. Fields et al., 2013; Herek et al., 1999; Martin et al., 2005; Parsons et al., 2005). The former studies indicated that as stress increased, so did sexual behaviors. A possible explanation for this correlation is that sex is sometimes used as a coping mechanism for stress (Cortoni & Marshall, 2001; E. L. Fields et al., 2013; Herek et al., 1999; Martin et al., 2005; Parsons et al., 2005). The costs related to risky sexual behavior such as not using condoms (e.g., unintended pregnancy, STIs) may not always be apparent or immediate (Calloway et al., 2014; Centers for Disease Control and Prevention (CDC), 2014; Datta et al., 2007; Eng & Butler, 1997; Fielder & Carey, 2010; Finer & Zolna, 2011; Forhan et al., 2009; Grossman et al., 2008; Mayaud & Mabey, 2004; Satterwhite et al., 2013; Tung, Hu, Efird, Su, & Yu, 2013). The benefits associated with sex may be immediate, which might reinforce the use of sex as a coping mechanism. For instance, engagement in sexual behavior has a variety of positive side effects including better prostate function, bowel movements, and mental satisfaction (Brody, 2010). Sex can reduce depression levels, pain, and body fat percentage (Brody, 2010). In addition, sexual activity can improve life expectancy, improve vaginal function, and lower blood pressure (Brody, 2010).
The impact of stress on condom use in this study depended on the type of stress (overall, academic, social climate, role stress, and racism-related stress) and sexual behavior (oral, anal, and vaginal sex). For example, overall stress, achievement stress, and racism-related stress were significant predictors of condom use during oral sex in the last 30 days. A positive relationship existed between overall stress and achievement stress with condom use during oral sex in the last 30 days. As overall stress and achievement stress increased, so did condom use in oral sex. However, an inverse relationship existed with racism-related stress; when this type of stress increased, condom use decreased in oral sex in the last 30 days.

The relationships between achievement stress and racism-related stress with condom use found in this study are consistent with former research. For example, Patrick et al., (2007) found that students with high academic goals and academic stress were more likely to report viewing pregnancy and sexually transmitted infections as preventive reasons for engaging in sexual behavior. In that study, the students took efforts including condom use, to prevent such consequences. Conversely, Fields et al. (2013) found that men who reported experiencing racism-related stress in their lifetime were more likely to engage in unprotected anal sex in the last three months.

**Influence of Stress in the Relationship between TPB and Condom Use**

Research Question #3 examined if stress moderated or influenced the relationship between the constructs of the Theory of Planned Behavior (attitude, social norms, perceived behavioral control, and intentions) and Condom use in African American college students. Specifically, the study investigated if the TPB construct “intention” interacted with the various types of stress in explaining condom use (i.e., overall, academic, social climate, role strain, and racism-related stress). The alternative hypothesis was supported and stated: “The relationship
between the TPB constructs (attitudes, perceived behavioral control, subjective norms, and intentions) and condom use will be significantly stronger or weaker for different levels of stress among African American undergraduate students attending predominantly White institutions.”

Overall, stress moderated the relationship between the primary construct of TPB (intention) and condom use. Previous studies have shown that the TPB was effective in explaining the variance in intention to use condoms, but that it was not effective in explaining the variance in actual condom use (McEachan et al., 2011; Molla et al., 2007).

Regarding condom use during oral sex in the last 30 days, overall stress, and the interaction between intentions and overall stress was significant. Together, they accounted for 10.9% of the observed variance. Similar results were observed for condom use during vaginal sex (past 30 days), and during oral, vaginal, and anal sex (past 30 days). Furthermore, intention was the main factor that was significant in predicting condom use during sexual behavior for 12 months across sexual behaviors.

Former studies have found that increased stress levels are associated with increased frequency of sex, decreased condom use, increased number of sexual partners, and inconsistent condom use (Elkington et al., 2010; Folkman et al., 1992; Hamilton & Meston, 2013; Hulland et al., 2014). Comparable results were found in the current study for condom use during vaginal sex the past 30 days. These findings support previous research that suggests that additional predictors of sexual behavior in conjunction with the Theory of Planned Behavior can explain more variance in actual condom use (McEachan et al., 2011). The discrepancy in the presence of stress variables present in the 12 months versus 30 days sexual behavior models may speak to the transient nature of stress.
Implications for Health Education and Promotion

There are many implications of this research for health education and promotion. The findings indicated that the risk factors associated with African American college students attending predominantly white institutions do not operate independently of each other. This research suggests that programs should not address the risk factors independently. While African American students face many of the same challenges to engaging in safe sex practices as their White counterparts, their level of risk for unsafe practice is different. This difference is due to a combination of factors including being African American, 18 to 24 years old, sexually active, and in college, as well as the stress associated with attending a predominantly white institution (CDC, 2012; Erwin et al., 2004; Fries-Britt & Griffin, 2007; L. Jones et al., 2002; Negga et al., 2007; Neville et al., 2004; Patton et al., 2011; Watkins et al., 2007). Programs that target the general college student population may not adequately address the specific needs of these students (Kim, 2002; Outcalt & Skewes-Cox, 2002; Shegog, Lindley, Thompson, Simmons, Richter, 2010).

Health interventions aimed at preventing pregnancy and STIs should be considered (Crosby & Salazar, 2015; Janevic et al., 2012; M. A. Kelley, 2011; Norton, Fisher, Amico, Dovidio, & Johnson, 2012; Reid et al., 2014; Seth et al., 2015; Upchurch, Mason, Kusunoki, & Kriechbaum, 2004). In inventions for African American college students attending PWIs, the TPB-based survey used in this study could be used as a pre- and post-test measure. The study findings indicated that the survey items should be assessed on this population at both 30 days and 12 months. As demonstrated by this study, there are different factors that come into play during sexual behavior over different lengths of time. For example, the interaction between intentions
and overall stress was significant for condom use during all sexual behaviors in the last 30 days, but not for any sexual behaviors in the last 12 months.

The findings also have implications for university health care services and collaborations with community partners. Again, given the current study findings on sexual behaviors and low condom use, there is a need for increased screenings and health care services (Dodge et al., 2010; Finer & Zolna, 2011; Fink et al., 2007; Herbenick et al., 2010; Lansford et al., 2010). Thus, universities, public health departments, and other local health care providers should consider collaborations to provide additional STI testing and related services to students.

The current research findings suggest that comprehensive sexual health education be strongly considered. It has been recommended that K-12 schools teach comprehensive sexuality education (Kirby, Laris, & Rolleri, 2007). Comprehensive sex education includes age appropriate, medically accurate information, and a broad range of topics related to sexual health (Stooksberry, 2016). The state of Alabama does not mandate that sex education be taught in schools (Alan Guttmacher Institute, 2016). When it is taught, parents can opt out of it for their children and the program does not have to be culturally appropriate (Alan Guttmacher Institute, 2016; Stooksberry, 2016). Additionally, the curriculum must stress abstinence, but it does not require emphasis on safe sex (condom use), discussion of sex outside of the context of marriage, or require a wholistic approach to understanding the consequences of sex. Moreover, sexual health programs in Alabama teach life skills to avoid sexual coercion, but do not require curriculum to focus on healthy decision-making or family communication (Alan Guttmacher Institute, 2016; Stooksberry, 2016). The lack of comprehensive sexuality education may contribute to the high levels of unintended pregnancy, HIV, and other STIs such as chlamydia, gonorrhea, and syphilis (Alabama Department of Public Health, 2014).
The research findings also demonstrate a need for health education courses or programs that teach college students about the relationship between stress and sexual behavior. In conjunction with comprehensive sex education, stress management techniques should be considered. Teaching stress management techniques may help students reduce the impact of high stress levels and its connection to sexual behavior (Krieger, 1999; Roberts et al., 2012; Rosenthal et al., 2014). Several universities in Alabama offer courses on these topics (stress and sexual behavior). However, stressing the relationship between them is not likely covered in many of the classes. In light of the study findings, universities should endeavor to teach about the relationship as well as provide students with the skills to address it. This study found that different types of stress interacted with intentions, which was significantly associated condom use during sexual behavior. Universities should consider developing interventions outside of the classrooms, including targeted interventions for African American college students at predominantly white institutions (Aronson et al., 2013).

Universities could work with African American student organizations on campus to create tailored, culturally competent messages about the link between stress, intentions, and sexual behavior (Aronson et al., 2013; Freeman, 2010; Janevic et al., 2012; M. A. Kelley, 2011; Utz et al., 2008). They should also promote awareness of resources on campus that can help with the stress of attending predominantly white institutions (Bowleg et al., 2014; Erwin et al., 2004; K. S. Hall et al., 2014; Hamilton & Meston, 2013; Zollman et al., 2013). Universities can make use of mass media campaigns that target young adults through television shows, radio shows, and the internet (Bertrand, O'Reilly, Denison, Anhang, & Sweat, 2006; Wakefield, Loken, & Hornik, 2010; Zimmerman et al., 2007). Institutions should also make sure there is a strong commitment to diversity. Such commitment may help African American students and others feel
less tokenized or less like “representatives” for the entire black community (Erwin et al., 2004; Fries-Britt & Griffin, 2007; L. Jones et al., 2002; Negga et al., 2007; Neville et al., 2004; Patton et al., 2011; Zollman et al., 2013).

**Future Research**

In this study, 80% of the participants had been sexually active in the last 12 months. Their condom use varied in consistency depending on sexual behavior (vaginal, oral, anal), stress type, and whether the behavior was assessed for the last 12 months or 30 days. Considering the results, additional research is needed to further examine the sexual behavior of African American college students attending PWIs. This need is supported by the disproportionate rates of STIs, unplanned pregnancy, and HIV/AIDS among African Americans (Anderson, 2003; Calloway et al., 2014; CDC, 2012; Crosby & Salazar, 2015; Dodge et al., 2010; Forhan et al., 2009; Frye et al., 2013; Gallo et al., 2007; Hogben & Leichliter, 2008; Payne et al., 2006; Satterwhite et al., 2013; Seth et al., 2015; Siddiqi, Hu, Hall, & Centers for Disease Control and Prevention (CDC), 2015; Warner et al., 2008).

The study findings indicated that interactions between intentions and different types of stress are better predictors of condom use than intentions alone. Therefore, additional research is needed on stress as a potential moderator in the relationship between intention to use condoms and the actual use of them. This study adds to the literature demonstrating that examining additional predictors of sexual behavior in conjunction with the Theory of Planned Behavior might be more effective at predicting actual condom use (McEachan et al., 2011). For example, in addition to stress, there is a well-established relationship between alcohol and illicit drug use and sexual behavior (Reed, Prado, Matsumoto, & Amaro, 2010). There is also an established relationship between stress and alcohol and illicit drugs (Buhi & Goodson, 2007; Buhi,
Marhefka, & Hoban, 2010; Hulland et al., 2014; Rice & Van Arsdale, 2010). This study has implications for future research that would examine all three factors (sexual behaviors, stress, and alcohol/drugs). Moreover, studies should also assess knowledge of STIs, and condom utilization skills (Coates, McKusick, Kuno, & Stites, 1989; Crosby, DiClemente, Charmigo, Snow, & Troutman, 2009; B. T. Johnson et al., 2009; Snipes & Benotsch, 2013; Tulloch, McCaul, Miltenberger, & Smyth, 2004).

African American college students are at multiple intersections of risk. Thus, sexual behaviors and stress outcomes should be investigated among subgroups within the African American student population. For instance, there are reported differences in sexual behaviors between African American men and women (Dodge et al., 2010; Herbenick et al., 2010). With the exception of looking at the gender of participants (male/female) and the gender of their sexual partners (male, female, transgender), further analyses were not conducted. There is a need to conduct a comprehensive analysis by gender in future research. This need is supported by research which demonstrates gender differences in STI rates, condom use, and the stigma associated with being sexually active and acquiring STIs (Cunningham, Tschann, Gurvey, Fortenberry, & Ellen, 2002; Dodge et al., 2010; Herbenick et al., 2010). Future research is recommended which explores sexual behaviors, including condom use, and stress in African American college students by gender identity.

The lesbian-gay-bisexual-transgender-queer- intersex-androgynous (LGBTQIA) community should be included in future research. These students’ identities intersect more than the general cis-heterosexual identified African American student (Friedman et al., 2014). For instance, there is a large stigma of homosexuality or homophobia in the African American community (Bond, Chase, & Aggleton, 2002; Cunningham et al., 2002; S. George, Duran, &
Norris, 2014; Hartwig, Kissioki, & Hartwig, 2006; Herek, Capitanio, & Widaman, 2002). This stigma may impact sexual behavior in the African American LCBTQIA community. For example, men who have sex with men are at a particularly high risk of acquiring an STI, especially HIV (Bazargan et al., 2000; Bowleg et al., 2014; Calloway et al., 2014; Dosekun & Fox, 2010; Kalichman, Simbayi, Cain, & Jooste, 2009; Martin et al., 2005; Payne et al., 2006).

Considering 43% of the study participants belonged to Greek Letter organizations (i.e., sororities and fraternities), future research that examines this subgroup is warranted. Students who are part of Greek letter organizations report engaging in more risky sexual health behaviors, including lack of condom use, than non-Greeks (Eberhardt et al., 2003; Erwin et al., 2004; Patton et al., 2011; Scott-Sheldon et al., 2008; Zollman et al., 2013). African American college students who attend PWIs and are part of Greek letter organizations have multiple risk factors, which include their minority status, being 18 to 24 years old, attending a PWI, and belonging to a Greek lettered organization. These students frequently face issues of racism and discrimination on campus (Patton et al., 2011). In part, because of their organizations’ emphasis on social and service activities, they have reported lower grade point averages than their non-Greek counterparts (Erwin et al., 2004). These students have also reported greater participation in other student organizations, hold more leadership positions across campus, and are involved in more campus activities during their free time than non-Greek African American (Erwin et al., 2004). These conditions may put them at greater risk for stress and subsequently higher risk sexual behaviors. Thus, additional research should be considered for this subgroup.

Since the current study was completed with undergraduate students, a similar study should be planned with African American graduate students at PWIs. Graduate students typically range in age from 21 to 65 years old with a median age of 33 years old (Allum, Bell, & Sowell,
African Americans between the ages of 25 and 30 have the next highest rate of STI acquisition outside of 15-24 year old (CDC, 2011). Graduate students experience similar stressors as undergraduates but may feel them more acutely (S. B. Myers et al., 2012). African American graduate students have the same types of racism-related stress, but have the added stress of teaching and researching (Bain, Fedynich, & Knight, 2011; Elkington et al., 2010; Folkman et al., 1992; Kopperman, 2007; Roberts et al., 2012; Rosenthal et al., 2014). Graduate students also tend have a closer relationship with faculty and may more acutely feel the pressures of graduate school (Bain et al., 2011; Erichsen & Bolliger, 2011; Lechuga, 2011). There is a greater male-to-female ratio, as well as a smaller African American population in graduate schools (United States Department of Education, 2014). Some of these students are single and may be engaging in unsafe sexual behavior. Future research should explore this subgroup of African American students at PWIs.

This study required that students self-identify as African American in order to participate. However, the African American college student community at PWIs is not a monolithic group. Thus, future research that explores subgroup differences in this racial/ethnic group is needed. Differences may exist between African American, first generation African American, and international African students (Mwangi & Fries-Britt, 2015). They share some of the same risk factors which include being between the ages of 18 and 24, attending a college or university with a low male to female ratio, and belonging to a community with high rates of sexual transmitted infections (STIs) (Adimora et al., 2002; Adimora et al., 2013; Adimora & Schoenbach, 2005; Anderson, 2003; CDC, 2012; Oparanozie, Sales, DiClemente, & Braxton, 2011; Seaton, Yip, & Sellers, 2009). In order to reduce the rates of STIs and unplanned pregnancies in these communities, it is becoming increasingly important to understand the factors that contribute to
condom usage. These may differ between the groups of students and contribute to differing intentions to engage in condom use. Differences may also exist in the types of stress that these groups experience. For example, international African students face hardships that Blacks born in America do not (Mwangi & Fries-Britt, 2015). First generation African Americans are at the intersection of two cultures (Gillborn, 1997; Haw, 2011; Phinney, Dennis, & Chuateco, 2005). African Americans have faced many generations of systematic racism and discrimination racism (Nazroo, 2003; R. Williams & Williams-Morris, 2000; Solorzano, Ceja, & Yosso, 2000). Consequently, African American, first generation African American, and international African students may respond to certain stressors (e.g. academic stress) in different ways while attending a PWI.

**Limitations**

There are several limitations of the study. For example, the results of this study cannot be generalized to all African American students attending predominantly white institutions. Impacting the generalizability of the study results was the lack of demographic information collected about the students. The study did not collect identifiable information about the participants, including where they lived in Alabama, the socioeconomic characteristics of their families, or what institution they attended. Therefore, the study is limited in its ability to make broad generalizations about African American students.

Another limitation related to the study design. This study used a cross-sectional design, which despite being commonly employed in social and behavioral science research, inhibits the ability to infer causation or establish a temporal relationship between variables (Simons-Morton et al., 2011). Therefore, one cannot conclude that intentions or attitudes (TPB constructs) caused certain condom use behaviors, or that stress (e.g. academic stress) caused certain behaviors (e.g.
vaginal sex with a condom), but rather these were associated with each other. Moreover, the findings cannot be used to suggest future behaviors or results over time for African American students at PWIs. Instead, the findings provide a snapshot of these factors during September-December 2015. It is possible that if this study had been conducted at another point in time, or if follow up data could be attained, the results may be different.

The Theory of Planned Behavior (TPB) has inherent limitations such as the assumption that individuals are mindful of their behaviors and their consequences. Consequently, the TPB does not account for affective factors that may influence behavioral intention such as fear, threat, or mood (Ajzen, 1991; Ajzen & Driver, 1992; Ajzen, 2002). A limitation of the Intent to Condom Use Inventory is that some of the TPB questions may not be addressing the construct that’ intended. In addition to being limited to the constructs of TPB (intention, attitude, perceived behavioral, control, and social norms), the study investigated one additional factor (stress) as a predictor of condom use. Therefore, several factors were not accounted for in the current study, although they are likely associated with sexual behavior, stress, and/or condom use in African American college students.

The sample included students who were not sexually active in the past 12 months. While this was important information needed about the study population, it impacted the amount of information that could be attained to examine condom use. In addition, a small number of students had engaged in anal sex, which provided limited information for the analysis. This finding is consistent with previous research (Dodge et al., 2010; Herbenick et al., 2010). Yet, the limited information about this sexual behavior impacts the generalizability of the study results. A larger sample size would have helped and is recommended for future research.
The health disparities in Alabama, ratio of rural to urban areas, the historical context of both the legacy of segregation and the impact of the Tuskegee Study of Untreated Syphilis in the Negro Males (i.e. the “Tuskegee Syphilis Study”) make the climate of discussing sexual behavior in the African American community unique (Hammond, 2010; Mays, 2012; Mays, Coles, & Cochran, 2012). Recent research has shown that the Tuskegee Syphilis Study does not affect recruitment of African Americans into research studies (Mays et al., 2012; Mays, 2012). However, it is unclear how much impact the Tuskegee Syphilis Study has on their willingness to disclose information on sensitive topics, such as the issues covered in this study. The sensitive nature of the study may have affected recruitment (Albaum, Roster, & Smith, 2015; Taylor, Yang, Tu, Auerswald, & Ott, 2013). Moreover, it is unclear how much impact the Tuskegee Syphilis Study had on the willingness of certain African American subgroups (including African American college students) to participate in related research.

Initially, recruitment was slow, so the survey remained open for an additional month to attain the necessary sample size. The low number of African Americans at PWIs presented a challenge to recruitment (United States Department of Education, 2014). The institutions from which the participants were recruited had a total of 144,516 students; 18.6% were African American (USDE, 2014). The study had a 0.75% response rate out of the possible student population. Yet, there is no way to determine how many of the students were aware of the study. This study relied primarily on snowball sampling, which might be considered a limitation (Biernacki & Waldorf, 1981; Faugier & Sargeant, 1997). Snowball sampling was deemed appropriate due to the difficult nature of reaching African American students at PWIs.

There was a lack of consistency in recruitment efforts, which is a limitation of the study. Students were recruited from a variety of different venues, which may have had an impact on
their survey responses. For example, students recruited from the psychology participant pool may have approached the survey differently than student recruited at a football tailgating event. While the sample size met the desired power level, the impact by recruitment type is unclear.

During the recruitment period of the study, there was a lot of racial tension at many campuses, including some of those from where the study participants were recruited (Bennett, 2015). For example, at the University of Alabama and other campuses, there was a movement by some African American students to assert that the campus climate was not very open to minority students and that changes were needed. Similar initiatives were seen across the United States, in which minority students expressed feelings of prejudice and acts of discrimination at PWIs (Farrar, 2015; Griggs, 2015). Some of these movements had tangible outcomes such as the creation of a “safe space” on the campus of the University of Alabama, and one culminated in the resignation of the university president at the University of Missouri (Farrar, 2015; Griggs, 2015; The New York Times, 2015; Wong & Green, 2016). This nation-wide focus on prejudice and racism on the campuses of PWIs may have had a polarizing effect on students in this study, with some possibly over-reporting their perceived stress.

It may be possible that some students over- or under-reported their condom use in order to meet approval of the researcher by providing socially desirable survey responses (Krumpal, 2013). Efforts were taken to limit this potential bias. For instance, the researcher did not discuss STIs in the African American community during recruitment unless specifically asked. The researcher communicated that the study results would not be used to judge students, but rather to inform decisions that could help future students like themselves. Additionally, the survey was administered online via Qualtrics instead of in person by the researcher.
Fewer males than females participated in the study, which is a limitation. However, this is a common occurrence (Couper, Singer, Conrad, & Groves, 2010; Gaultney, 2010; Sira & Pawlak, 2010; G. Smith, 2008). A possible explanation is that this phenomenon is a product of male and female values operating in a gendered environment (G. Smith, 2008). Some researchers contend that gender bias is inherent in most contexts, whereby men are thought to place a higher value on separative characteristics, while women are more likely to place value on items consistent with connective selves (Chodorow, 1978; England, 1989; G. Smith, 2008). In terms of this research, if women viewed participation in this study as helpful to improving our understanding of sexual behavior in order to better protect future African American students attending predominantly white institutions, then a higher survey response rate among women is expected (Chodorow, 1978; England, 1989; G. Smith, 2008; Tu & Liao, 2007). In addition, there is a low African American male-to-female ratio on college campuses which may have contributed to the response rate (Adimora et al., 2013; Adimora & Schoenbach, 2005; Nazroo, 2003; U.S. Department of Education, White House Initiative on Historically Black Colleges and Universities, 2015).

This survey is limited in its ability to draw conclusions about the sexual orientation or identity of the participants because such questions were not asked on the survey. However, some inferences can be drawn about participants’ sexual behaviors from the survey questions. The majority of participants had engaged in heterosexual sexual behavior (their sexual partners were of the same gender) in the last 12 months. While some engaged in homosexual or bisexual sexual behaviors during oral, vaginal, or anal sex in the last 12 months, the number of students who did so was too small to make any valid or useful inferences.
Approximately one-third of students (108) who began the survey did not finish it. Among the students who were excluded from analysis because they did not meet the eligibility criteria, nine did not give consent to participate, 44 did not attend a PWI, and 12 were not African American. The remaining 43 students were removed from the study because they did not answer any stress questions from the Social Readjustment Rating Scale Modified for College Students or the Minority Stress Scale. The majority of students who didn’t complete the survey stopped during the sexual behavior questions, which were the first set of questions immediately following the eligibility questions. Survey completion further declined in response to items from the Intent to Condom Use Inventory (Appendix A. Survey Instrument). It may be possible that the sensitive nature of the survey items affected survey completion despite their anonymity. Another factor that may have influenced survey completion was the survey length. Among the survey completers, it is possible that once students got to the Social Readjustment Rating Scale Modified for College Students they were vested in the survey.

Although one-third of students who accessed the weblink to the study did not complete it, demographically they were similar to the study sample in that 67% were women (70% of study sample were women). Twelve of the female non-completers had sexual partners that were women, 22 had sexual partners that were men, and the remaining 10 neglected to answer the item about the gender of their sexual partners. The non-completers had 0-20 oral sex partners ($M=2.68$, $SD=3.69$), 0-56 vaginal sex partners ($M= 5.00$, $SD=10.68$), and one anal sex partner among four students in the last 12 months. Condom use during oral sex in the last 12 months ranged from 0-27%, with 42.1% that reported no condom use; 16 that refused to respond to that question. Condom use during vaginal sex in the last 12 months varied; however, one-half did not respond to the question. Only two of the four students who reported having anal sex also
reported low levels of condom use. Their sexual behavior in the last 30 days was also similar to the study sample: they had 0-7 oral sex partners ($M=1.66$, $SD=1.78$), 0-7 vaginal sex partners ($M=1.85$, $SD=1.67$), and one anal sex partner. However, most of the students did not answer those questions.

**Strengths**

Despite the limitations of this study, there are many strengths. This study included 11 predominantly white institutions across Alabama. These institutions varied and included urban, rural, public and private institutions. The study focused on African American college student attending PWIs, which is an understudied student subgroup (Fries-Britt & Griffin, 2007; Watkins et al., 2007; Younge et al., 2013). This research also points out the need to study the sexual behavior of this this population. The study also examined different types of stress, as well as the constructs of the Theory of Planned Behavior (TPB), as suggested by previous research (McEachan et al., 2011; Molla et al., 2007). The study contributes to the sexual behavior literature examining condom use for both the TPB and stress.

The study instrument was based on three established instruments: the Intent to Condom Use Inventory, the Minority Stress Scale, and the Social Readjustment Scale Modified for College Students (Holmes & Rahe, 1967; Kanu & Kanu, 2000; Smedley et al., 1993; Zitzow, 1984). The three instruments were piloted together in this study and had a good reliability both individually and together. The resulting study instrument can be used in future studies with African American college students attending predominantly white institutions.

An additional strength of this study was the methodology used to recruit students into the study. Due to the difficulty in reaching African Americans on PWI campuses, the snowball methodology was used. Organizations that focus on African American students were especially
instrumental in recruiting students to participate. A factor that may have assisted with recruitment is that the researcher is an African American woman. She is also a member an organization of the National Pan Hellenic Council. This affiliation may have helped with recruitment.

Conclusions

This study contributes to the literature on sexual behaviors of African American college students attending predominantly white institutions. The study found that the Theory of Planned Behavior is useful in predicting intention to use condoms among African American college students. The findings confirm the association between stress and sexual behavior, as well as provide information about the interaction of stress and intentions to use condoms. This study suggests that while intentions help predict condom use, intentions alone are not sufficient for predicting condom use. In addition, this study demonstrates that risk factors such as stress and intentions to use condoms do not operate independently of each other. The findings also reinforce the need to add additional factors to the TPB in future studies to better predict condom use in African American students attending at white institutions.

African American students between the ages of 18 and 24 are disproportionally affected by unplanned pregnancies and STIs (CDC, 2012). Therefore, public health education and promotion programs are needed that (1) alert students to the relationship between sexual behavior and stress, (2) teach stress management techniques to African American students, and (3) that promote policies that increase screenings for STIs and services for stress and other related needs. Predominantly White institutions serve more African American students than Historically Black Colleges and Universities (USDE, 2014). They are in unique positions to provide interventions for this high-risk population as a strategy to reduce negative sexual health
outcomes and potential stressors. Having a strong commitment to such efforts and to campus-wide diversity would help address those needs.

**Summary**

In this chapter, the conclusions, implications for health education and promotion, recommendations for future research, and limitations of the study were discussed. Conclusions were drawn based on the results of the tested hypotheses, leading to a recommendation that intentions and stress should be examined together for African American college students attending predominantly white institutions. The findings of the study reinforced the need to examine additional predictors in addition to the TPB to explain condom use. Recommendations for future public health research related to condom use were presented and the limitations of this study were discussed. Lastly, conclusions of this study were presented.
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Appendix A: Survey Instrument

Consent:

Natasha Adulolu-Ajijola, MPH, PhD candidate, Principal Investigator from the University of Alabama, is conducting a study called "Examining the determinants of condom use among African American college students who belong to Black Greek Letter Organizations at predominantly white institutions in Alabama." She wishes to find out the factors that lead to individuals using or not using condoms during sexual intercourse.

Taking part in this study involves completing a web survey that will take about 20 minutes. This survey contains questions about sexual behavior, intentions to use condoms, and stress levels.

We will protect your confidentiality by recruiting from multiple institutions, making the survey anonymous, and asking no questions that can identify you. Only the research team will have access to the data. The data are password protected and encrypted. Only summarized data will be presented at meetings or in publications.

There will be no direct benefits to you. However, the findings will be useful to other African American students who attend predominantly white institutions for increasing condom usage on campus to decrease the sexually transmitted infection and unplanned pregnancy rate in the African American college student population.

The chief risk is that some of the questions may make you uncomfortable. You may skip any questions you do not want to answer.

If you have questions about this study, please contact Natasha Adulolu-Ajijola, MPH, PhD candidate at 740-707-5471 or by email at nmsaduloluajijola@crimson.ua.edu. If you have questions about your rights as a research participant, contact Ms. Tasha Myles (the Research Compliance Officer) at (205) 348-8461 toll-free at 1-877-820-3088. If you have complaints or concerns about this study, file them through the UA IRB outreach website at http://osp.ua.edu/site/IRCO_Welcome.html. Also, if you participate, you are encouraged to complete the short Survey for Research Participants online at this website. This helps UA improve its protection of human research participants.

YOUR PARTICIPATION IS COMPLETELY VOLUNTARY. You are free to participate or stop participating any
time before you submit your answers.

If you understand the statements above, are at least 18 years old, and freely consent to be in this study, click on the continue button to begin.

Yes
No

IC1: Are you a member of an NPHC organization?
Yes
No

IC2: Do you consider yourself to be African American or Black?
Yes
No

IC3: Are you 18 years of age or older?
Yes
No

IC4: Do you attend a predominantly white institution (PWI)?
Yes
No

Q1: Do you identify as a:
Female
Male

Q2: Within the last 12 months, how many partners have you had oral sex with and how often did you use a condom or a dental dam? (If you did not have sex partner within the last 12 months, please enter 0)
Q3: Within the last 12 months, how many partners have you had vaginal intercourse and how often did you use a condom? (If you did not have a sex partner within the last 12 months, please enter 0)

Q4: Within the last 12 months, how many partners have you had anal intercourse and how often did you use a condom? (If you did not have a sex partner within the last 12 months, please enter 0)

Q5: Within the last 12 months, did you have sexual partner(s) who were:
   - Female
   - Male
   - Transgender
Q6: Within the last 30 days, did you have:

<table>
<thead>
<tr>
<th>Activity</th>
<th>No, have never done this sexual activity</th>
<th>No, have done this sexual in the past but not in the last 30 days</th>
<th>Yes</th>
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<tbody>
<tr>
<td>Oral Sex</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Vaginal Intercourse</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Anal Intercourse</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

Q7: Within the last 30 days, how many partners have you had oral sex with and how often did you use a condom or a dental dam? (If you did not have sex partner within the last 30 days, please enter 0)

0 10 20 30 40 50 60 70 80 90 100

Oral Sex

How often did you use a condom or dental dam?

Q8: Within the last 30 days, how many partners have you had vaginal intercourse with? (If you did not have sex partner within the last 30 days, please enter 0)

0 10 20 30 40 50 60 70 80 90 100

Vaginal Sex

How often did you use a condom?

Q9: Within the last 30 days, how many partners have you had anal intercourse with? (If you did not have sex partner within the last 30 days, please enter 0)

0 10 20 30 40 50 60 70 80 90 100

Anal Sex
How often did use a condom?

Please indicate your agreement with the following statements:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q10: I accept the responsibility for using condoms</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q11: I would feel comfortable getting a condom</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q12: I would be able to insist that we use condoms</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q13: I would not have sex if my partner refused to use a condom</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q14: I feel confident in my ability to use a condom correctly</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q15: I am comfortable getting condoms</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q16: If my partner refused to use a condom, I feel like I could not do anything about it</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q17: I am comfortable discussing the importance of using condoms with a partner</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
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Please indicate your agreement with the following statements:

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<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q18: I believe that using a condom does not make sex less pleasurable</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q19: I believe that using condoms to avoid STIs is too much trouble</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Q20: Condoms cost too much</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Q21: It is embarrassing to get condoms</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Q22: Putting on condoms interrupts the smooth flow of sex.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Q23: I would be at risk of getting STIs if I have sex without a condom</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Q24: I would be insulted if my partner insisted we use condoms</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Q25: It is difficult to use a condom every time I have sex</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Please indicate your agreement with the following statements:
Q33: I would go with my partner to get condoms

Please indicate your agreement with the following statements:

<table>
<thead>
<tr>
<th>Statement</th>
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<th>Neither Agree nor Disagree</th>
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<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q34: I make sure that I have condoms to use when I have sex</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q35: I always insist on using condoms with each new partner</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q36: I talk with my partner about using condoms</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q37: I intend to provide condoms whenever I have sex</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q38: If I were to use condoms, I would use them correctly</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q39: I intend to persuade my partner to get a condom</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q40: I intend to use condoms with a new partner</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q41: I would not have sex with my partner if he/she refuses to use a condom</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q42: I intend to make it clear to my partner that using condoms is smart</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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</tbody>
</table>

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<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q43: Most people who are important to me</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Question</td>
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<td>Disagree</td>
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<td>Agree</td>
<td>Strongly Agree</td>
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</tr>
<tr>
<td>Q44: My friends believe I should always use a condom</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q45: Most women want their partners to use condoms</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q46: My friends do not believe in using condoms for sex</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q47: My friends believe that it is stupid to not use condoms</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q48: My religion thinks I should use a condom every time I have sex</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q49: Doing what my parent(s)/guardian(s) want is important to me</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q50: My friends believe that having sex with a new partner without using</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Please indicate your agreement with the following statements:
Q56: Generally speaking, I want to do what my close friends think I should do

Q57. Please click all that apply from the past year

- Death of a close family member
- Death of a close friend
- Divorce between parents
- Serious legal problems
- Major personal injury or illness
- Responsibilities for others, such as children/spouse
- Threat to major source of income
- Difficulty with roommates

- Change in health of a family member
- Pregnancy
- Sexual problems
- Serious disagreements with parents
- Change in lifestyles for financial reasons
- Difficulty in identifying a major
- Serious arguments with close family member
- Problems with a girlfriend or boyfriend

Q58. Please click all that apply from the past year

- Having to repeat a course
- Increased workload at school
- Outstanding personal achievement
- First semester in college
- Change in living conditions
- Serious disagreement with an instructor
- Lower grades than expected
- Change in sleeping habits

- Change in social habits
- Change in eating habits
- Chronic car problems
- Change in number of family get togethers
- Too many missed classes
- Change in plans for a major
- Dropped more than one class
- Minor traffic violation

Please indicate your agreement with the following statements:

Q59: The university does not have enough professors of my race

Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

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<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q60: Few students of my race are in my classes</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Q61: Racist policies and practices of the university</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Q62: The university lacks concern and support for the needs of students of my race</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Q63: Seeing members of my race doing low status jobs and Whites in high status jobs on campus</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Q64: Few courses involve issues relevant to my ethnic group</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

Please indicate your agreement with the following statements:

Q65: Negative attitudes/treatment of students of my race by faculty     | ●                 | ●        |                           | ●     | ●              |
Q66: White students and faculty expect poor academic performance from students of my race | ●                 | ●        |                           | ●     | ●              |
Q67: Pressure that what "I" does is representative of my ethnic group's abilities, behavior, and so on | ●                 | ●        |                           | ●     | ●              |
Q68: Tense relationships between Whites and minorities at the university | ●                 | ●        |                           | ●     | ●              |
Q69: The university is an unfriendly place                              | ●                 | ●        |                           | ●     | ●              |
<table>
<thead>
<tr>
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<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q70: Difficulties with having white friends</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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</tr>
<tr>
<td>Q71: Negative relationships between different ethnic groups at the university</td>
<td>○</td>
<td>○</td>
<td>○</td>
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</tr>
<tr>
<td>Q72: The white-oriented campus culture of the university</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q73: Having to live around mostly white people</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q74: The lack of unity/supportiveness among members of my race at the university</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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</tr>
<tr>
<td>Q75: Trying to maintain my ethnic identity while attending the university</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Q76: Having to always be aware of what white people might do</td>
<td>○</td>
<td>○</td>
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Please indicate your level of agreement with the following statements:

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<th>Agree</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Q77: Being treated rudely or unfairly because of my race</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Q78: Being discriminated against</td>
<td>○</td>
<td>○</td>
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</tr>
<tr>
<td>Q79: White people expecting me to be a certain way because of my race (i.e., stereotyping)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Q80: Others lacking respect for people of my race</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q81: Having to &quot;prove&quot;</td>
<td>○</td>
<td>○</td>
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</tr>
</thead>
<tbody>
<tr>
<td>Q82: People close to me thinking I'm acting &quot;white&quot;</td>
<td></td>
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</tr>
<tr>
<td>Q83: Pressures to show loyalty to my race (e.g., giving back to my ethnic group community)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Q84: Pressures from people of my same race (e.g., how to act, what to believe)</td>
<td></td>
<td></td>
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<tr>
<td>Q85: Relationships between males and females of my race (e.g., lack of available dating partner)</td>
<td></td>
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<tr>
<td>Q86: Doubts about my ability to succeed in college</td>
<td></td>
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<tr>
<td>Q87: Feeling less intelligent of less capable than others</td>
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<tr>
<td>Q88: My family has very high expectations for my college success</td>
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<tr>
<td>Q89: My academic background for college being inadequate</td>
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<tr>
<td>Q90: My family does not understand the</td>
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</tbody>
</table>
pressures of college (e.g. amount of time or quiet needed to study)
Q91: Being the first in my family to attend a major university

Dem1: How old are you?

Dem2: What is your year in school?

Dem3: What is your enrollment status?

Dem5: What is your relationship status

Dem6: What is your martial status?

Dem7: Where do you currently live?

Dem8: How many hours a week do you work for pay?

Note: Value is on the right side of the scale

https://universityofalabama.ar1.quantrics.com/ControlPanel/Ajax.php?action=GetSurveyPrintPreview&T=38E0bDR0JhNRg5hY14G

13/14
Dem9: How many hours a week do you volunteer?

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<td>48</td>
</tr>
<tr>
<td>54</td>
</tr>
<tr>
<td>60</td>
</tr>
</tbody>
</table>

Con: Thank you for your participation in my survey. If you have any questions about this study at any time please feel free email Natasha Aduloju-Aijola at nmadulojuaijola@ crimson.ua.edu. If you have questions about your rights as a research participant, contact Ms. Tanta Myles (the Research Compliance Officer) at (205) 348-8461 or toll-free at 1-877-820-3086.

If you interested in the results of this study, please email Natasha and she will share the results with you when they are complete.
Appendix B: Map Of Alabama And Location Of Institutions
Appendix C: Email invitation

“Research Invitation” was put on the message line of an e-mail or the title of a webpage.

Dear (Name),

I am writing you to invite you to participate in a research study called “Examining the determinants of Condom use among African American college students who belong to Black Greek Letter Organizations at predominantly white institutions in Alabama”. I am conducting this study to find out the factors that lead to individuals using or not using condoms using sexual intercourse.

Taking part in this study involves completing a web survey that will take about 20 minutes. This survey contains questions about sexual behavior, intentions to use condoms, and stress levels.

I will protect your confidentiality by recruiting from multiple institutions, making the survey anonymous, and asking no questions that can identify you. Only the research team will have will have access to the resulting data. The data will be password protected and encrypted in order to greater ensure that it is protected. Only the summarized data will be presented at meetings or in publications.

While there will be no direct benefits to you, the findings will be useful to other African American students who attend predominantly white institutions for increasing condom usage on campus. African Americans between the ages of 15 and 24 are disproportionately affected by sexual transmitted infections (such as HIV, chlamydia, and gonorrhea) and unplanned pregnancy. This study aims to use the results to decrease the sexually transmitted infection and unplanned pregnancy rate in the African American college student population, particular those who attend predominantly white institutions.

The chief risk for participating in this study, is that some of the questions may make you uncomfortable, however, you may skip any questions you do not want to answer.

If you have questions about this study, please contact Natasha Aduloju-Ajijola, MPH, PhD candidate at 740-707-5471 or by email at mmadulojaajijola@crimson.ua.edu. If you have questions about your rights as a research participant, contact Ms. Tanta Myles (the University Compliance Officer) at (205) 348-8461 or toll-free at 1-877-820-3066. If you have complaints or concerns about this study, file them through the UA IRB outreach website at http://osp.ua.edu/site/PRCO_Welcome.html. Also, if you participate, you are encouraged to complete the short Survey for Research Participants online at this website. This helps UA improve its protection of human research participants.

YOUR PARTICIPATION IS COMPLETELY VOLUNTARY. You are free not to participate or stop participating any time before you submit your answers.

If you understand the statements above, are at least 19 years old, and freely consent to be in this study, click on the link below

Thank you for your consideration in participating in my study,

Graciously,

Natasha Aduloju-Ajijola, MPH, PhD candidate
Graduate Research Assistant, University of Alabama
Member of Sigma Gamma Rho Sorority Incorporated

Angelia Paschal, PhD, Dissertation Chair
Associate Professor, University of Alabama
Member of Delta Sigma Theta Sorority Incorporated
Appendix D: Recruitment Flyer

Study Recruitment for a Dissertation
Examining the Determinants of Condom Use

Are you an undergraduate?
Are you a member of a NPHC organization?
Between the ages of 18-24?
Attend a predominantly white institution?

Please take my survey!
Contact Natasha Aduloju-Ajijola, MPH, PhD candidate
nmadulojuajijola@crimson.ua.edu

No direct benefits to being in the study
Only takes about 20 mins to complete
100% Confidential
Appendix E: The University of Alabama IRB Approval

August 7, 2015

Natasha Aduloju-Ajjola, MPH
Dept. of Health Science
College of Human Environmental Sciences
Box 870311

Re: IRB#: 15-OR-238 "Examining the Determinants of Condom Use among African-American Students who Belong to Black Greek Letter Organizations at Predominantly White Institutions in Alabama"

Dear Ms. Aduloju-Ajjola:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given expedited approval according to 45 CFR part 46. You have also been granted the requested waiver of written documentation of informed consent. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies

Your application will expire on August 6, 2016. If your research will continue beyond this date, complete the relevant portions of the IRB Renewal Application. If you wish to modify the application, complete the Modification of an Approved Protocol Form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, complete the appropriate portions of the IRB Request for Study Closure Form.

Please use reproductions of the IRB approved stamped consent forms to provide to your participants.

Should you need to submit any further correspondence regarding this proposal, please include the above application number.

Good luck with your research.

Sincerely,

[Signature]

Carrie T. Myles, MSW, CMM, CIOP
Director & Research Compliance Officer
Appendix F: Auburn University Approval
Appendix G: Springhill College IRB Approval

To: Natasha Aduloju-Ajijola

Doctoral Candidate at the University of Alabama

From: Demetrius Semien

Chair, Institutional Review Board

Date: 9/23/15

RE: IRB Proposal Number IRB15-03

The IRB Committee at Spring Hill College approves the participation of Spring Hill College Students in for your University of Alabama dissertation research (IRB# 15-OR-238; Examining the determinants of condom use among African American students of black Greek letter organizations at predominantly white institutions in Alabama). This approval is effective from today’s date until May 15, 2016. If you wish to renew next year, simply send a brief note requesting the renewal of IRB15-03. You will not need to go through the IRB approval process next year if the protocol and measures stay the same.

We wish you the best with your project.

Regards,

Demetrius Semien, M.Div., Ph.D.
Assistant Professor
Department of Sociology
Spring Hill College
(251)-380-3053
Appendix H: University of North Alabama IRB Approval

Date to Committee: August 28, 2015

Principal Investigator(s): Natasha Aduloju-Ajijola

Title of Research Proposal: Examining the Determinants of Condom Use Among African American Students who Belong to Black Greek Letter Organizations at Predominately White Institutions in Alabama

Protocol Number: 006

Date Approval Ends: One Year From Date Approved

IRB Action: This proposal complies with University and Federal Regulations For the protection of human subjects (45 CFR46). Approval is effective for a period of one year from the date of this notification.

This approval expires September 1, 2016. Investigators who wish to continue collecting data beyond the expiration date must submit a Continuing Review Form 30 days prior to the protocol expiration date. Continuing Review Forms can be found at: http://www.una.edu/sponsored-programs/Human%20Subjects%20Research/policies-guidance-forms.html

Date Approved: 9-1-2015

Dr. Ryan Zayac, Chair
Human Subjects Committee
Appendix I: Jacksonville State University IRB Approval

This is the advice that I provide to all outside parties with no affiliation to JSU who inquire.

With best wishes for your study's success,

Joe Delap

---

From: "Natasha Aduloju-Ajjola" <aduloju.aijjola@gmail.com>
To: jdelap@jsu.edu
Sent: Thursday, July 16, 2015 8:34:23 PM
Subject: IRB request

Vice Provost and Dean of Graduate Studies
Office of Academic Affairs
201 Bibb Graves Hall
Jacksonville State University
Jacksonville, AL 36265
(256) 782-8186

Natasha Aduloju-Ajjola <aduloju.aijjola@gmail.com>
To: Joe Delap <jdelap@jsu.edu>

Hello Dr. Delap,

I have attached a copy of my institution's approval letter to conduct my study.

Thank you!

Natasha

---

Files:

Aduloju-Ajjola 15-OR-238 (1)
388K

Joe Delap <jdelap@jsu.edu>
To: Natasha Aduloju-Ajjola <aduloju.aijjola@gmail.com>
Cc: Rosemary Harper <rosemh@jsu.edu>

Hello, Ms. Aduloju-Ajjola.

With this reply I am copying Ms. Rosemary Harper, requesting that your approval letter be filed electronically in our general IRB file.

Kind thanks and best wishes for your study,
Appendix J: University of Montevallo IRB Approval

MEMORANDUM

TO: Natasha Aduloju-Ajijola
From: Dr. Jenifer Moore Williams,
Chair, Human and Animal Subjects Research Committee/IRB
RE: Research Application (request for minor revisions)
Date: September 25, 2015

The research described in the Ethical Compliance Statement (Aduloju-Ajijola: Examining the
determination of condom use among African-American students who belong to black letter
organizations at predominantly white institutions in Alabama) has received approval from the IRB
and is considered to be in compliance with the APA’s Ethical Guidelines (Submitted by Principal
Investigator: Natasha Aduloju-Ajijola).

The study is approved for one year from the approval date listed above, after which you must
apply for a continuation or submit a closure form. obvious to participants.

Signature of Chair ________________________________  September 25, 2015
Date ________________________________

University of Montevallo is an affirmative action, equal-opportunity institution.
Appendix K: University of South Alabama IRB Approval

IRB request

SuzAnne Robbins <srobbins@southalabama.edu>  Wed, Aug 19, 2015 at 11:37 AM
To: aduloju.ajijola@gmail.com

Ms. Aduloju-Ajijola -

Your study has received IRB Approval. Please follow this link to have your survey sent to the students:

http://www.southalabama.edu/departments/institutionaleffectiveness/surveyrequests.html

My best,

SuzAnne

SuzAnne Robbins
IRB Compliance Specialist
IRB - CSAB 138
(251) 460-6308
srobbins@southalabama.edu

-------- Forwarded message --------
From: Dusty Layton <dlayton@southalabama.edu>
Date: Wed, Aug 19, 2015 at 9:40 AM
Subject: Fwd: IRB request
To: SuzAnne Robbins <srobbins@southalabama.edu>

SuzAnne,

Please respond ....

Thank you,

Dusty

--- (Original text hidden) ---

--- Dusty Layton, MPA, BS, CIF: Director, Research Compliance and Assurance University of South Alabama 307 University Blvd., CSAB 120 Mobile, AL 36688 251-460-6625 dlayton@southalabama.edu ---

2 attachments
Appendix L: Troy University IRB Approval Letter

October 20, 2015

Ms. Natasha Adulajo-Ajijola
Department of Health Science Student
University of Alabama

Dear Ms. Adulajo-Ajijola,

The Troy University Institutional Review Board has finished reviewing your application for Examining the determinants of condom use among African American students who belong to black greek letter organizations at predominantly white institutions in Alabama (Protocol #201508001) and has approved your protocol, as is. This approval is good from October 20, 2015 until October 20, 2016. If you wish to continue your research after this date, you must complete and submit a Continuation Application. You are also responsible for immediately informing the Institutional Review Board of any changes to your protocol, or of any previously unreported risks to the research participants.

Please let me know if you have any questions.

Sincerely,
IRB request

From: Natasha Aduloju-Ajijola <aduloju.ajijola@gmail.com>
Sent: Monday, August 24, 2015 12:34 PM
To: Cani Oliver
Subject: Re: IRB request

This is a lot of recruitment going on here. You must be working with someone here to get into the chapter meetings and Greek houses. It doesn’t sound like UAB is engaged in research so we wouldn’t require IRB review on our end, but before you contact anyone here, we expect your site IRB approval to review all recruitment methods.
Appendix N: University of Alabama Huntsville IRB Approval

Gmail - Re: UAH followup about UA IRB approval letter

Natasha Aduloju-Aijjola <aduloju.ajjola@gmail.com>

Fri, Jul 31, 2015 at 11:23 AM

Re: UAH followup about UA IRB approval letter

2 messages

Institutional Research Board <irb@uah.edu>  To: Natasha Aduloju-Aijjola <aduloju.ajjola@gmail.com>

Fri, Jul 17, 2015 at 2:16 PM, Natasha Aduloju-Aijjola <aduloju.ajjola@gmail.com> wrote:

Hi Dr. O'Neal,

I am planning on accessing the students at UAH through the National Pan-Hellenic Council (NPHC) organizations. Through emails, social media, and attending greek functions both around the state and at UAH. I plan to come in contact with the students and ask them to please participate in the study. I have attached a document that goes into more depth about my recruitment techniques.

Thank you for your consideration,

Natasha

On Fri, Jul 17, 2015 at 1:03 PM, Institutional Research Board <irb@uah.edu> wrote:

Natasha,

I am unclear how you plan to access the students at UAH. Are you working with someone here at UAH? Please provide additional information.

Thanks

On Thu, Jul 16, 2015 at 8:35 PM, Natasha Aduloju-Aijjola <aduloju.ajjola@gmail.com> wrote:

My name is Natasha Aduloju-Aijjola: I am a Doctoral Candidate at the University of Alabama. I am working on my dissertation titled: Examining the determinants of condom use among African American students of black Greek letter organizations at predominantly white institutions in Alabama. I am exploring the following factors in relation to condom use: age, attitudes, social norms, perceived behavioral control, intentions, overall stress, social climate stress, intergroup stress, racism and discrimination stress, within-group stress, and achievement stress. I am recruiting a minimum of 200 students at 13 institutions across the state of Alabama. Through the use of a web-based survey collection system (Qualtrics) I will be collecting the data. I will not ask the students any identifying information including what institution they attend. This study’s aim is to gain a better understanding of the factors related to condom use behaviors of this understudied population.

My question is does my project need to be reviewed at your institution? If so, would your institution be willing to enter into an Institutional Review Agreement with the University of Alabama in regards to this project.

Thank you for your consideration and time,
Appendix O: Auburn University in Montgomery IRB Approval

Date: August 26, 2015
To: Natasha Adeolu-Ajola
Department of Health Sciences, University of Alabama
From: Dr. Glen E. Ray, Chair, AUM IRB
Re: IRB approval of Exempt research: “Examining the Determinants of Condom Use”
IRB file #AUM2015-058
AUM IORG #: 0005227
AUM IRB #: 00006286
FWA #: 00012889

Thank you for submitting your research protocol to the IRB. Given the nature of your research, your proposal is exempt from further IRB review under Exemption 2 as stated:

“Exemption 2 of 45 CFR (Code of Federal Regulations) 46.101: 2. Research involving the use of educational tests (cognitive, diagnostic, aptitude, and achievement), survey procedures, interview procedures or observation of public behavior. (i) the information is obtained and recorded in such a manner that human subjects cannot be identified, directly or through identifiers linked to the subjects.”

Thank you for your commitment to the protection of human subjects.

Cc: Debbie Tomblin, IRB Administrator
<table>
<thead>
<tr>
<th>Methods of Recruiting African American College Students</th>
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<tbody>
<tr>
<td>Zeta Regional</td>
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<tr>
<td>LSU/Alabama “Que” tailgate</td>
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<td>100 Collegiate meeting</td>
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<td>KAPsi meeting</td>
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<td>NPHC meeting</td>
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<td>Omega Psi Phi step practice</td>
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<tr>
<td>Participant poll (Psychology Department)</td>
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<tr>
<td>3MT finals</td>
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<tr>
<td>Walking around multiple campuses (UA, UAB, etc)</td>
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<tr>
<td>Countless</td>
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<tr>
<td>-GroupMe’s</td>
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<tr>
<td>-Facebook</td>
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<td>-Twitter</td>
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<td>-Instagram</td>
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<tr>
<td>-Tumblr</td>
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<tr>
<td>Conference for teaching Diversity (SREB conference)</td>
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<td>BSU meetings</td>
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<tr>
<td>Graduate School Preview Day</td>
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<tr>
<td>Networking</td>
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<tr>
<td>-Friends/professors who taught across difference departments and institutions</td>
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<tr>
<td>When I taught</td>
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<tr>
<td>Friends with siblings</td>
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<tr>
<td>-Stress management</td>
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<tr>
<td>-Personal health</td>
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<tr>
<td>Friends with friends</td>
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<tr>
<td>Soror’s who advise undergraduate chapters</td>
</tr>
<tr>
<td>Health department contacts</td>
</tr>
<tr>
<td>Athletic tutors</td>
</tr>
<tr>
<td>Posted flyers</td>
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<tr>
<td>Flyers made into business cards and handed out at events</td>
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<tr>
<td>Social media spread images of flyer</td>
</tr>
<tr>
<td>Friends at NPHC chapters who reached out to their contacts—zetas, kappas, sgrhos, NSBS</td>
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<tr>
<td>GSA events—PhD movie</td>
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<tr>
<td>Tide together events</td>
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<tr>
<td>Res Housing staff (both UA and elsewhere)</td>
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<tr>
<td>Charleston southern football game</td>
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<tr>
<td>-community directors</td>
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<tr>
<td>Contacting professors and chapter advisors</td>
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<tr>
<td>KAPsi neophyte presentation</td>
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<tr>
<td>Thanksgiving get together</td>
</tr>
<tr>
<td>Sorors only facebook page</td>
</tr>
<tr>
<td>Email blast to rural Health Scholars</td>
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<tr>
<td>Email blast to Black honors students</td>
</tr>
</tbody>
</table>

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