

2017

Exposure to HIV Prevention Messages on Social Media and Behavior Change Intent

Yoshika Shajuan Eason
Walden University

Follow this and additional works at: <https://scholarworks.waldenu.edu/dissertations>

 Part of the [Public Health Education and Promotion Commons](#)

This Dissertation is brought to you for free and open access by the Walden Dissertations and Doctoral Studies Collection at ScholarWorks. It has been accepted for inclusion in Walden Dissertations and Doctoral Studies by an authorized administrator of ScholarWorks. For more information, please contact ScholarWorks@waldenu.edu.

Walden University

College of Health Sciences

This is to certify that the doctoral dissertation by

Yoshika Eason

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee

Dr. Richard Jimenez, Committee Chairperson, Public Health Faculty

Dr. Cheri Langley, Committee Member, Public Health Faculty

Dr. Ernest Ekong, University Reviewer, Public Health Faculty

Chief Academic Officer

Eric Riedel, Ph.D.

Walden University

2017

Abstract

Exposure to HIV Prevention Messages on Social Media and Behavior Change Intent

by

Yoshika Eason

MPH, Fort Valley State University, 2007

BS, Georgia State University, 2002

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Community Health Education and Promotion

Walden University

June 2017

Abstract

African Americans living in the Southeastern region of the United States disproportionately contract sexually transmitted infections (STIs), including human immunodeficiency virus (HIV). Facebook and other social media sites are becoming a way to deliver health-related messaging to targeted populations. The purpose of this quantitative, cross-sectional study was to examine the association between selected demographic factors and impact of social media on intent to change sexual behaviors among 112 African Americans between the ages of 18 and 49 in the Southeastern United States who viewed STI/HIV prevention materials on Facebook within 1 year prior to the study. The theory of planned behavior was used to help understand and interpret the findings. Participants completed an online self-report survey containing questions about their exposure to sexual health messages on Facebook and their intent to change behavior. Results of the multiple logistic regression analyses indicated that gender ($p = .462$), age ($p = .122$), education ($p = .593$), and income ($p = .200$) were not statistically associated with the dependent variable, intent to change risky sexual behaviors. A majority of respondents indicated the intention to change their sexual behaviors as a result of viewing HIV prevention messages on Facebook, and that the messages were the most important factor in their decision to change behavior. Facebook messaging may be an effective platform for reaching African Americans and influencing behavior; however more research is needed to fully understand the use of social media for STI prevention. The social change implication of this research is the potential to decrease HIV/STI associated morbidity and mortality among this population.

Exposure to HIV Prevention Messages on Social Media and Behavior Change Intent

by

Yoshika Eason

MPH, Fort Valley State University, 2007

BS, Georgia State University, 2002

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Community Health Education and Promotion

Walden University

June 2017

Dedication

I dedicate this dissertation to the memory of my mother, Mardessia Eason, and to my children Keslyn and Kinsley Billings. This dissertation has been one of the most trying projects that I have embarked upon because life has had me so busy that I could barely find the time to get it done. Although there were many times in which I wanted to give up and a few times that I actually gave up there was something inside of me that just would not let me quit. I hope that my journey inspires my children to keep pushing through the hard times and to never give up on their dreams.

Acknowledgements

I would like to thank my father Lynn and my stepmother Dianne for checking in on me and giving me that extra push that was so desperately needed. I would like to thank my kids for dealing with my mood swings when I was overwhelmed. I am extremely grateful for having a chair as patient and helpful as Dr. Richard Jimenez. I know that I was not the easiest student to work with and there were many times that I took forever to get sections done but you never gave up on me. I would also like to give thanks to Dr. Cheri Langley for your support and guidance throughout this process. I don't know what I would have done without the help of Dr. Ethel Kloos during those times when I was struggling with my statistical data. You really explained the process and helped me to understand what needed to be done and why. I also really appreciate you checking up on me throughout the process as well. To my family and friends who supported and encouraged me throughout this process, you are greatly appreciated.

Table of Contents

| | |
|--|----|
| List of Tables | vi |
| Chapter 1: Introduction to the Study..... | 1 |
| Background | 2 |
| Problem Statement | 4 |
| Purpose..... | 5 |
| Research Questions and Hypotheses | 6 |
| Theoretical Framework..... | 8 |
| Nature of the Study | 9 |
| Definitions..... | 9 |
| Assumptions..... | 11 |
| Scope and Delimitations | 11 |
| Limitations | 12 |
| Significance of Study..... | 13 |
| Summary | 13 |
| Chapter 2: Literature Review | 15 |
| Literature Search Strategy..... | 16 |
| Theoretical Foundation | 16 |
| Sexually Transmitted Infections | 19 |
| Introduction to Sexually Transmitted Infections | 19 |
| African Americans and Sexually Transmitted Infections..... | 20 |

| | |
|--|----|
| Sexually Transmitted Infections in Georgia, Mississippi, Alabama, and Tennessee | 21 |
| Sexually Transmitted Infections in Young Adults..... | 25 |
| Contraceptive Use..... | 26 |
| Social, Economic, and Behavioral Factors | 27 |
| Demographic Factors | 29 |
| Current Strategies for Improvement of Sexual Health | 32 |
| Social Networking Sites..... | 34 |
| High-Risk Behavior for HIV on Social Networking Sites..... | 36 |
| Social Media as a Public Health Tool..... | 37 |
| Social Media for Health Promotion | 38 |
| Negative Aspects of Using Social Media | 39 |
| Other Sources of Information on Sexually Transmitted Infections | 40 |
| Review of Methods | 42 |
| Summary and Conclusion | 43 |
| Chapter 3:Research Methodology..... | 45 |
| Research Design and Rationale | 45 |
| Population | 49 |
| Sampling and Sampling Procedure | 50 |
| Procedures for Recruitment, Participation, and Data Collection | 51 |
| Instrumentation and Operationalization of Constructs | 54 |

| | |
|---|----|
| Instrumentation | 54 |
| Operationalization of Constructs | 54 |
| Survey Construction..... | 54 |
| Validity | 54 |
| Pilot Study..... | 55 |
| Data Collection Plan | 55 |
| Data Analysis | 56 |
| Univariate Description | 56 |
| Bivariate Analysis..... | 57 |
| Multivariate Analysis..... | 57 |
| Limitations and Threats to Validity | 59 |
| Ethical Procedures | 60 |
| Summary..... | 62 |
| Chapter 4: Findings..... | 63 |
| Data Collection | 65 |
| Descriptive Statistics..... | 67 |
| Demographics | 67 |
| Exposure to Health Messages | 69 |
| Risky Behaviors for HIV/STI..... | 70 |
| Intent to Change Risky Sexual Behaviors | 71 |
| Bivariate Analysis..... | 73 |

| | |
|--|-----|
| Research Question 1 | 73 |
| Research Question 2 | 74 |
| Research Question 3 | 75 |
| Research Question 4 | 76 |
| Research Question 5 | 77 |
| Multivariate Analysis..... | 78 |
| Summary..... | 80 |
| Chapter 5: Discussion | 82 |
| Interpretation of the Findings..... | 82 |
| Research Question 1 | 83 |
| Research Question 2 | 84 |
| Research Question 3 | 85 |
| Research Question 4 | 87 |
| Research Question 5 | 87 |
| Theoretical Framework..... | 88 |
| Limitations of the Study..... | 90 |
| Recommendations..... | 91 |
| Implications..... | 92 |
| Conclusion | 94 |
| References..... | 95 |
| Appendix A: Study Participation Invitation | 114 |

| | |
|---|-----|
| Appendix B: Eligibility Questions..... | 115 |
| Appendix C: Demographic Questions | 117 |
| Appendix D: Survey Questions | 118 |
| Appendix E: Data Collection Protocol | 121 |
| Appendix F: Descriptive Statistics Tables | 123 |
| Appendix G: Analytical Statistics..... | 125 |
| Appendix H: Facebook Advertisement..... | 126 |

List of Tables

| | |
|--|----|
| Table 1. Sample Gender Composition | 57 |
| Table 2. Chi-Squared Results for Test of Association Between Gender and Intent to Change Risky Sexual Behaviors | 58 |
| Table 3. Results of Multiple Logistic Regression to Test for Association Between Intent to Change Risky Sexual Behaviors and All Four Demographic Variables | 59 |
| Table 4. Sample Demographic Composition | 68 |
| Table 5. Last Viewed Facebook Messages | 69 |
| Table 6. Sources of Sexual Health Message | 70 |
| Table 7. Risky Sexual Behaviors by Gender Identification..... | 71 |
| Table 8. Intent to Change Risky Sexual Behaviors | 72 |
| Table 9. Chi-squared Analysis Results – Intent to Change Risky Sexual Behaviors by Gender..... | 74 |
| Table 10. Chi-Squared Analysis Results – Intent to Change Risky Sexual Behaviors by Age..... | 75 |
| Table 11. Chi-Squared Analysis Results – Intent to Change Risky Sexual Behaviors by Education | 76 |
| Table 12. Chi-Squared Analysis Results – Intent to Change Risky Sexual Behaviors by Income,..... | 77 |
| Table 13. Chi-squared Results – Intent to Change Risky Sexual Behaviors by Exposure to Non-Facebook-based Prevention Messaging..... | 78 |

Table 14. Multiple Logistic Regression Results for Intent to Change Risky Sexual

Behaviors 80

Chapter 1: Introduction to the Study

Adverse health effects associated with sexually transmitted infections (STIs), including human immunodeficiency virus (HIV), continue to be a major public health challenge (Dean & Fenton, 2010). African Americans living in the Southeastern region of the United States are disproportionately affected by HIV and other STIs (Farley, 2006). In 2010, 69% of gonorrhea and 47% of syphilis cases were among African Americans (Centers for Disease Control and Prevention [CDC], 2014). In 2010, the rates of chlamydia in African American women were seven times the rate in Caucasians, and the rate in African American men was 11 times the rate in their Caucasian counterparts (CDC, 2014). The CDC (2014) also reported that more African Americans are affected by HIV than any other racial group. From 2008 to 2011, African Americans accounted for 47% of the total number of new HIV diagnoses, with African American women accounting for 66% of new diagnoses (CDC, 2014).

Because many adults place high value on social media as a communication tool, it would be useful to determine how effective social media are as sexual health promotion platforms (Smith, 2011). Specifically, there is a need for researchers to determine whether Facebook is an effective platform for sexual health promotion and STI/HIV prevention. This study could influence positive social change by providing researchers with information about how STI/HIV prevention messages on Facebook could lead to behavior change, thus decreasing the rates of infection in this population. The findings could help public health practitioners develop interventions on Facebook and other social media that could lead to changes in the sexual behaviors of this population.

In this chapter, the background of STI/HIV in the Southeastern United States, the problem statement, the purpose of the study, research questions and hypotheses would be discussed. Also to be explained will be the theoretical framework, nature of the study, definitions, assumptions, scope and delimitations, limitations, significance of the study, and conclude with a summary.

Background

States in the Southeastern part of the United States have some of the highest rates of STI (Reif et al., 2014). Over the past 15 years, there has been an increase in HIV/AIDS cases among African Americans living in the Southern region of the United States (Reif et al., 2014). In 2011, Georgia ranked in the top seven states for highest rates of chlamydia, gonorrhea, and syphilis in the United States (Georgia Department of Public Health, 2014). Georgia was sixth in the United States for adults living with HIV in 2010 (Georgia Department of Public Health, 2013). According to the CDC (2014c), Mississippi ranked 5th for new cases of chlamydia and 3rd for new cases of gonorrhea. For HIV, Mississippi had the 10th highest rate of diagnosis among all the states in 2012 (Mississippi Department of Health, 2014). In 2013, Alabama was third for new diagnoses of chlamydia and second for new cases of gonorrhea (Alabama Department of Public Health, 2014). Tennessee has ranked 17th for new cases of chlamydia and 15th for new cases of gonorrhea in 2013 (Tennessee Department of Health, 2014).

There has been an increase in health promotion interventions on social media, but researchers have evaluated very few for effectiveness (Pedrana et al., 2013). This study was conducted to address a gap in knowledge about the use of Facebook as a public

health tool to help decrease the rates of STI/HIV in the Southeastern United States. This study is needed because African Americans living in the Southeastern United States are disproportionately affected by STI/HIV, and given that Facebook is used by so many in this population, it could be a good tool for sexual health information dissemination in this population. Studies conducted in the United States have shown that more African Americans are using social media than their Caucasian counterparts (Moorhead et al., 2013 and Young et al., 2013). Practitioners have used social media for health promotion and for health interventions, but researchers know little about the intent to change behaviors as a result of the promotion and interventions. There is currently a gap in literature about the benefits of using social media for health communication (Moorhead et al., 2013). A study conducted to determine whether Facebook communities could increase HIV testing among African American and Latino men who have sex with men (MSM) showed that social networking communities are acceptable and effective tools to increase home-based HIV testing among at-risk populations (Young et al., 2013). Pedrana et al. (2013) used social networking services (SNS) to deliver sexual health promotion to gay men. The findings from their evaluation provided a model for the delivery and evaluation of future health promotion interventions on SNS. While most studies have been focused on youth and MSM, there is evidence that the internet can be used to support healthy sexual behavior. However, researchers know little about the effectiveness of SNS for health promotion (Bull, Levine, Black, Schmeige, & Santelli, 2012).

According to Bull et al. (2012) there is a need for more research to aid in

understanding what elements of social media are the most persuading and whether it can be beneficial for health services. Thus, in this study I sought to determine if health communication via social media was associated with intent to change behavior in African Americans between the ages of 18-49, regardless of their sexual orientation.

Problem Statement

According to the CDC (2012), young African Americans disproportionately contract STI including HIV. In 2009, African Americans comprised only 14% of the U.S. population; however, they accounted for 44% of new HIV infections (Noar et al., 2012). Recent reports have shown that African American women are at high-risk for STI/HIV (Sharpe et al., 2012), and the Southeastern United States has some of the highest STI rates in the country (CDC, 2014c).

HIV continues to be a major public health burden and rates continue to increase, especially among African American MSM (Prejean et al., 2011). According to Zhang, Bi, Hiller, and Lv (2008), more MSM are seeking sexual partners through the internet, thus making it a newly emerging risk environment for HIV transmission. Use of SNS has increased rapidly among African American MSM, making it an ideal venue to reach this population and promote wellness (Martinez et al., 2014).

Friedman, Uhrig, Poehlman, Scales, and Hogben (2014) suggested that researchers should disseminate information about how they disproportionately contract STI to African Americans through channels accepted among them. With an increase in use of text messaging and social media, it is necessary that STI/HIV prevention initiatives use new communication technologies to maximize effectiveness (Buhi, Klinenberger,

Hughes, Blunt, & Rietmeijer, 2013). Vyas, Landry, Schnider, Roas, and Wood (2012) conducted a study to examine how social media might be effective for public health interventions to reduce sexual risk taking among Latino youth. They found that youth perceive social media public health communication as credible, and suggested that public health interventions must continue to be innovative in an effort to maximize ways to reach youth and reinforce public health messages (Vyas et al., 2012). Because targeted prevention is necessary to reduce the rates of STI/HIV (Prejean et al., 2011), public health practitioners and researchers are now exploring the use of new information technologies in an effort to effectively engage and educate the public (Capurro et al., 2014). The use of SNS for sexual health promotion allows practitioners to reach wider audiences. More research is required to determine the effectiveness of SNS in changing knowledge, attitudes, and behaviors as they relate to sexual health (Nguyen et al., 2013). There is also a need for more research to help public health practitioners understand how to use social media to engage in STI/HIV prevention among at-risk populations (Young & Jaganath, 2014).

Purpose

The purpose of this quantitative study was to help fill the existing gap in literature concerning the use of Facebook to help reduce the rates of STI/HIV among African Americana living in the Southeastern United States. The associations between selected demographic factors and intent to change or modify sexual behaviors among African American between the ages of 18 and 49 who lived in the Southeastern United States, and who had viewed STI/HIV prevention materials on Facebook were examined.

Specifically, the study investigated whether there is an association between the independent variables gender, age, education, income, and previous exposure to non-Facebook prevention messaging, and the dependent variable which was intent to change sexual behaviors. Multiple logistic regressions was conducted to determine if any of the independent variables predicted the dependent variable.

Research Questions and Hypotheses

RQ1: What is the association between gender and intent to change risky sexual behaviors related to HIV among African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook?

H_01 : There is no association between gender and intended changes in risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook.

H_a1 : There is an association between gender and intended changes in risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook.

RQ2: What is the association between age and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook?

H_02 : There is no association between age and intent to change risky sexual behaviors related to STI/ HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook.

H_{a2} : There is an association between age and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook.

RQ3: What is the association between education level and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV materials on Facebook?

H_{03} : There is no association between education level and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook.

H_{a3} : There is an association between education level and intent to change risky behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook.

RQ4: What is the association between income and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook?

H_{04} : There is no association between income and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook.

H_{a4} : There is an association between income and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook.

RQ5: What is the association between previous exposure to non-Facebook-based

prevention messaging and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook?

H₀₅: There is no association between previous exposure to non-Facebook-based prevention messaging and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook.

H_{a5}: There is an association between previous exposure to non-Facebook-based prevention messaging and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook.

Theoretical Framework

The theory of planned behavior (TPB) will be used as the theoretical framework for this study. The TPB is a modification of the theory of reasoned action (TRA). Ajzen and Fishbein (1980) formulated the TRA after trying to determine the discrepancy between attitude and voluntary behavior. It was later determined that behavior was not completely voluntary, which resulted in the addition of perceived behavior control which led to the modification of the TRA to the TPB (Ajzen & Fishbein, 1980). This theory is a framework for understanding, predicting, and changing human social behavior (Ajzen & Fishbein, 1980). The four basic determinants of behavior, according to the TPB, are behavioral intentions, attitudes toward the specific behavior, subjective norms regarding the behavior, and perceived behavioral control (Jiang, Lu, Hou, & Yue, 2013). This

theory was used to predict safer sexual behaviors. The TPB has been one of the most frequently used models for the prediction of human social behavior since its introduction (Ajzen, 2011). According to McEachan, Conner, Taylor, and Lawton (2011), the TPB provides strong predictions of intention and behavior for many health-related behaviors. This theory is explained in greater detail in Chapter 2.

Nature of the Study

Quantitative, cross-sectional survey research was the method of inquiry for this study. Participants ($N = 109$) completed an online survey with questions designed to collect demographic data such as age, gender, education level, and income, and data concerning previous exposure to non-Facebook STI prevention messaging. A demographic survey and a dichotomous question about intent to change sexual behaviors to collect data to determine the association between demographic variables and intent to change risky sexual behaviors were employed. Univariate descriptive, bivariate, and multivariate analysis were conducted to determine whether relationships exist between the independent variables and the dependent variable, with chi-square and multiple logistic regression analysis to measure associations. An internet-based, cross-sectional survey design was chosen because it was inexpensive, had a rapid turnaround time in data collection, all of the variables could be collected at the same time, and it could represent a cross section of the population (Creswell, 2009).

Definitions

Age: The number of years since birth. This definition reflects the CDC's reporting of age in STI surveillance (CDC, 2014c), and the age ranges for each level matched those

used by the CDC.

Education level: A categorical measure of the highest degree a participant has attained (Kominski & Siegel, 1993), from *less than high school* to *Ph.D.*

Facebook: A social media site located at <http://www.facebook.com>. It began in 2004 to help people communicate more efficiently with friends, family, and coworkers (Facebook, 2011). For the purpose of this study, I recruited participants via the Facebook interface, so only individuals who have Facebook profiles participated in the study.

Gender: A dichotomous, nominal variable (male/female; CDC, 2014c). This follows the majority of existing HIV/STI research, as well as the CDC's statistical data (CDC, 2014c). The CDC refers to the variable as *sex*; I use the term gender in the current study because the variable was self-reported and may thus reflect cultural identity rather than biological sex (Danielos, 2013).

Human immunodeficiency virus (HIV): A retrovirus that infects cells of the immune system, destroying or impairing its function. Individuals can contract it, among other methods, through risky sexual behavior with an infected partner (World Health Organization, 2014).

Income: The amount of money an individual receives before taxes (DeNavas-Walt & Proctor, 2014). For this study, I measured income in U.S. dollars on a seven-point categorical scale ranging from \$0 to over \$100,000.

Risky sexual behaviors: Sexual behaviors including sexual intercourse without a condom, multiple sexual partners, high number of sexual partners, and sex with strangers (Parks, Hsieh, Collins, Radloff, & King, 2009).

Sexually active: Defined as having had oral, vaginal, or anal intercourse at least once in the past 12 months, following recent existing quantitative studies on STIs/HIV (e.g., Cooley et al, 2014; Jeffries, 2011).

Sexually transmitted infections (STIs): Infections that primarily spread through person-to-person sexual contact (World Health Organization, 2014).

Social networking sites (SNSs): Web-based services that allow individuals to construct a public or semipublic profile within a bounded system while articulating a list of other users with whom they share a connection, as well as view and cross their list of connections and those made by others within the system (Boyd & Ellison, 2007).

Assumptions

Sexual risk behaviors can be a sensitive topic for some to discuss. The main assumption is that all of the study participants provided honest answers to the survey questions, and that my data collection had some measure of reliability given my efforts at obtaining consensus validity. It was also assumed that the survey instrument was reliable, valid, easily self-administered, and that participants understood the concept of informed consent. These assumptions were necessary in the context of the study due to limitations in time and resources that made it impossible to utilize experimental or other research designs in preference to self-administered surveys.

Scope and Delimitations

This study included African American men and women between the ages of 18 and 49 who had had sex within the 12 months prior to survey administration. While it is also important to learn about high-risk behaviors among other age groups and ethnic

groups, I did not include other age groups or ethnic groups in this study. To meet the inclusion criteria, the men and women had to live in Georgia, Mississippi, Alabama, or Tennessee. Learning about high-risk behaviors in order to reduce the rates of STI/HIV is a global health concern; however this study was focused only on the Southeast region of the United States. Participants for this study also had to log into Facebook during the study period, and they must have previously seen STI/HIV prevention messages at the time of the study. These eligibility criteria lead to the exclusion of a large portion of African Americans that live in this region. The study was open to everyone who met the above eligibility criteria regardless of sexual orientation, marital status, or health status. While the TRA and the health belief model are two frameworks that closely relate to the study, I did not use them because the TPB seemed to be a better fit.

Limitations

The study sample consisted of a convenience sample of African Americans between the ages of 18 and 49 who live in the Southeastern United States and have viewed STI/HIV information on Facebook. There may have been bias because the sample was not representative of the entire population, which could have an effect on external validity because the results may not be generalized to other situations and other people. One limitation of recruiting participants on Facebook is that the sample consisted of individuals who had Internet access, had an account on Facebook, whose self-reported ethnicity, location, and age matched the criteria I set, and who logged into Facebook during the time of recruitment. These factors may have limited the generalizability of the study. I excluded those who did not have a Facebook account, those who did not log into

Facebook during the recruitment period, and those who did not accurately represent information about their location and age. Because the data were gathered using self-reporting, I considered the possibility of bias in the information given. Participants could have reported information that is quite different from what they would actually do.

Significance of Study

African Americans living in the Southeastern United States continue to be disproportionately affected by STIs including HIV. The goal of this study was to determine if specific demographic variables were associated with intent to change sexual behaviors in African Americans after viewing sexual health information on Facebook. The number of African American who use Facebook continues to increase (Facebook, 2014). My goal for this quantitative study was to try to determine if Facebook was a useful tool for disseminating sexual health information to help reduce the rate of STI/HIV infection in African Americans between 18-49 who live in the Southeastern United States. If viewing sexual health messages on Facebook leads to intentions to change behaviors, then this study would aid in the advancement of the practice by using social media to help change risky sexual behaviors. The potential significance and social change implication is that SNS can become primary media for disseminating positive sexual health information, thus changing high-risk behavioral practices and reducing the rates of STI/HIV in this community.

Summary

In this study I examined the associations between selected demographic variables and intent to change or modify sexual behaviors of African Americans between the ages

of 18 and 49 who lives in the Southeastern United States and who had viewed STI/HIV prevention materials on Facebook. This study is important because African Americans, especially in the Southeastern United States, continue to disproportionately contract STI/HIV. The rapid growth of SNS such as Facebook (FB) makes it an innovative tool for STI/HIV prevention (Young & Jaganath, 2014). In this chapter, I discussed the current state of STI/HIV in the Southeastern United States, the purpose of the study, research questions and hypotheses, theoretical framework, the nature of the study, definitions, assumptions, scope and delimitations, limitations, and the significance of the study. Practitioners could use the findings of this study to design more social-media-based HIV prevention programs that aim to decrease the rates STI/HIV in young African Americans. In Chapter 2 I offer a literature review.

Chapter 2: Literature Review

In this chapter, I provide a careful review of the relevant literature that deals with the knowledge, attitudes, beliefs, and behaviors of young African American adults and sexual health messages on SNS. In this literature review, I provide an overview of the problem relevant to this study, including information on African Americans and STIs including HIV/AIDS, as well as current Internet-based methods for delivery of related health messages.

STI, including HIV, are among the most common infectious diseases in young adults (Garcia & Cokely, 2011). Social media is changing people's communication patterns in the United States (Krzmarzick, 2013), and social media websites have become a rapidly emerging source for health information for young adults (Park & Calamaro, 2013). According to metrics published monthly by the CDC (2014a), the use of Facebook and other social media tools to disseminate health messages has grown significantly and continues to trend upward. Integrating social media into health communication campaigns encourages participation and conversation, which can help spread key messages and influence health decision-making among adolescents and young adults (Park & Calamaro, 2013). SNS are being used for health promotion, but the current literature lacks information regarding this activity and its effectiveness in improving health (Gold et al., 2011). The purpose of this study was to determine whether STI prevention messages on SNS can change knowledge, attitudes, beliefs, and behaviors in young African American adults living in Georgia, Mississippi, Alabama, and Tennessee.

Literature Search Strategy

I performed a critical analysis of the current literature. My strategies for the literature review search included using Proquest, PubMed, Medline, Google, Google Scholar, CINAHL, and EBSCO databases. I also searched websites including those of the CDC, World Health Organization (WHO), United States Health and Human Services, UNAIDS, and Healthy People. The majority of the literature reviewed was peer-reviewed literature published from 2011 to present. The main terms I used for the searches were *social media, health communication, health promotion, African Americans, HIV prevention, sexually transmitted disease, sexually transmitted infection, social networking sites, Facebook, interventions, young adults, and high-risk sexual behavior.*

Theoretical Foundation

Ajzen and Fishbein (1980) formulated TRA after trying to determine the discrepancy between attitude and voluntary behavior. They later determined that behavior was not completely voluntary, which resulted in the addition of perceived behavioral control. This modification of the TRA was referred to as TPB. The TPB predicts deliberate behavior (Ajzen & Fishbein, 1985). The four basic determinants of behavior, according to the TPB, are behavioral intentions, attitudes toward the specific behavior, subjective norms regarding the behavior, and perceived behavioral control (Jiang et al., 2013).

The TPB has been one of the most frequently used models for the prediction of human social behavior since its introduction (Ajzen, 2011). According to McEachan et al. (2011), the TPB provides strong predictions of intention and behavior for many health-

related behaviors. However, it predicts some behaviors better than others (McEachan et al., 2011). The TPB appears to predict behaviors over a long period of time, such as sexual abstinence, better than it does behaviors over shorter periods of time, such as physical activity. Booth, Norman, Harris, & Goyder (2013) used the TPB for chlamydia testing intentions. In their study, the TPB helped them identify the key determinants of intention to regularly get tested for chlamydia. The findings of their study would be useful for targeting interventions to promote chlamydia testing.

Likewise, in an effort to effectively promote prevention and detection of STIs in high-risk populations, Garcia & Cokely (2011) used the TPB to increase condom use and STD screening. The results from their study indicated that using well-constructed visual aids is highly effective in promoting health behaviors. Framed messages lead to a greater adherence for condom use prevention behaviors. In a global health context, Mirkuzie, Sisay, Moland, and Astrom (2011) applied the TPB to explain HIV testing in antenatal settings in Addis Ababa. In this study, 3,033 women completed TPB interviews about their attitudes, subjective norms, and perceived behavioral control as related to HIV testing. The results indicated that the TPB explained the intention to test, but was not as successful at explaining actual testing. The authors found that perceived social support and anticipated positive consequence played a major role in intention to test (Mirkuzie et al. 2011). More programs that focus on social approval and positive consequences are needed to strengthen intentions to test for HIV.

In another HIV-specific study, Meadowbrooke, Veinot, Loveluck, Hickock, and Bauermeister (2014) used the TPB to predict intention to seek HIV testing services

among 163 young MSM. The researchers tested the TPB model against an alternative model in which they added the effects of information exposure, use of information to make decisions, and prior experience obtaining an HIV test. Both models predicted significant variance in behaviors, with the adapted model predicting twice as much variance. This result indicated that models based on the TPB, adapted to include information related to information, could be appropriate for predicting behaviors related to HIV or other STI testing. Abamecha, Godesso, & Girma (2013) used the TPB to predict the intention of using voluntary HIV counseling. They found that attitude and perceived pressure effected behavioral intention to utilize voluntary HIV counseling. More strategies are needed to aid with social pressure resistance programs that help to change negative attitudes toward voluntary counseling.

In this study, I used the TPB to interpret data related to intentions to practice safer sexual behaviors after receiving information from SNS. I used the TPB to determine if the perceived risk for STI, subjective norms, and perceived behavioral control would predict participants' intentions to change high-risk sexual behaviors. I used attitudes, subjective norms, and perceived behavioral control to predict intentions to change behavior. Further, I attempted to predict intentions to use condoms at next intercourse. While the TPB has been used in other studies to predict STI/HIV prevention behaviors (Booth et al., 2013; Garcia & Cokely, 2011), my literature search yielded no studies that used the TPB to predict prevention behaviors of young African American adults living in Georgia, Mississippi, Alabama, and Tennessee. The data I collected may be useful for developing interventions that are aimed at changing behavioral, normative, and control

beliefs that can produce changes in intentions and thus changes in behavior in this population.

Sexually Transmitted Infections

Introduction to Sexually Transmitted Infections

STD, which are also referred to as STI, comprise more than 25 infectious organisms that are transmitted primarily through sexual activity (Thornton, Stevich, Arno, & Van Der Pol, 2011). Although these terms are often interchanged, they have somewhat different implications. Diseases that are spread through sexual contact are usually referred to as STDs (American Social Health Association, 2011). In recent years however, many experts in the area of public health have suggested replacing STD with the term STI (Thornton et al., 2011). The reason for this is that the concept of disease, as in STD, implies a clear medical problem with some signs or symptoms, but the most common STDs have no signs or symptoms in the majority of persons infected (Thornton et al., 2011). Based on this information, I have used the term STI throughout this study.

There are two primary ways that STIs are transmitted. Some diseases, such as HIV, gonorrhea, chlamydia, and trichomoniasis, are transmitted when infected urethral or vaginal secretions contact mucosal surfaces such as the male urethra, the vagina, or the cervix (CDC, 2011). In contrast, genital ulcer diseases, such as genital herpes, syphilis, chancroid, and human papilloma virus (HPV), are primarily transmitted through contact with infected skin or mucosal surfaces (CDC, 2011).

African Americans and Sexually Transmitted Infections

African American communities continue to have higher rates of gonorrhea, chlamydia, and syphilis than any other population group in the United States (CDC, 2014c). National STD surveillance data from 2012 indicated that African Americans accounted for 63% of gonorrhea cases, 51% of chlamydia cases, and 40% of all syphilis cases (CDC, 2013a). In 2010, African American men had 22 times the rate of gonorrhea compared with Caucasians, and 16 times the rate for women (CDC, 2013a). That same year, the rate of chlamydia for African American men was 11 times that of their Caucasian counterparts, and African American women contracted the infection at over seven times the rate of Caucasian women (CDC, 2013a). African American women had syphilis at 21 times the rate of Caucasian women, and African American men had seven times the rate of Caucasian men (CDC, 2013a).

African Americans are also disproportionately affected by HIV. The rate of HIV in African Americans is eight times the rate in Caucasians (CDC, 2014b). In 2011, African American men accounted for 42% of diagnosed HIV cases among men (CDC, 2014b). African American gay and bisexual men between the ages of 13 and 24 accounted for most new infections in this group. In 2010, African American women accounted for 29% of new HIV infections among this population, which is about 20 times the contribution of Caucasian women (CDC, 2014b). African American women accounted for 64% of diagnoses from 2008 to 2011 (CDC, 2014b). Approximately 87% of new infections among women are attributed to heterosexual contact, whereas the

majority of new infections among men are attributed to homosexual contact (CDC, 2014b).

Young adults between the ages of 20 and 24 have a higher risk of acquiring STIs owing to numerous biological, behavioral, and cultural reasons (CDC, 2014b). In 2012, women and men between the ages of 20 and 24 had the highest rates of chlamydia and gonorrhea (CDC, 2014b). Men and women between the ages of 20 and 24 have also had the highest rates of primary and secondary syphilis since 2008 (CDC, 2014b). The rates of chlamydia, gonorrhea, and syphilis were highest for African Americans in this age group.

Sexually Transmitted Infections in Georgia, Mississippi, Alabama, and Tennessee

States in the Southeastern portion of the United States have some of the highest rates of STI. Over the past 15 years, there has been an increase in HIV/AIDS cases among African Americans living in the Southern region of the United States (Reif et al., 2014). The HIV case burden in the South is partially due to its larger African American population (Adimora, Ramirez, Schoenbach, & Cohen, 2014). Race and lower socioeconomic status are factors that contribute to high rates of STI in the South, as are higher levels of STI-related stigma (Reif et al., 2014). The HIV/AIDS epidemic in the South is more concentrated among African Americans (Prejean, Tang, & Hall, 2013).

Georgia. From 2006 to 2010, Georgia residents had an average of approximately 61,700 cases of chlamydia, gonorrhea, and syphilis each year (Georgia Department of Public Health, 2012). In 2011, Georgia ranked in the top seven states for highest rates of chlamydia, gonorrhea, and syphilis in the United States (Georgia Department of Public

Health, 2014). Georgia was ranked the sixth highest state in the United States for adults living with HIV in 2010 (Georgia Department of Public Health, 2013). African American gay and bisexual men accounted for 63% of HIV cases reported in Georgia, even though African Americans only accounted for 28% of the state's population (Georgia Department of Community Health, 2014). Georgia also ranked fifth highest in the United States for new HIV diagnosis in 2011 (Georgia Department of Public Health, 2013).

Hlaing (2012) conducted a cross-sectional study to try to understand the social network characteristics, perceived risk of getting HIV, and HIV risk behaviors between young adults between the ages of 18 and 49, and older adults over 50. The study population included 897 African Americans living in high HIV prevalence zip codes of Atlanta, Georgia. Older adults in this sample were more likely to engage in risky sexual behaviors, and less likely to get tested for HIV. More research and primary prevention is needed to understand HIV-related risk behaviors in this population.

Wingood et al. (2013) evaluated the efficacy of an HIV intervention to reduce incidence of nonviral STIs such as chlamydia and gonorrhea. A sample of 848 African American women in Georgia received the intervention, which was designed to enhance attitudes and skills associated with condom use. Participants in this intervention were less likely to have nonviral STI and more like to use condoms during oral sex. This study demonstrated that an HIV intervention can reduce incidence of nonviral STI.

Mississippi. According to the CDC (2014c), Mississippi ranked 5th for new cases of chlamydia, 3rd for new cases of gonorrhea, and 37th for new cases of syphilis in 2013. For HIV, Mississippi had the 10th highest rate of diagnosis among all the states in 2012,

and 79% of those newly diagnosed with HIV were males. Based on 2013 state-level statistics, 76% of new HIV cases were among African Americans, and the most affected age group was 25-44, accounting for 49% of all new diagnoses that year (Mississippi State Department of Health, 2014). Rural Coahoma county had the highest rate of infection, and Hinds County, the most populous county in the state and the location of Jackson, had the highest number of new cases (Mississippi State Department of Health, 2014).

Dorell et al. (2011) conducted a case-control study among African American men who have sex with men in Jackson, Mississippi in order to identify missed opportunities for HIV testing and education. The results indicated that lacking a primary health care provider and failing to disclose sexual identity to health care providers were independent predictors of HIV infection among the study population. Additionally, HIV cases in the study were less likely than controls to have received educational information or advice about STI prevention and testing (Dorell et al., 2011). This emphasizes the need for informational resources targeting STI prevention among African Americans in Mississippi. Some research has indicated that community-based HIV prevention programs have been successful in southern Mississippi (Porter, Downey, McDougle, & Foley, 2013), but the literature search revealed no existing research on social media-based STI prevention in the state.

Alabama. Alabama has one of the highest STI burdens of any U.S. state. In 2013, it was ranked third for new diagnoses of chlamydia, second for new cases of gonorrhea, and 23rd for new cases of syphilis (CDC, 2014c). As with many other states, there is a

strong ethnic disparity. In 2012, African American accounted for 69% of Alabama's new HIV diagnoses, although African Americans comprise only 27% of the population of that state (Alabama Department of Public Health, 2014). Compared with some other states, Alabama has a younger overall age of HIV infection; 71.1% of newly diagnosed individuals were between 13 and 34 in 2012 (Alabama Department of Public Health, 2014). Additionally, males were considerably more likely to be diagnosed with HIV; 83.4% of new cases in 2012 occurred among males (Alabama Department of Public Health, 2014).

Enah, Moneyham, Vance, Gakumo, and Chandler (2014) gathered recommendations from adolescents in Alabama regarding the design of a digital game to aid in the prevention of HIV. The participants indicated that the game should reflect the realities of their lives (Enah et al., 2014); this could indicate that social media and other technology-based interventions could be successful if integrated into participants' daily use of social media. Another Alabama-based study investigated the efficacy of a computer-assisted, provider-delivered intervention designed to reduce risky sexual behaviors (Bachmann et al., 2013). The intervention resulted in a decline in the number of anal intercourse acts with HIV-positive male partners, along with a 47% decrease in the overall number of sexual partners three years after the intervention (Bachmann et al., 2013). The literature search yielded no existing research related to the use of social media prevention messaging and risky sexual behaviors in Alabama.

Tennessee. Based on data from the CDC (2014c), Tennessee has one of the lower disease burdens among states in the South. It was ranked 17th among all states for new

cases of chlamydia in 2013, 15th for new cases of gonorrhea, and 29th for new cases of syphilis (CDC, 2014c). In 2013, there were 820 reported new cases of HIV in Tennessee (Tennessee Department of Health, 2014). Blacks accounted for 63.4% of new HIV cases, compared with 31.3% for Caucasians. Among females, the ethnic disparity was even more striking; among females, 74.5% of those newly diagnosed with HIV were Black (Tennessee Department of Health, 2014). The 25-34 age group had the highest diagnosis rates, accounting for 30.6% of the total. Individuals aged 15 to 54 accounted cumulatively for 89.7% of new cases (Tennessee Department of Health, 2014). As with other states, there seems to be no existing literature related to social media messaging and STI prevention in Tennessee.

Sexually Transmitted Infections in Young Adults

Regardless of race or gender, data show that sexually active adolescents and young adults are at increased risk for STIs when compared to older adults (Goldstein, 2011). This population has specific health and development needs and may face challenges such as poverty, a lack of access to health information, and unsafe environments (WHO, 2011). Other factors that make this population higher risk include behavioral, biological, and cultural reasons (CDC, 2011). The high prevalence of STIs among adolescents and young adults may reflect multiple barriers to accessing quality STI prevention services, lack of insurance or ability to pay, lack of transportation, and concerns about confidentiality (Scott et al., 2011). Social stigmas and negative consequences appear to represent significant barriers to young African American adults

being tested for STIs, which could increase the risk of spreading infections to others (Morris et al., 2014).

Younger African Americans may be particularly vulnerable to HIV infection attributable to increased biological susceptibility associated with STIs (Klimentidis, Aissani, Shriver, Allison, & Shrestha, 2011). Genetic susceptibility differences are, however, still controversial (Aghafar et al., 2012). Social factors, such as sexual network and partner concurrency, may facilitate the spread of STIs in this population (Woods-Jaeger et al., 2013).

Contraceptive Use

The male condom is the single most efficient technology available to reduce the sexual transmission of HIV and other sexually transmitted infections (Crosby & Bounse, 2012). Female condoms, which are as effective as male condoms, were officially approved by the United States Food and Drug Administration (FDA) in 1993 (Hoffman, 2013). Currently, condoms are the only widely available, proven method for reducing transmission of HIV and other STIs during intercourse (Crosby & Bounse, 2012). The female condom, along with prophylactic antiretroviral medication, gives women greater control over protecting themselves from STIs including HIV (Hoffman, 2013). Scientific research by the US National Institutes of Health (NIH) and WHO found that intact condoms are essentially impermeable to particles the size of sexually transmitted disease pathogens, including the smallest sexually transmitted virus. No matter how effective condoms may be, they can have little impact in preventing STIs if people do not use them. To achieve the maximum protective effect, condoms must be used both

consistently and correctly (CDC, 2011). Because condoms play such an important role in the prevention of HIV and other STIs, condom promotion must be effectively positioned as a public health strategy (Crosby, 2013). Condom use among young people is especially important, because the young are often at greatest risk for STI and have the least access to condoms (Garcia-Retamero & Cokely, 2015).

Individuals in their late teens and early twenties are considered emerging adults, and they have the highest rates of STIs (Thomas, Yarandi, Dalmida, Frados, & Kliener, 2015). During this developmental stage, when youth are transitioning to increased independence, many individuals are not married or cohabiting, yet they are sexually active (Thomas et al., 2015). Dating or romantic relationships in young adulthood tend to be longer term and more serious than adolescent dating relationships, and they reflect higher levels of commitment, yet little research has focused on the role of relationship characteristics in contraceptive use among young adults (Manlove et al., 2011). Research linking relationship content to contraceptive use supports the principal that individual behavior can be understood only within the context of a person's relationships (Manlove et al., 2011). Family background and parental characteristics also have an impact on the sexual behaviors of young adults (Matamela, Bello, & Idemuida, 2014).

Social, Economic, and Behavioral Factors

The spread of STIs is directly affected by social, economic, and behavioral factors. These factors may lead to serious obstacles in STI prevention due to their influence on social and sexual networks, access to and provision of care, willingness to seek care, and social norms regarding sex and sexuality (Healthy People, 2011). Race and

ethnicity have been correlated with other determinants of health status, such as poverty, limited access to health care, fewer attempts to get medical treatment, and living in communities with high rates of STIs (Prejean et al., 2013). Sexually transmitted infections affect disenfranchised people and people in social networks where high-risk sexual behavior is common and access to either care or health-seeking behavior is compromised (Healthy People, 2011). Groups with the highest rates of STIs are often the same groups for whom access to or use of health services is most limited (An, Prejean, Harrison, & Fang, 2013).

Education is one of the socioeconomic factors most strongly correlated with risk of STI, regardless of demographic or other factors. A recent report by Zeglin and Stein (2015) makes this apparent. Using social determinants of health and health inequality (SDHs) identified by the WHO, the authors analyzed the degree to which five SDHs predicted HIV and AIDS based on state-level data. The five SDHs included in the analysis were education, employment, housing, income, and insurance. Together, these factors accounted for significant variance in HIV ($R^2 = 0.54$). After stepwise variable reduction, the authors concluded that only two factors, education and housing, are needed in the model ($R^2 = 0.55$). This strongly suggests that education level, along with housing status, has an effect on HIV and AIDS transmission rates. Providing STI prevention information via social networking could, therefore, directly benefit high-risk populations with low educational attainment.

Less robust data are available on the association between education and other STIs. Some studies exist, but most have small sample sizes or unique populations. For

example, Hakre et al. (2014) found that having a high school diploma or less was significantly associated with increase rates of chlamydia among a sample of 67,425 soldiers stationed at the Fort Bragg Army installation in North Carolina. Because the rates of many STIs are higher among young people, who may still be in the process of educational attainment, it may be difficult to determine the effect of education on STI rates in general.

Demographic Factors

Gender. In 2012, the most recent year for which data are available, the CDC estimates that 38,160 men were diagnosed with HIV, compared with 9,586 women (CDC, 2013b). Of these cases, 61.0% and 40.9%, respectively, were definitively attributable to sexual contact. Sex with men is the predominant mode of transmission among both men and women. Haley and Justman (2013) noted that studies have arrived at widely various overall prevalence rates, and these differences may be due to differences in study design, especially selection bias.

The CDC (2014c) reported associations between STIs, gender, and age for four categories: Chlamydia, gonorrhea, syphilis, and other sexually transmitted diseases. For chlamydia, about twice as many cases were reported among females as among males; however, this discrepancy is likely due to the fact that women are routinely screened for chlamydia, whereas males are not (CDC, 2014c). Based on population surveys of a probability sample of Baltimore residents aged 18 to 35, Rogers et al. (2014) estimated that the prevalence of undiagnosed chlamydia among men increased from 1.6% to 4.0% between 1997 and 2009. By contrast, the rate of undiagnosed chlamydia among women

in the same population decreased from 4.3% to 3.1% over the same period of time (Rogers et al., 2014). This suggests that gender disparities in reported chlamydia cases may not accurately reflect disparities in the overall disease incidence.

Gender-related trends in gonorrhea have been shifting, as evidenced by the fact that 2013 was the first year since 2000 that gonorrhea diagnosis among men was higher than among women. This was due in part to 4.3% increase in the diagnosis rate among men, compared with a 5.1% decrease in the rate among women. In the South, the rate of increase among men was more modest (2.4%) (CDC, 2014c). Syphilis is also on the rise among men; the rate of primary and secondary syphilis cases increased 12% among men in the 2012-2013 period, whereas the rate among women was unchanged (CDC, 2014c).

Other STIs are substantially more difficult to track, owing to unavailability of national reporting data (CDC, 2014c). However, based on reports from surveillance networks and population-based surveys, it appears that HPV is more prevalent among men (5.0% for men who have sex with women and 3.8% for men who have sex with men) than among women (1.4%). By contrast, herpes simplex virus type 2 (HSV-2) is more prevalent among females than among males (CDC, 2014c).

Age. Diagnosis of STIs is highly correlated with age. For HIV, the CDC (2013b) reported the age at diagnosis for 2012 for 13 age groups. Overall, individuals aged 20-34 accounted for 46.2% of all new HIV cases, and the rate of diagnosis was highest among 20-24 year olds. By contrast, teens aged 15-19 accounted for only 4.3% of new cases. Although these data are indicative of general prevalence and risk levels, Haley and Justman (2013) pointed out that certain age groups may have higher rates of undiagnosed

HIV due to decreased screening among those groups. For example, they suggested that older women may not be perceived as at high-risk for HIV, so they may not be approached for testing as often as younger women are.

Other STIs show similar age-related prevalence levels, but some skew slightly younger. The rate of diagnosis of chlamydia is highest among individuals age 15-24 years, and age is more strongly correlated with diagnosis among women. Gonorrhea rates follow similar trends, but gonorrhea increased most rapidly among those aged 30-44 years in the 2012-2013 period (CDC, 2014c). By contrast, the rate of syphilis is highest in the 20-24 and 25-29 age groups, with significant increases among men in both these age groups. The largest declines in syphilis were seen among women aged 15 to 19 (CDC, 2014c).

Geographic location. In 2011, the CDC (2013c) reported that 82.0% of new HIV diagnoses that year occurred in urban areas with metropolitan populations of 500,000. By contrast, only 6.7% of new HIV cases were diagnosed in nonmetropolitan areas (population < 50,000). Indeed, HIV has long been considered an urban issue (Ohl & Perencevich, 2011). Singh, Azuine, Siahpush, and Kogan (2013) reported, on the basis of mortality data for youth aged 15-24 years, that urban youth had 5.5 times higher risk of HIV mortality than rural youth, whereas risks of most other types of mortality were higher among rural youth.

Nevertheless, the rate of newly-diagnosed AIDS, a late-stage form of HIV, has been increasing in rural areas, and rural Americans with HIV are more likely to be diagnosed at later stages than their urban counterparts (Ohl & Perencevich, 2011). This

suggests that HIV testing is carried out less thoroughly in nonurban than in urban areas. Indeed, Ohl and Perencevich (2011) found that residents of rural areas are less likely to report having been previously tested for HIV than urban residents. Therefore, prevention strategies such as web-based social media interventions may be particularly important in rural areas. Furthermore, in the South, rural residents account for approximately 10% of new HIV diagnoses, compared to 7% or less in other regions (CDC, 2013c).

For other STIs, national data on variance by urban or nonurban location are unavailable. A few studies have investigated the impact on urban versus rural location on the rates of diagnosis of particular STIs in particular geographic areas. For example, Sullivan et al. (2011) examined data from the North Carolina State Health Department to determine whether neighborhood-level sociocultural factors influenced gonorrhea rates. They found that urban-rural differences were associated with ethnicity; the gonorrhea rate was lower among rural Blacks than urban Blacks, but higher among rural Native Americans (Sullivan et al., 2011). Similarly, Jenkins, Rabins, and Bhattacharya (2011) found that chlamydia cases in Illinois were more prevalent in urban than in rural areas. In general, however, little is known about the impact of rural and urban location on rates of STIs other than HIV.

Current Strategies for Improvement of Sexual Health

Acknowledging disparities in STI rates is one of the first steps in empowering affected communities to focus on the problem (CDC, 2011). Young people are leading the prevention revolution by taking definitive action to protect themselves from HIV. They are waiting longer to become sexually active, not having as many partners, and

there is an increased use of condoms among those with multiple partners (UNAIDS, 2010). A study for UNAIDS (2010) showed that for the first time that reductions in HIV prevalence among young people have coincided with a change in sexual behavior patterns. Programs to protect young people from STIs, including HIV, must use combination prevention approaches that are friendly to young people. These programs should include knowledge about STIs like HIV, sexuality education, access to sexual and reproductive health services, and discussion of harmful sexual norms and practices (UNAIDS, 2010).

The STI epidemics among African American individuals in the United States reflect racial disparities that have existed for quite some time (Reif, 2014). Responding to a threat of this magnitude requires interventions that go beyond focusing on individual-level risk factors, particularly when addressing the needs of high-risk adolescents and young adults. The range, magnitude, and consistency of effects strengthen confidence in the efficacy of the intervention and add to the collective empirical database, indicating that STI/HIV interventions can be effective (e.g., Charania et al., 2011). To maximize the full potential of STI/HIV prevention research to achieve population-level reductions in risk behaviors and disease requires development of a competent and fully operational infrastructure to promote the efficient dissemination and saturation of communities with evidence-based STD/HIV interventions (Crouch & Fagan, 2012). The Internet has emerged as a key venue for delivering health-related messages and interventions to adolescents and young adults (Park & Calamaro, 2013). Surveys of teens demonstrate

that they are interested in receiving messages online, particularly on sensitive topics such as sexual health (Ybarra, DuBois, Parsons, Prescott, & Mustanski, 2014).

Danielson, McCauley, Jones Borkman, Miller, & Ruggiero (2013) conducted a web-based intervention for HIV/STI prevention with 41 African American girls between 13 and 18 years of age. The participants showed an increase in knowledge regarding HIV/STI risks reduction behavior following the intervention. Findings support web-based interventions for this population.

Social Networking Sites

Social networking sites are online communities where people can interact with others with similar interests through chat, e-mail, video, voice chat, file sharing, blogging, and discussion groups (Park & Calamaro, 2013). Boyd and Ellison (2007) defined a social network site as a web-based service that allows individuals to construct a public or semipublic profile within a bounded system while articulating a list of other users with whom they share a connection, as well as view and cross their list of connections and those made by others within the system. According to this definition, SixDegrees.com, which launched in 1997, is considered the first recognizable social network (Boyd & Ellison, 2007). SixDegrees.com closed in the year 2000, likely because it was ahead of its time. Three major social networking sites that followed were Friendster, MySpace, and Facebook. Friendster launched in 2002, but slowly lost its following in the United States due to the combination of technical difficulties, social collisions, and rupture of trust between users and the site (Boyd & Ellison, 2007). MySpace launched in 2003 and competed with sites like Friendster. Currently, MySpace

is aimed at a Generation Y audience, and drives social interaction by providing a highly personalized experience around entertainment and connecting people to the music, celebrities, TV, movies, and games that they love (MySpace, 2011). Facebook was founded in February, 2004, to help people communicate more efficiently with friends, family, and coworkers (Facebook, 2011). It is one of the most popular and most frequently visited websites in the world. According to Facebook.com (2014), there are more than 665 million active users currently on Facebook, with more than 751 million active users currently accessing the site through their mobile devices. Facebook users may spend up to two hours per day using the site (Junco, 2013).

According to Hampton, Goulet, Rainie, and Purcell (2011), the number of people using SNSs has nearly doubled since 2008, and the population of users has gotten older. They sampled 2,255 American adults and found that 59% of adult internet users used at least one SNS, which is close to double of the number of adult users in 2008. There has been tremendous growth in social networking site use since 2005 (Robinson & Lee, 2014). A multicountry study conducted in 2008 found that two thirds of those who use the internet access SNSs (Nielsen, 2009). Although young people are the most frequent users of SNSs, use by older adults is increasing (UK Office of Communications, 2010). The time that individuals spend on SNSs increased by 63% in 2007 and 2008 (Nielsen, 2009). The considerable increase in users of SNSs, their frequency of use, and the interactive functionality of SNSs have prompted calls for health-related interventions, including health promotion, to be delivered in these spaces. Social networking sites have

potential for health promotion in terms of audience reach and interactive functions that could be exploited for intervention delivery (Park & Calamaro, 2013).

High-Risk Behavior for HIV on Social Networking Sites

Recent media reports have highlighted cases in which young adults posted information about high-risk behaviors for HIV infection, such as sexual activity, on their publicly accessible web profiles (Broaddus et al., 2015). Viewing media information that normalizes risky behavior and may encourage peers to engage in risky behavior themselves (Fischer, Greitemeyer, Kastenmuller, Vogrincic, & Sauer, 2011). Evidence suggests that approximately 9% of adolescents online were subject to unwanted sexual solicitation in 2010, and it is reasonable to suspect that young adults who display sexually suggestive material on SNS profiles may be at higher risk (Jones, Mitchell, & Finkelhor, 2012). Cyberbullying and unwanted attention from sexual predators are some of the hazards associated with displaying sexual behaviors on SNSs (Jones et al., 2012). Given the popularity of SNSs among young adults, the adverse effects associated with discussing risky behaviors online, and the lack of adult monitoring and guidance on SNSs, it is clear that mechanisms to modulate teenagers' risk behavior disclosures are warranted (Broaddus et al., 2015). Broaddus et al. (2007) argued that SNS-based interventions could help reduce the risk of HIV transmission among youth populations. Although many consider sexual activity normative among this age group, displaying sexual behavior reference on a popular web site may increase pressure to become sexually active among those that are virgins (Fischer et al., 2011).

Social Media as a Public Health Tool

Although social media is extremely popular, there has been little published about its role in health promotion (Neiger et al., 2012). Online SNSs are an ideal setting for the delivery of health promotion interventions because they reach a large population (Gold et al., 2012). With two thirds of internet users reporting that they go online daily, with 36% of those doing so several times a day, using the internet as a tool to reach this population seems to be an obvious option (Lenhart, Purcell, Smith, & Zickuhr, 2010). According to national survey data, the most frequent online activity of young adults is the use of social networking sites such as Facebook (Rideout, Foehr, & Roberts, 2010). In 2009, nearly 73% of young adults online reported using social networking sites (Lenhart et al., 2010). In recent years, the use of Facebook, YouTube, Twitter, and other social media tools to disseminate health messages has grown significantly and continues to trend upwards (Robinson & Lee, 2014). A growing body of research has studied the successes and challenges of using the Internet to deliver health-related messages, but less is known about using SNSs in particular (Ralph, Berglas, Schwartz, & Brindis, 2011). Using social media tools has become an effective way to expand reach, foster engagement, and increase access to credible, science-based health messages (Park & Calamaro, 2013). The use of social media can increase the timely dissemination and potential impact of health and safety information and personalize and reinforce health messages that can be more easily tailored or targeted to particular audiences (Park & Calamaro, 2013).

Although there are numerous examples of SNSs being used for sexual health promotion, most activities are unreported in the scientific literature (Gold et al., 2011).

Knowing the scale and scope of the current level of health promotion using SNSs is a key first step in designing more effective health promotion interventions in this medium (Gold et al., 2011). Currently, the use of SNSs for sexual health promotion is not widespread, and most activities target young people in the United States (Nielsen, 2009).

SNSs are a useful tool for reaching a large and diverse population with frequent, tailored messages (Ralph et al., 2011). Integrating social media into health communication campaigns and activities allows health communicators to spread key messages and expand their reach to include broader, more diverse audiences (Krzmarzick, 2013). SNSs encourage participation and communication among members, which could be key to spreading health messages. In addition, people could benefit from seeing messages from both experts and peers (Krzmarzick, 2013). SNSs play an important role in the social lives of young adults as a place for identity exploration and peer group interaction (Cyr, Berman, & Smith, 2015).

Social Media for Health Promotion

Park, Rodgers, and Stemmler (2011) conducted a study to examine how health organizations use Facebook for advertising purposes. The authors found that, although nonprofit health organizations were the most active with posting, they do not take full advantage of interactive features. Government agencies and schools took greater advantage of interactive features. There is still a lot to learn about the benefits to health organizations using social media.

Divecha, Divney, Ickovics, and Kershaw (2012) conducted a study to attempt to understand how young people at high-risk for STIs use social media to communicate

about sexual health. They found that participants preferred to discuss sexual health with close friends and in person rather than through social networking sites. The findings of this study suggest that the use of social media is not a good source for interventions aimed at reducing STIs.

Jones, Baldwin, and Lewis (2012) evaluated a social networking intervention aimed at reducing the incidence of chlamydia among 15-24 year olds. A Facebook site with information regarding signs, symptoms, treatment, screening, and prevention of chlamydia was the source of the intervention. There was a 23% increase in condom use and a 54% reduction in positive chlamydia cases among 15-17 year olds. This study supports the idea that social media may be an effective mechanism for information dissemination for this population.

Negative Aspects of Using Social Media

Once public health agencies engage with social media, they face the challenge of getting the attention of their target audience in the midst of other online content and chatter (Schein, Wilson, & Keelan, 2011). Some public health professionals are not convinced of the effectiveness of using social media websites or their potential usefulness for disseminating health information (Divecha et al., 2012). This could be because the information found on these sites includes blind authorship, lack of source citation, and presentation of opinion as fact. Although there has been recent growth in social media use, it is not uniformly distributed across age groups, which suggests that the age of the targeted population should be considered first to ensure that the messages reach the intended audience (Haley & Justman, 2013). It is better to use established SNSs when

delivering sexual health interventions rather than trying to create a custom SNS for that purpose because the target audience is already present and interacting on established sites (Gold et al., 2011). Using an established SNS can, however, restrict how the health promotion information is presented, which may in turn affect the delivery and fidelity of the health promotion program activities (Gold et al., 2011).

SNSs are constantly evolving, which creates challenges for health promotion (Gold et al., 2011). Sometimes users migrate from one SNS to another, such as from MySpace to Facebook, and, therefore, the health promotion efforts must follow. Organizations must be flexible in responding to the evolution of social media in order to maximize the value of health promotion activities using SNSs (Gold et al., 2011).

Other Sources of Information on Sexually Transmitted Infections

In addition to Facebook, individuals may view information on STIs, including HIV, and their prevention on other websites, on television, or in school sexual education programs. Access to prevention information has a major role in reducing HIV infection rates (Voisin, Bird, Shiu, & Krieger, 2013). In a study among African American men aged 18-24 who have sex with men, Voisin et al. (2013) found that family and friends, formal education, television, and the lesbian, gay, bisexual and transgender (LGBT) community were the primary sources of HIV prevention information. Although the researchers did not identify social media as an important source of information, they emphasized the importance of social groups in general, and information may spread through social groups via social media.

Based on their meta-analysis of single-session STI prevention interventions, Eaton et al. (2012) concluded that intervention participants were 35% less likely to develop STIs than control participants for all intervention modalities combined. The meta-analysis included reports of interventions delivered face-to-face, via computers, and videotapes or DVDs. Interestingly, computer-based interventions showed the lowest rates of efficacy compared with other delivery methods. The researchers found that interventions targeting African Americans were more effective than those targeting other ethnic groups (Eaton et al., 2012). Focus groups conducted by Wright, Fortune, Juzang, and Bull (2011) indicated that young African American men were open to the idea of receiving cell-phone-based text messages regarding HIV prevention. However, based on the results of their meta-analysis, Chávez, Shearer, and Rosenthal (2014) concluded that the available evidence on the efficacy of digital media-based STI prevention programs suffers from a lack of control groups, a lack of follow-up on outcomes, and the rapidly changing nature of digital media technologies.

Among a community-based sample of 481 ethnically diverse young men who have sex with men, Kingdon et al. (2013) found that exposure to HIV prevention messaging varied by age, race, and sexual orientation. The study examined six venues for messaging in particular: the Internet, bars and dance clubs, print media, clinics and doctors' offices, community centers, and formal educational classes. Interestingly, the participants were more likely to pay attention to HIV prevention messaging at venues where they were likely to access that information. For example, participants likely to access Internet-based messaging were also more likely to pay attention to Internet-based

messaging. This indicates the importance of targeting STI prevention messaging to a range of populations at a range of venues, eschewing any one-size-fits-all approach (Kingdon et al., 2013).

Review of Methods

This section includes a review of past research that discusses methods related to this study. This study used a cross-sectional design, and, therefore, the majority of the studies used this same approach. Literature that examines methods and research that relates to African Americans and STI and HIV was included in this review.

Branch-Vital, Fernandez, Ross, Wenyaw, & Smith (2011) conducted a study among African-American women over 18 years of age in Texas to determine the association between self-reported condom use knowledge and condom use at last intercourse. In this study, 297 African American women were administered the Condom Use Assessment Questionnaire. The authors found that there was no significant relationship between condom use knowledge and condom use. The researchers suggest that there is a need for more research to understand other risk factors that influence condom use to design effective interventions and reduce HIV rates in this population. Bingham, Harawa, & Williams (2013) conducted a study to investigate whether high gender role conflict (GRC) is associated with HIV-related risk behaviors in a sample of African American men who have sex with men and women (MSMWs). Four hundred MSMWs completed questionnaires. MSMWs who reported higher GRC than others reported less HIV knowledge and more unprotected vaginal or anal intercourse with female partners. The authors noted that, despite the high rates of HIV among African

American MSMWs, there are few behavioral interventions aimed at reducing the transmission of HIV in this population.

Summary and Conclusion

This chapter included a review of past research studies that examined sexually transmitted infections including HIV in the African American population (CDC 2014b, 2014c; Hlang, 2012). The current literature provides evidence that African Americans disproportionately contract STIs, including HIV (CDC, 2013a; Reif, 2014). Furthermore, the literature provides evidence that African Americans in the South have higher incidence of STIs, including HIV (Adimora et al., 2014; Prejean et al, 2013; Reif, 2014). In 2011, Georgia ranked in the top 7 for highest rates of chlamydia, gonorrhea, and syphilis in the United States (Georgia Department of Public Health, 2014). Georgia ranked the sixth highest state in the United States for adults living with HIV in 2010 (Georgia Department of Public Health, 2013). Although there are a numerous studies that examine STIs including HIV in the African American population, there is a gap in literature in relation to this population for young adults in Georgia, Mississippi, Alabama, and Tennessee. Based on this information, there is a need for more STI interventions aimed at African Americans living in these states.

Online SNSs are an ideal setting for the delivery of health promotion interventions because they reach a large population (Gold et al., 2012). A study by Jones et al. (2011) provided information about social media intervention for chlamydia; however, the findings mostly provided information related to 15-17 year olds. The study suggested that social media is a good source for interventions aimed at reducing STI, but

Divecha et al. (2012) did not agree. Information about social networking sites was also reviewed (Boyd & Ellison, 2007; Park & Calamaro, 2013). I reviewed literature related to the positive aspects of using social media as a public health tool (Park & Calamaro, 2013; Gold et al., 2012; Lenhart, 2010; Rideout et al., 2010; Ralph et al., 2011). I also reviewed the negative aspects of using social media as a public health tool (Divecha et al., 2012; Gold et al., 2011; Schein et al., 2011).

An analysis of the reviewed literature revealed that African Americans are at a higher risk for contracting STIs, including HIV, than other ethnic groups. Several studies also revealed that African Americans living in the South are disproportionately affected by these infections. There were not many studies that gave specific information about how young adults in Georgia, Mississippi, Alabama, and Tennessee are impacted by these infections. This study attempted to expand our understanding of the knowledge, attitudes, and beliefs of this population.

Chapter 3: Research Methodology

The purpose of this study was to examine the association between selected demographic factors and intent to change or modify sexual behaviors among African Americans between the ages of 18 and 49 who live in the Southeastern United States and had viewed STI/HIV prevention materials on Facebook. This chapter includes a detailed discussion of the quantitative methods that I used to answer the research questions of the study. The independent variables were gender, age, education, income, and previous exposure to non-Facebook-based prevention messaging. The dependent variable was intent to change STI/HIV behaviors in young African Americans between the ages of 18 and 49 who live in the Southeastern United States. In this chapter, I also describe the research design and rationale, population, sampling procedure, procedures for recruitment, participation and data collection, instrumentation, and operationalization of constructs, threats to validity, and ethical procedures. The statistical analysis includes descriptive statistics and logistic regression.

Research Design and Rationale

I used a quantitative, cross-sectional, web-based survey study design to determine what demographic factors are associated with African Americans' intent to change sexual behavior after viewing STI/HIV prevention messages on Facebook. I collected data needed to answer the research questions via a confidential online survey. Web-based survey is the collection of data applied through a self-administered electronic set of questions on the internet (Frankfort-Nachmias & Nachmias, 2007). This confidential survey met these criteria.

The dependent variable was the intent to change sexual behaviors that are high-risk for contracting STI/HIV. The independent variables were gender, age, education, income, and previous exposure to non-Facebook-based prevention messaging. These demographic variables were important variables studied in previous research involving risky sexual behaviors that could lead to STI/HIV. I measured intent to change sexual behaviors by the respondents' answers to the survey question: "Do you intend to make changes in your risky behaviors that could lead to STI/HIV as a result of seeing and reading HIV/STI prevention information on Facebook?" I sought to determine the association that age, gender, education, income, and previous exposure to non-Facebook-based prevention messaging have with intent to change risky sexual behaviors that could lead to STI/HIV for young, African Americans in the Southeastern United States who have viewed STI/HI-related information on Facebook. Many researchers test theories by examining relationships between variables, especially in quantitative research, but establishing cause and effect was outside the scope of this study (see Creswell, 2013).

I used statistical procedures to analyze the data obtained from measuring the variables using instruments such as surveys (see Creswell, 2013). Specifically, I used descriptive statistics, bivariate analysis, and multivariate analysis. An internet-based cross-sectional survey design was chosen because it was inexpensive, had a rapid turnaround time in data collection, and all of the variables could be collected at the same time and could represent a cross section of the population (see Creswell, 2009). Another advantage of using the cross-sectional design is that there is no concern for loss of participants due to having to follow up with them (Levin, 2006). I used the cross-

sectional study design so that I could measure the estimated prevalence of the outcomes for the given population at one point in time. The cross-sectional design was fitting for this study because it allowed for the collection of multiple variables for statistical analysis. Survey research provides a quantitative description of the attitudes of a sample of a population and allows for a generalization from that sample (Creswell, 2009). The design is suitable for collecting data about behaviors intentions.

The primary research question of this study was: What demographic and other selected factors are associated with intent to change risky sexual behaviors among African American adults in the Southeastern United States who have viewed STI/HIV prevention messages on Facebook? I evaluated the following questions to provide more insight to help better answer this question.

RQ1: Is there an association between gender and intent to change risky sexual behaviors related to HIV for young adult African Americans who have viewed STI/HIV messages on Facebook?

H_01 : There is no association between gender and intended changes in risky sexual behaviors related to STI/HIV for young adult African Americans who have viewed STI/HIV messages on Facebook.

H_a1 : There is an association between gender and intended changes in risky sexual behaviors related to STI/HIV for young adult African Americans who have viewed STI/HIV messages on Facebook.

RQ2: Is there an association between age and intent to change risky sexual behaviors related to STI/HIV for young, adult, southeastern African Americans who have viewed STI/HIV messages on Facebook?

H_02 : There is no association between age and intent to change risky sexual behaviors related to STI/ HIV for young adult African Americans who have viewed STI/HIV messages on Facebook.

H_a2 : There is an association between age and intent to change risky sexual behaviors related to STI/HIV for young adult African Americans who have viewed STI/HIV messages on Facebook.

RQ3: Is there an association between education level and intent to change risky sexual behaviors related to HIV for young adult southeastern African Americans who have viewed STI/HIV materials on Facebook?

H_03 : There is no association between education level and intent to change risky sexual behaviors related to HIV for young adult African Americans who have viewed STI/HIV messages on Facebook.

H_a3 : There is an association between education level and intent to change risky behaviors related to HIV for young adult African Americans who have viewed STI/HIV messages on Facebook.

RQ4: Is there an association between income and intent to change risky sexual behaviors related to STI/HIV for young adult African Americans who have viewed STI/HIV messages on Facebook?

H_04 : There is no association between income and intent to change risky sexual behaviors related to STI/HIV for young adult African Americans who have viewed STI/HIV messages on Facebook.

H_a4 : There is an association between income and intent to change risky sexual behaviors related to STI/HIV for young adult African Americans who have viewed STI/HIV messages on Facebook.

RQ5: Is there an association between previous exposure to non-Facebook-based prevention messaging and intent to change risky sexual behaviors related to STI/HIV for young adult African Americans who have viewed STI/HIV messages on Facebook?

H_05 : There is no association between previous exposure to non-Facebook-based prevention messaging and intent to change risky sexual behaviors related to STI/HIV for young adult African Americans who have viewed STI/HIV messages on Facebook.

H_a5 : There is an association between previous exposure to non-Facebook-based prevention messaging and intent to change risky sexual behaviors related to STI/HIV for young adult African Americans who have viewed STI/HIV messages on Facebook.

Population

The study population consisted of a convenience sample of African American men and women between the ages of 18 and 49 who live in Georgia, Mississippi, Alabama, and Tennessee, who had seen HIV prevention materials on Facebook. My use of FB to recruit participants for this study was ideal because it has a large, diverse population of potential participants who qualified for this study. The estimated population size of the target population is currently unknown. The participants did not have to be

recently sexually active, but must have had oral, vaginal, or anal intercourse in the past 12 months. The potential study participants had different ages, education levels, economic levels, and geographic locations within the recruitment catchment area. The study was open to everyone who met the above eligibility criteria regardless of sexual orientation, marital status, or health status. The outcomes of this study could help reveal whether Facebook-based interventions are necessary for this population.

Sampling and Sampling Procedure

I chose the target population because African Americans disproportionately contract STIs, including HIV (CDC, 2013a, 2014b). I used a convenience sampling method for this study. I selected this nonprobability sampling method because a true random sample was beyond the scope of this study due to limits of time and other constraints. I drew this study sample from Facebook users who meet the study criteria. All participants voluntarily participated in this study. Participants had the option to refuse participation, and all participants remained anonymous.

I performed a power analysis using G*Power in an effort to properly estimate the appropriate sample size necessary to detect an actual effect. For a multiple logistic regression analysis with $OR = 1.8.$, $p_{rep} H_0 = 0.3$, $\alpha = 0.05$, and power = 0.80, the minimum sample size required is 109 (Faul, Erdfelder, Buchner, & Lang, 2009). I made every attempt to avoid a Type II error, or false negative. The power of a statistical test lies in the probability that it yielded statistically significant results (Cohen, 2013). Significance criterion, reliability of sample results, and the effect size are three important parameters that determine the power of a statistical test (Cohen, 2013).

Procedures for Recruitment, Participation, and Data Collection

African Americans between the ages of 18 and 49 who lived in Georgia, Mississippi, Alabama, or Tennessee who had had oral, vaginal, or anal intercourse within the past 12 months, and had viewed STI/HIV-related information on Facebook were recruited through Facebook to participate in an online survey. I created Facebook advertisements specifically geared toward this study population. These advertisements served as a promotion and recruitment method for potential participants. I notified potential participants about the Facebook page that contains a description of the study, eligibility criteria, and the risk and benefits.

A Facebook advertisement was the means to invite Facebook users who met the inclusion criteria to participate in the study. Facebook shows ads to specific groups of people. The current criteria for Facebook ads are that they must include a headline and text body; the headline is limited to 25 characters, and the text body is limited to 90 characters (www.facebook.com/help/165590023504264/). I created this Facebook advertisement using the standard free Facebook advertisement system (<https://www.facebook.com/advertising>).

I used the targeting option on Facebook advertising to show the ad to the target population. Locations are one of the targeting options that allow you to reach people in specific cities or communities. Demographics are another targeting option that allows the creator of the advertisement to choose an audience based on things like age, gender, and education (<https://www.facebook.com/advertising>). Connections are a targeting option that allows the creator to reach people connected to the desired page, as well as their

friends (<https://www.facebook.com/advertising>). Friends of participants who interacted with the content of the page were eligible to see the activity. Participants who liked, commented, or checked-in on the page were instrumental in the promotion of the page. Invitations to participate in the study were also displayed on the personal Facebook pages and inboxes of African Americans between the ages of 18 and 49 who lived in the Southeastern United States (See Appendix I). These participants could invite other participants who met the predetermined criteria to participate in the study as well.

I created a Facebook page that provided all of the relevant information pertaining to the study. The Facebook page contained all of the procedures, eligibility criteria, background information, possible risks and benefits, contact information, and a link to the screener and study survey on SurveyMonkey. There is no affiliation between SurveyMonkey and Facebook, and the link provided participants with anonymity; results were not associated with individuals' Facebook profiles. After the page directed participants to complete the eligibility screener, participants reviewed the informed consent section, which included a statement on voluntary participation in the study, the risks, and benefits of being in the study, a statement of consent, instructions, and contact information. Potential respondents were instructed to click on the link to enter the survey if they had read and understood the consent form and were interested in participating in the study.

I developed a survey using SurveyMonkey, which is a site that allows one to create and publish online surveys, allowing for the viewing of results graphically and in real time (<https://www.surveymonkey.com/>). Once participants entered the site, they had

to answer some screener questions before they could provide informed consent and enter the actual survey. The screener questions were used to determine if the participants were African Americans between the ages of 18 and 49, lived in the Southeastern United States, and had seen STI/HIV-related information on Facebook. The screener questions were “yes” or “no” questions (see Appendix C). Anyone who answered “no” to any of these screener questions was thanked for their willingness to participate in the study and then were advised that they did not meet the eligibility criteria and would not be allowed to enter into the actual survey. Participants who answered “yes” to all of the screener questions could continue on and complete informed consent and a confidential self-report questionnaire, which contained demographic questions followed by information related to current and intended changes in behaviors related to STI/HIV (see Appendices D and E). A debriefing section came immediately after the last question on the survey. A message appeared thanking participants for participating in the study. More information as to the purpose of the study and contact information appeared in this section. A toll free number appeared for participants to call if they experience anxiety and stress as a result of taking the survey.

Participants had the option to withdraw their data. If they agreed to have their data used for the study they clicked on “I agree” to submit their data. Following submission of the surveys, I summarized responses for each item and used logistic regressions to examine relationships among variables. The advantage of recruiting participants via Facebook was that a wide population sample was reachable and the response time was fast.

Instrumentation and Operationalization of Constructs

Instrumentation

The internet-based survey instrument that I used in this study consisted of three sections: (a) eligibility screening, (b) demographics, and (c) main survey questions. I administered the survey using SurveyMonkey, a service that allows one to create online surveys. Survey Monkey provides encryption and security measures to ensure that respondents' information is confidential (<http://www.surveymonkey.com>).

Survey Construction

There were three sections to the survey. The first section establishes the inclusion criteria (see Appendix C). If any respondent answered no to any of the questions in the inclusion criteria, I excluded them from the study and thanked them for their interest. If the respondents answered yes to all of the questions in the inclusion criteria, I directed them to complete the survey. The survey collected data related to the independent variables for the study and covered intent to change sexual behaviors (see Appendix D and E).

Validity

I made an attempt to carefully word the survey questions to get the intended answers. I sought consensus validity from an expert panel of three persons (university faculty, research consultant, STI/HIV professional). I gave them the purpose and research questions for the study and then asked to review the survey for appropriate content, syntax, and format. The panel was asked if they have any suggestions for additions. They were also asked to review the introduction and instructions for sufficient detail and ease

of understanding. Based on their feedback, I made revisions to the survey. Following review by the expert panel, I conducted a pilot study.

Pilot Study

I obtained Institutional Review Board (IRB) approval to conduct a pilot study. This pilot study occurred after the validity process to ensure that the study was feasible, to test the online survey, and to determine any necessary improvements to the survey design. Five participants who had to meet the same requirements as the main study participants were invited to participate in the study to determine if STI/HIV information on Facebook was associated with intended changes in STI/HIV behaviors. Five participants was a large enough group to detect problems with the questionnaire and data collection system. I provided all of the federally required elements of consent for Walden's IRB to the participants.

Data Collection Plan

I collected data using SurveyMonkey. Participants filled in an online survey consisting of 25 questions. The survey took approximately 20 minutes to complete. I captured the data using the SurveyMonkey software, and I downloaded the data and import to an Excel spreadsheet for analysis. I examined and cleaned the data using Excel. I conducted the statistical analyses using SPSS version 22. Variables used in the study had unique abbreviations for identification for study analyses. I performed descriptive analyses for all of the variables and calculated descriptive statistics for the participants using n and frequency, because all the variables are categorical or nominative. Participant demographic characteristics were also compiled in order to provide the overall

description of the sample. As a method to clean data, I completed frequency analyses on the data set to identify any missing values or outliers. Cases that were missing values were not included in this study. The study also included descriptive statistics that included the number and percentages of study participants that returned the consent forms, the number that completed the entire survey, and the number that did not complete the entire the survey.

I used multiple logistic regressions to create odds ratios and determine which factors were associated with respondents who viewed STI/HIV on Facebook intent to change their risky STI/HIV behaviors. I calculated adjusted odds ratios and 95% confidence intervals for the independent variables.

Data Analysis

I conducted univariate descriptive, bivariate, and multivariate analysis to analyze data for this study. See Appendix E for a list of survey questions and the associated type of analysis.

Univariate Description

For each research question, I reported a univariate description for each variable. I measured the dependent variable, which was intent to change risky sexual behaviors, by responses to Part 3 of the survey. This is a nominative, dichotomous variable with “yes” coded as 1 and “no” coded as 0. The independent variables are demographic variables measured by Part 2 of the survey. These variables are also nominative, because they respondents to select the interval that best matches their information. For RQ1 the demographic variable is gender coded 0 = male and 1 = female. For RQ2 the

demographic variable is age coded 1 = 18-20, 2 = 21-25, 3 = 26-30, 4 = 31-35, 5 = 36-39, 6=40-45, 7=45-49. For RQ3 the demographic variable is education coded 1 = HS or less, 2 = some college, 3 =Associate Degree, 4 = Bachelor's degree, 5 = Master's degree, 6 = Doctorate. For RQ4 the demographic variable is annual income coded 1 = \$0, 2=1–19999, 3 = 20000 – 39999, 4 = 40000 – 59999, 5= 60000 – 79000, 6 = 80000 – 99999, 7= over 100,000. Table 1 displays a mock table for the univariate analysis of gender.

Table 1 displays a mock table for reporting the univariate descriptive results for gender.

Table 1

Sample Gender Composition, n = x

| Gender | <i>N</i> | <i>%</i> |
|--------|----------|----------|
| Male | | |
| Female | | |

Bivariate Analysis

Next, I conducted bivariate analyses for each RQ to determine if there is an association between the DV (intent of change risky sexual behavior) and the IVs (gender, age, education, income, and exposure to non-Facebook-based prevention messaging). I used chi-square tests of independence. Table 2 displays a mock table for reporting the results of RQ1 – the association between gender and intent to change risky sexual behaviors.

Multivariate Analysis

Finally, I conducted a multivariate analysis using multiple logistic regressions to

determine the strength of the demographic factors in the model for intent to change risky sexual behaviors in the presence of the other demographic factors. Logistic regressions are appropriate when the dependent variable (intent to change risky sexual behaviors) is dichotomous.

Table 2

Chi-Squared Results for Test of Association Between Gender and Intent to Change Risky Sexual Behaviors, n = x

| | Intent to change risky sexual behaviors | | | |
|--------|---|----------------|----------|----------------|
| | Yes | | No | |
| Gender | <i>n</i> | % ^a | <i>n</i> | % ^b |
| Male | | | | |
| Female | | | | |

Note. χ^2 (df, *n* = xx) = x.xx, *p* < .05

^aPercents represent those who intend to change for each gender.

^bPercents represent those who do not intend to change for each gender.

Table 3 displays a mock table for reporting the results of the multiple logistic regression.

Table 3

Results of Multiple Logistic Regression to Test for Association Between Intent to Change Risky Sexual Behaviors and All Four Demographic Variables, n = x

| Variable | <i>B</i> | <i>SE</i> | <i>OR</i> | <i>CI 95% (OR)</i> |
|--|----------|-----------|-----------|--------------------|
| Gender | | | | |
| Age | | | | |
| Educational level | | | | |
| Income | | | | |
| Geographic location | | | | |
| Previous exposure to non-Facebook-based prevention messaging | | | | |

* $p < .05$ ** $p < .01$

Limitations and Threats to Validity

The study sample consisted of a convenience sample of African Americans between the ages of 18 and 49 that live in the southeastern United States and had viewed STI/HIV information on Facebook. There may have been bias because the sample was not representative of the entire population. One limitation of recruiting participants on Facebook is that the sample only consisted of individuals who had internet access, had an account on Facebook, whose self-reported ethnicity, location, and age matched those set by the researcher, and those who logged into Facebook during the time of recruitment. These factors may limit the generalizability of the proposed study. For this study the participants were those who indicated that they are African American, between the ages of 18-49 and lived in southeastern United States. This study excluded those who did not have Facebook, those that did not log into Facebook during the recruitment period, and those who did not accurately represent information about their location and age.

Because the data was gathered using self-report, I considered the possibility of

bias in the information given. Participants could have reported information that is quite different from what they actually do.

The features of online surveys can lead to threats to validity. I was not able to observe the participants and therefore cannot verify that they are in a suitable environment to answer the questions to the best of their ability. Another threat to internal validity is human error. Human miscalculation is also possible when analyzing data. Another possible threat to validity is order effect. Order effects can occur in the study if the participant gets bored and disinterested during the process of completing the questionnaire and either does not complete it, which results in dropout, or does not answer the questions truthfully, which results in an order effect. The instrument primarily consisted of demographic questions followed by a question related to intent to change risky behaviors. A threat to construct validity is that participants could misinterpret the question related to intent change STI/HIV related behaviors. A team of experts reviewed the survey, and I conducted a pilot study to assist with construct validity.

Ethical Procedures

It is imperative that researchers follow ethical procedures when using human participants (Cohen et al., 2011). I obtained approval from Walden's IRB before conducting the pilot test and gaining access to any participant. It is required that when using the survey method, the researcher should focus on informed consent and the confidentiality of the participants (Kelly, Clark, Brown, & Sitzia, 2003). The primary mode of data collection for this study is via an online survey. I followed strict guidelines to maintain proper informed consent. The consent form highlighted the nature of the

study, explained how I would share the results, included a statement explaining the voluntary nature of the study and their role as participants, and provided information on how to contact the principal investigator and/or Walden University's Institutional Review Board for additional study information.

I informed participants that, even though they provided consent, they still have the option of leaving questions that make them uncomfortable blank or can stop the survey at any time. I assured participants of their anonymity and confidentiality. There was no identifying information obtained from participants. The nature of the questions in the survey may have provided anxiety or a feeling of discomfort. In case participants wanted to speak with trained counselors as a result of participating on this study, I provided a toll free hotline number. Participants had the option to withdraw their data. If they agreed to have their data used for the study they clicked on "I agree" to submit their data. If for any reason a participant did not want to complete the survey or have their data used, they clicked "I do not agree", and the SurveyMonkey system discarded any data that they had entered.

A protocol for Human Subjects in Research was completed and submitted to Walden University's Institutional Review Board for approval. I received approval for the protocol before conducting any data analysis for the pilot study and for the main study. I kept all of the data used in this research in a password-protected file on a password-protected computer. I did not link any identifying information to study participants. After five years, I will delete all study data from the computer, thereby destroying it.

Summary

Chapter 3 includes a description of the quantitative survey method that I used to collect data and the data analysis for answering the research questions of this study. The major sections of this chapter are research design and rationale, methodology, and threats to validity. These major sections and the related sub-sections provide the relevant procedural information that is necessary to answer the research questions. I used a cross-sectional, quantitative, survey method to determine if having viewed STI/HIV messages on Facebook lead to intentions to change risky sexual behaviors. Participants was recruited through Facebook to take a short on line survey that was used to determine if they have viewed STI/HIV information on Facebook, if viewing information on Facebook leads to intentions to change behavior, and obtain demographic information. Chapter 4 includes a complete report of study findings.

Chapter 4: Findings

The purpose of this quantitative study was to explore the association between select demographic variables and intent to change risky sexual behaviors after viewing sexual health messages on Facebook. The independent variables were gender, age, education, and income. The dependent variable was intent to change risky behaviors that could lead to STI/HIV.

Five research questions guided this study:

RQ1: Is there an association between gender and intent to change risky sexual behaviors related to HIV among African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook?

H_01 : There is no association between gender and intended changes in risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed SI/THIV messages on Facebook.

H_a1 : There is an association between gender and intended changes in risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook.

RQ2: Is there an association between age and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook?

H_02 : There is no association between age and intent to change risky sexual behaviors related to STI/ HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook.

H_{a2} : There is an association between age and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook.

RQ3: Is there an association between education level and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV materials on Facebook?

H_{03} : There is no association between education level and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook.

H_{a3} : There is an association between education level and intent to change risky behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook.

RQ4: Is there an association between income and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook?

H_{04} : There is no association between income and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook.

H_{a4} : There is an association between income and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook.

RQ5: Is there an association between previous exposure to non-Facebook-based

prevention messaging and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook?

H_05 : There is no association between previous exposure to non-Facebook-based prevention messaging and intent to change risky sexual behaviors related to STI/HIV for African Americans in the South Pilot Study.

H_a5 : There is an association between previous exposure to non-Facebook-based prevention messaging and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook.

This chapter includes a presentation of the descriptive statistics for the demographic variables as they relate to intent to change risky sexual behaviors. The chapter also contains a presentation of results of the univariate, bivariate, and multivariate analyses I performed to answer the five research questions. A summary concludes the chapter.

Pilot Study

I obtained IRB approval to conduct a pilot study. This pilot study occurred after the validity process to ensure that the study was feasible, to test the online survey, and to determine any necessary improvements to the survey design. Five participants who had to meet the same requirements as the main study participants were invited to participate in the study to determine if STI/HIV information on Facebook was associated with intended changes in STI/HIV behaviors. Five participants was a large enough group to detect

problems with the questionnaire and data collection system. The only problem I detected during the pilot study was that participants were able to skip answering the informed consent question and still continue on to the survey. This problem was corrected, and I provided all of the federally required elements of consent for Walden's IRB to the participants.

Data Collection

I recruited study participants using my personal Facebook account, my friends' Facebook accounts, and Facebook advertisements, which directed eligible participants to my study page. The Facebook advertisements specifically targeted the study population. Advertisements notified potential participants about the Facebook page, which contained a description of the study, eligibility criteria, and the risks and benefits of participation. I received IRB approval (approval number 02-23-16-0071182) to conduct research in 2016 and completed data collection in 2016.

There were 176 responses to the invitation to participate in the study. To be included in the study, participants had to be African American and had to have seen Facebook messages regarding risky sexual behaviors. Of those who responded to the invitation, there were 17 who were not African American, and 27 who had not seen such a Facebook message. I excluded these 44 from the analysis. Of the remaining 132, 20 did not respond to the question regarding intent to change risky sexual behaviors. Because intent to change risky sexual behaviors was the dependent variable in this study, I also excluded these 20 from the analysis. Thus, the final sample size was 112. The a priori power analysis ($OR = 1.8.$, $p_{rep} Ho = 0.3$, $\alpha = 0.05$, and power = 0.80) indicated an

estimated minimum sample size of 109. Therefore, the sample size was adequate to perform data analysis and answer the research questions.

Descriptive Statistics

The following subsections contain a description of the sample according to demographic variables, exposure to health messages on Facebook, participation in risky behaviors for HIV/STI, and intent to change risky sexual behaviors.

Demographics

The majority of the respondents were female (69.6%). The majority of the respondents were between 31 and 49 (77.2%). Approximately 15% of the sample had achieved a high school diploma or GED, whereas 35.7% had a technical certificate or some college. The highest percentage had bachelors or graduate degrees (49.1%). For income, the majority of the respondents earned between \$20,000 and \$59,999 (61.4%), and smaller percentages earned between \$0 and \$19,999 (15.1%) and between \$60,000 and \$99,999 (24.5%). Table 4 summarizes these results.

Table 4

Sample Demographic Composition, n = 112

| | <i>N</i> | % |
|---------------------------|----------|-------|
| Gender, <i>n</i> = 111 | | |
| Male | 34 | 30.4% |
| Female | 78 | 69.6% |
| Age, <i>n</i> = 109 | | |
| 18-20 | 6 | 5.5% |
| 21-25 | 7 | 6.4% |
| 26-30 | 12 | 11.0% |
| 31-35 | 27 | 24.8% |
| 36-39 | 36 | 33.0% |
| 40-45 | 19 | 17.4% |
| 46-49 | 2 | 1.8% |
| Education, <i>n</i> = 112 | | |
| HS/GED | 17 | 15.2% |
| Some college | 26 | 23.2% |
| Ass/Technical | 14 | 12.5% |
| Bachelors | 34 | 30.4% |
| Graduate | 21 | 18.7% |
| Income, <i>n</i> = 106 | | |
| \$0 | 5 | 4.7% |
| \$1,000-\$19,999 | 10 | 9.4% |
| \$20,000-\$39,999 | 28 | 26.5% |
| \$40,000-\$59,999 | 37 | 34.9% |
| \$60,000-\$79,999 | 16 | 15.1% |
| \$80,000-\$99,999 | 10 | 9.4% |

Note. Ass = associate's degree; GED = general educational development; HS = high school.

Exposure to Health Messages

One of the inclusion criteria for the study was that participants had to have viewed sexual health messages on Facebook within the past year. A majority of participants had viewed sexual health messages on Facebook within the last 3 months prior to this study (87.5%). A smaller percentage had viewed this type of message between 3 and 6 months prior to this study (8.9%). The smallest percentage had viewed this type of message between 6 months and 1 year prior to this study (1.8%). Table 5 summarizes these results.

Table 5

Last Viewed Facebook Messages, n = 112

| Time | <i>n</i> | % |
|--------------------------|----------|-------|
| Within the last 3 months | 98 | 87.5% |
| Between 3 and 6 months | 10 | 8.9% |
| More than 6 months ago | 4 | 3.6% |

When asked what type of sexual health prevention messages they had seen on Facebook, the majority of respondents reporting viewing both graphic and text messages (80.4%), followed by video (38.4%). Smaller percentages had viewed text only (11.6%), and graphics only (5.3%). The majority of the respondents had also received sexual health messages from sources other than Facebook (78.6%). The internet was the source where the highest percentage of respondents received sexual health messages, other than Facebook (54.5%). Medical professionals were next (50.0%), followed by television (26.8%), family (17.9%), and friends (17.0%). The lowest percentage was from religious

affiliation (8.0%). Table 6 summarizes these results.

Table 6

Sources of Sexual Health Messages, n = 112

| | <i>n</i> | <i>%</i> |
|---|----------|----------|
| Last viewed Facebook messages, <i>n = 112</i> | | |
| Less than 1 month | 53 | 47.3% |
| Between 1 and 3 months | 45 | 40.2% |
| Between 3 and 6 months | 10 | 8.9% |
| Between 6 months and 1 year | 2 | 1.8% |
| More than 1 year | 2 | 1.8% |
| Type of messages viewed on Facebook ^a <i>n = 112</i> | | |
| Text only | 13 | 11.6% |
| Graphics only | 6 | 5.3% |
| Graphics and text | 90 | 80.4% |
| Video | 43 | 38.4% |
| Received messages from other sources, <i>n = 112</i> | | |
| Yes | 88 | 78.6% |
| No | 24 | 21.4% |
| Other sources of messages ^b , <i>n = 112</i> | | |
| Internet | 61 | 54.5% |
| Medical/professional | 56 | 50.0% |
| Television | 30 | 26.8% |
| Family | 20 | 17.9% |
| Friends | 19 | 17.0% |
| Religious affiliation | 9 | 8.0% |

^aRespondents could choose more than one type of message.

^bRespondents could choose more than one message source.

Risky Behaviors for HIV/STI

Thirty-five of the respondents indicated their gender as male. Of male participants, 91% indicated that they participated in vaginal sex without a condom.

Among those who reporting having had multiple sexual partners, 60% indicated that they had vaginal sex without a condom and 45.7% indicated that they participated in anal sex with a female without a condom. Only one respondent indicated that he participated in

anal sex with a male.

Seventy-seven of the respondents indicated their gender as female. The majority of the females participated in receptive vaginal sex without a condom (89.6%), and about a quarter (24.7%) had had multiple sexual partners. The percentage of those who participated in receptive anal sex without a condom was 11.7%. Seven of the respondents indicated that they were transgender. One of the seven indicated participating in the risky sexual behaviors listed. Table 7 summarizes these results.

Table 7

Risky Sexual Behaviors by Gender Identification, n = 112

| | <i>n</i> ^a | % ^b |
|--|-----------------------|----------------|
| Male, <i>n</i> = 35 | | |
| Insertive vaginal sex without condom | 32 | 91.4% |
| Multiple sexual partners | 21 | 60.0% |
| Anal sex to female without condom | 16 | 45.7% |
| Anal sex to male without condom | 1 | 2.9% |
| Anal sex, male to you without condom | 1 | 2.9% |
| Female, <i>n</i> = 77 | | |
| Receptive vaginal sex without condom | 69 | 89.6% |
| Multiple sexual partners | 19 | 24.7% |
| Receptive anal sex without condom | 9 | 11.7% |
| Transgender, <i>n</i> = 7 ^c | | |

^aRespondents could choose more than one risky behavior.

^bPercentages reflect the proportion of participants who identified themselves as the gender indicated.

^cNone of the transgendered respondents indicated they participated in any of the risky sexual behaviors listed.

Intent to Change Risky Sexual Behaviors

The dependent variable was intent to change risky sexual behaviors. Of the respondents, 53.6% indicated that they intended to change their risky sexual behaviors as a result of seeing sexual health prevention messages on Facebook. Of those, a slight

majority indicated that the Facebook messages had a minor impact on their intention to change risky sexual behaviors (58%). Only 18.2% indicated that the Facebook messages had a significant impact on their intention to change their risky sexual behaviors. Just under a quarter of the respondents indicated that Facebook messages had no impact on their intentions to change their sexual behaviors (23.8%).

The majority of the respondents indicated that they had not changed their risky sexual behaviors (63.4%). When asked if there were other influences on their decision to change their risky behaviors, 21.4% of the respondents indicated that Facebook influenced their decision to change their risky sexual behaviors, followed by medical professionals (15.2%), the internet (14.3%), religious affiliation (10.7%), family (6.3%), friends (5.4%), and television (4.5%). Table 8 summarizes these results.

Table 8

Intent to Change Risky Sexual Behaviors, n = 112

| | <i>n</i> | <i>%</i> |
|--|----------|----------|
| Intend to change, <i>n</i> = 112 | | |
| Yes | 60 | 53.6% |
| No | 52 | 46.4% |
| Impact of Facebook messages, <i>n</i> = 88 | | |
| Significant impact | 16 | 18.2% |
| Minor impact | 51 | 58.0% |
| No impact | 21 | 23.8% |
| Already changed, <i>n</i> = 112 | | |
| Yes | 41 | 36.6% |
| No | 71 | 63.4% |
| Influenced the change^a, <i>n</i> = 112 | | |
| Facebook | 24 | 21.4% |
| Medical professional | 17 | 15.2% |
| Internet | 16 | 14.3% |
| Religious affiliation | 12 | 10.7% |
| Family | 7 | 6.3% |

| | | |
|------------|---|------|
| Friend | 6 | 5.4% |
| Television | 5 | 4.5% |

^aRespondents could choose more than one influence.

Bivariate Analysis

I conducted chi-squared tests of independence to answer the research questions. Researchers use chi-squared tests of independence to determine if two categorical variables are related. Fisher's test is appropriate when expected values are less than 5. This is true for income, education, and age. The only difference in the results is the p values.

Research Question 1

The first research question asked, "Is there an association between gender and intent to change risky sexual behaviors related to HIV among African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook?" The variables are gender and intent to change. I coded gender as 0 = male and 1 = female. I coded intent to change as 0 = no and 1 = yes. The results did not reveal a significant association between gender and intent to change ($\chi^2 [1, n = 112] = .54; p = .462$). Therefore, I retain the null hypothesis (see Table 9).

Table 9

Chi-squared Analysis Results – Intent to Change Risky Sexual Behaviors by Gender, n = 112

| Gender | Intend to change risky sexual behaviors | | | |
|--------|---|----------------|----------|----------------|
| | Yes | | No | |
| | <i>n</i> | % ^a | <i>n</i> | % ^b |
| Male | 20 | 33.3% | 14 | 26.9% |
| Female | 40 | 66.7% | 38 | 73.1% |

Note. $\chi^2 (1, n = 112) = .54, p = .462$

^aPercents represent those who intend to change for each gender.

^bPercents represent those who do not intend to change for each gender.

Research Question 2

The second research question asked, “Is there an association between age and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook?” The variables for this research question are age and intent to change. I coded age as 1 = 18-20, 2 = 21-25, 3 = 26-30, 4 = 31-35, 5 = 36-39, 6 = 40-45, 7 = 46-49. I coded intent to change as 0 = no and 1 = yes. The results did not reveal a significant association between age and intent to change ($\chi^2 [6, n = 109] = 9.97; p = .125$). Therefore, I retain the null hypothesis. Table 10 summarizes these results.

Table 10

Chi-squared Analysis Results – Intent to Change Risky Sexual Behaviors by Age, n = 112

| Education | Intend to change risky sexual behaviors | | | |
|-------------|---|----------------|----------|----------------|
| | Yes | | No | |
| | <i>n</i> | % ^a | <i>n</i> | % ^b |
| 18–20 years | 2 | 3.4% | 4 | 7.8% |
| 21-25 years | 4 | 6.9% | 3 | 5.9% |
| 26-30 years | 4 | 6.9% | 8 | 15.7% |
| 30-35 years | 15 | 25.9% | 12 | 23.5% |
| 36-39 years | 25 | 43.1% | 11 | 21.6% |
| 40-45 years | 8 | 13.8% | 11 | 21.6% |
| 46-49 years | 0 | 0.0% | 2 | 3.9% |

Note. $\chi^2 (6, n = 109) = 9.97$, Fisher's Exact $p = .122$

^aPercents represent those who intend to change for each age group.

^bPercents represent those who do not intend to change for each age group.

Research Question 3

The third research question asked, “Is there an association between education level and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV materials on Facebook?” The variables for this research question are education and intent to change. I coded education as 1 = HS or less, 2 = some college, 3 = associate’s degree, 4 = bachelor’s degree, 5 = master’s degree, and 6 = doctorate. I coded intent to change as 0 = no and 1 = yes. The results did not reveal a significant association between education and intent to change ($\chi^2 [4, n = 112] = 2.86; p = .593$). Therefore, I retain the null hypothesis. Table 11 summarizes this result.

Table 11

Chi-squared Analysis Results – Intent to Change Risky Sexual Behaviors by Education, n = 112

| Education | Intend to change risky sexual behaviors | | | |
|--------------|---|----------------|----------|----------------|
| | Yes | | No | |
| | <i>n</i> | % ^a | <i>n</i> | % ^b |
| HS/GED | 10 | 16.7% | 7 | 13.5% |
| Some college | 12 | 19.9% | 14 | 26.9% |
| Assoc/Tech | 10 | 16.7% | 4 | 7.7% |
| Bachelors | 18 | 30.0% | 16 | 30.7% |
| Graduate | 10 | 16.7% | 11 | 21.2% |

Note. $\chi^2 (4, n = 112) = 2.86$, Fisher's Exact $p = .593$

^aPercents represent those who intend to change for each education level.

^bPercents represent those who do not intend to change for each education level.

Research Question 4

The fourth research question asked, “Is there an association between income and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook?” The variables were income and intent to change. I coded income as 1 = \$0, 2 = \$1–\$19,999, 3 = \$20,000–\$39,999, 4 = \$40,000–\$59,999, 5 = \$60,000–\$79,000, 6 = \$80,000–\$99,999, and 7 = over \$100,000. I coded intent to change as 0 = no and 1 = yes. The results did not reveal a significant association between age and intent to change ($\chi^2 [5, n = 106] = 7.25$, $p = .200$). Therefore, I retain the null hypothesis (See Table 12).

Table 12

Chi-squared analysis Results – Intent to Change Risky Sexual Behaviors by Income, n = 112

| | Intent to change risky sexual behaviors | | | |
|---------------------|---|----------------|----------|----------------|
| | Yes | | No | |
| | <i>n</i> | % ^a | <i>n</i> | % ^b |
| \$0 | 1 | 1.7% | 4 | 4.8% |
| \$1 - \$19,999 | 5 | 8.6% | 5 | 9.4% |
| \$20,000 - \$39,999 | 14 | 24.1% | 14 | 26.4% |
| \$40,000 - \$59,000 | 26 | 44.8% | 11 | 34.9% |
| \$60,000 - \$79,000 | 7 | 12.2% | 9 | 15.1% |
| \$80,000 - \$99,999 | 5 | 8.6% | 5 | 9.4% |

Note. $\chi^2 (5, n = 106) = 7.25$, Fisher's Exact $p = .200$

^aPercents represent those who intend to change for each income level.

^bPercents represent those who do not intend to change for each income level.

Research Question 5

The fifth research question asked, “Is there an association between previous exposure to non-Facebook-based prevention messaging and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook?” The variables were previous exposure to non-Facebook-based prevention messages and intent to change. I coded previous exposure to non-Facebook-based prevention messages as 1 = yes and 0 = no. I coded intent to change as 0 = no and 1 = yes. Results revealed no significant association between previous exposure to non-Facebook-based prevention messages and intent to change ($\chi^2 [1, n = 112] = 1.74; p = .187$). Therefore, I retain the null hypothesis (see

Table 13).

Table 13

Chi-squared Results – Intent to Change Risky Sexual Behaviors by Exposure to Non-Facebook-based Prevention Messaging, n = 112

| Exposure | Intend to change risky sexual behaviors | | | |
|----------|---|----------------|----------|----------------|
| | Yes | | No | |
| | <i>n</i> | % ^a | <i>n</i> | % ^b |
| Yes | 50 | 83.3% | 38 | 73.1% |
| No | 10 | 16.7% | 14 | 26.9% |

Note. $\chi^2(1, n = 112) = 1.74, p = .187$

^aPercents represent those who intend to change for each exposure.

^bPercents represent those who do not intend to change for each exposure.

Multivariate Analysis

The main purpose of this study was to determine what demographic factors are associated with intent to change sexual behaviors among young adult African Americans who have viewed STI/HIV prevention materials on Facebook. I performed inferential statistical analysis using multiple logistic regressions to determine the strength of the demographic factors in the model for intent to change risky sexual behaviors in the presence of the other demographic factors. Logistic regressions are appropriate when the dependent variable (intent to change risky sexual behaviors) is dichotomous. The dependent variable was intent to change risky sexual behaviors, coded as 0 = no and 1 = yes. The independent variables were gender, age, education, income, and previous exposure to non-Facebook prevention messages. I coded gender as 0 = male and 1 =

female. I coded age as 1 = 18-20, 2 = 21-25, 3 = 26-30, 4 = 31-35, 5 = 36-39, 6 = 40-45, 7 = 46-49. I coded education as 1 = HS or less, 2 = some college, 3 = associate's degree, 4 = bachelor's degree, 5 = master's degree, 6 = doctorate. I coded income as 1 = \$0, 2 = \$1-\$19,999, 3 = \$20,000-\$39,999, 4 = \$40,000-\$59,999, 5 = \$60,000-\$79,000, 6 = \$80,000-\$99,999, 7 = over \$100,000. I coded previous exposure to non-Facebook prevention messages as 1 = yes and 0 = no.

The result using the Omnibus test of model coefficients was non-significant ($\chi^2 [8, n = 105] = 4.87, p = .432$). I calculated odds ratio confidence intervals, and all of the confidence intervals include 1.00, which indicates lack of association. Therefore, with respect to the purpose of the research question, results indicate that the demographic factors (gender, age, education, income, and previous exposure to non-Facebook-based prevention messages) are not associated with intent to change or modify sexual behaviors among young adult African Americans who have viewed STI/HIV prevention materials on Facebook. Table 14 summarizes this result.

Table 14

Multiple Logistic Regression Results for Intent to Change Risky Sexual Behaviors, n = 105

| Variable | <i>B</i> | <i>SE</i> | <i>OR</i> | <i>CI</i> 95% (<i>OR</i>) |
|--|----------|-----------|-----------|-----------------------------|
| Gender | -.302 | .489 | .739 | .284, 1.926 |
| Age | -.084 | .175 | .920 | .653, 1.295 |
| Educational level | .128 | .191 | 1.137 | .781, 1.655 |
| Income | -.222 | .209 | .801 | .531, 1.207 |
| Previous exposure to non-Facebook-based prevention messaging | -.941 | .505 | .390 | .145, 1.049 |

Note. $\chi^2 (5, n = 105) = 4.87, p = .432$

Summary

The final sample of 112 participants included a majority of females, and a majority of participants were between 31 and 49 years of age. The sample had a fairly evenly distribution in terms of education and income, but the sample was generally of a middle level of education and income. Most participants reported exposure to sexual-health-related Facebook messages within the three months prior to the study, and almost all engaged in some form of risky sexual behavior. Only about half intended to change their risky sexual behavior; of those, the majority indicated that Facebook messages had at least some impact on their decision to change. Indeed, Facebook was the largest contributor to participants' intent to change, followed by medical professionals and the internet.

The results of bivariate and multivariate analysis revealed no significant

relationship between any of the demographic variables studied and intent to change risky sexual behaviors. This was the case when analyzing each demographic variable individually and when testing a multivariate model including all variables. Therefore, I did not reject any of the null hypotheses and conclude that my analysis did not yield any statistically significant relationships between any demographic variables and the dependent variable, intent to change risky sexual behaviors among this sample of young African Americans who had viewed Facebook-based sexual health messages within one year before the study. In Chapter 5 I discuss the interpretations of my findings, the limitations of the study, recommendations for further research, and implications.

Chapter 5: Discussion

The purpose of this quantitative study was to explore the association between select demographic variables and the intent to change risky sexual behaviors after viewing sexual health messages on Facebook. The participants in this study were African Americans between the ages of 18-49 who live in the Southeastern United States and had seen sexual health messages on Facebook within 1 year prior to the study. The survey was open to all participants who met these criteria. The majority of the respondents were female (69.6%), had bachelor's degrees (30.4%), earned an income between \$40,000 and \$59,000 (34.9%), and lived in Georgia (81%).

The data analysis presented in Chapter 4 did not yield any statistically significant association between the demographic variables: gender, age, education, and income, and the dependent variable, intent to change sexual behaviors. There was also no statistically significant association between previous exposure to non-Facebook-based prevention messaging and intent to change risky sexual behaviors.

Interpretation of the Findings

The following subsections contain my interpretation of findings for each of the research questions, as well as a discussion of the theoretical framework I used to help interpret and understand my findings. In each subsection, I briefly summarize the findings for convenience, and then I interpret the findings and discuss how they relate to the existing literature reviewed in Chapter 2. The demographic information was an integral part of this study because African Americans disproportionately contract STIs, including HIV. The results may help to provide public health practitioners a better

understanding of whether these demographic subcategories predict intent to change risky sexual behaviors that lead to STI/HIV.

Research Question 1

The first research question was, “Is there an association between gender and intent to change risky sexual behaviors related to HIV among African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook?” Based on my survey results, the association between gender and intent to change risky sexual behaviors was not statistically significant ($p = .461$). This indicates that males who have viewed sexual health messages on Facebook are no more likely than their female or transgendered counterparts to change their risky sexual behaviors.

In 2012, the most recent year for which data are available, the CDC estimated that 38,160 men received a diagnosis of HIV, compared with 9,586 women (CDC, 2013b). Based on this information, it would seem that women are not participating in as many risky behaviors as men, which results in lower rates of diagnosis. This is contradictory to available data for other STIs. For chlamydia, there are about twice as many cases reported among females as among males; however, this discrepancy is likely due to the fact that women routinely receive screening for chlamydia, whereas males do not (CDC, 2014c). Based on my survey results, 89.6% of the women who responded indicated that they participated in receptive vaginal sex without a condom. This was only very slightly higher than the rate for men, indicating that men may not engage in more risky sexual behaviors than women. Currently, condoms are the only widely available, proven method for reducing transmission of HIV and other STIs during intercourse (Crosby & Bounse,

2012). If women do not start using condoms more consistently, the rates of HIV diagnosis are likely to rise.

Of the men surveyed, 91% indicated that they participate in vaginal sex with a condom. According to the literature, sex with men is the predominant mode of transmission of HIV among both men and women (Haley & Justman, 2013). The year 2013 was the first year since 2000 that gonorrhea diagnosis among men was higher than among women (CDC 2014c). Syphilis is also on the rise among men; the rate of primary and secondary syphilis cases increased 12% among men in the 2012-2013 period (CDC 2014c). This information directly correlates with the high percentage of men participating in unprotected sex. The results of my study confirmed this fact; however, the high rate of unprotected vaginal sex among the men in this study indicates that risky sexual behaviors with both men and women are important targets for sexual health messaging and education. As I noted in the literature review, no matter how effective condoms may be, they can have little impact in preventing STIs if people do not use them (CDC, 2011).

Research Question 2

The second research question was, “Is there an association between age and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook?”

According to the survey results, there was no significant association between age and intent to change ($p = .125$). This finding contradicts existing literature, which states that diagnosis of STIs is highly correlated with age (CDC, 2013b). Individuals aged 20-34 accounted for 46.2% of all new HIV cases, and the rate of diagnosis was highest among

20-24 year olds (CDC, 2013b). The results of my study indicated that 43.1% of individuals aged 36-39 intended to change their risky sexual behaviors, in comparison with 6.9% of 21-25 year olds, which may to some extent reflect this age group having higher rates of HIV diagnoses. Since the present study did not include data on HIV diagnosis, this is not definitively confirmable, but merits further investigation.

Although data are indicative of general prevalence and risk levels, Haley and Justman (2013) pointed out that certain age groups may have higher rates of undiagnosed HIV due to decreased screening among those groups. For example, Haley and Justman suggested that there may be a common perception that older women are not at high-risk for HIV, so medical professionals may not approach them for testing as often as they do younger women. This could be one explanation for the lack of significant association in this study; age differences in reported STI rates could be a result of undiagnosed STI, rather than lower rates of contraction. In such cases, one would expect no correlation between age and change in risky sexual behavior, as this study found.

Research Question 3

The third research question was “Is there an association between education level and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV materials on Facebook?” The survey results showed no association between education level and intent to change risky sexual behaviors ($p = .593$).

These results contradict existing research, which strongly correlates education and risk of STI (Hakre et al., 2014; Zeglin & Stein, 2015). Additionally, Hasnain, Levy,

Mensah, and Sinacore (2007) found significant associations between educational attainment and certain HIV risk behaviors, and suggested that risky sexual behavior and STI contraction both relate to education. Indeed, one might suppose that more educated individuals might engage in fewer risky sexual behaviors owing to an increased knowledge of the risks involved. However, this study did not confirm the link. This is particularly surprising given the even distribution of education levels among the participants; nearly half of all participants had a bachelor's or graduate degree.

One possible explanation for this surprising finding is the effect of Facebook-based sexual health messages themselves. Assuming that these messages (whose content is unknown in this study) contained information about the risks involved in risky sexual behaviors, the Facebook messages might have acted as a source of sexual health education for all participants, regardless of educational attainment. Thus, participants with both low and high education levels would have had access to the same information about the risks of certain sexual behaviors. This is an important possibility because it suggests that Facebook and other social media could overcome differences in educational attainment to improve sexual health awareness among a wide swath of individuals.

Another possible explanation is that the sample consisted entirely of African Americans. The effect of race on the relationship between education and STIs deserve further investigation; based on the results of this study, it appears possible that the link with education reflects a gap in educational attainment between African Americans, who disproportionately contract STIs (CDC, 2014c), and individuals of other races. The effect of education on STI risk may, in other words, be indirect. This view might find support in

the work of Reif (2014), who suggested that racial STI disparities are a result of longstanding racial disparities in the United States.

Research Question 4

The fourth research question was, “Is there an association between income and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States who have viewed STI/HIV messages on Facebook?” Based on my survey results, there was no significant association between income and intent to change risky sexual behaviors ($p = .200$). According to Oakhurst (2010), the relationship between wealth and HIV infection is not direct, nor does it always act in the same direction in every setting. Furthermore, Zeglin and Stein (2015) found that, when removing income as a factor from their model of HIV risk, there was no change to the predictive power of the model. This finding indicated that income was not an important predictive factor for HIV risk. The findings of my study appear to support previous research. With respect to intent to change risky behaviors, I concluded that higher or lower income does not predict intent to change. To my knowledge, there is no evidence in the published peer-reviewed literature of the relationship between income and intent to change risky sexual behaviors. In general, this supports a view of sexual behavior and sexual health that is independent of income.

Research Question 5

The fifth research question was, “Is there an association between previous exposure to non-Facebook-based prevention messaging and intent to change risky sexual behaviors related to STI/HIV for African Americans in the Southeastern United States

who have viewed STI/HIV messages on Facebook?” The survey results showed that there is no association between previous exposure to non-Facebook-based prevention messaging and intent to change risky sexual behaviors ($p = .187$). To my knowledge, there is no evidence in the published peer reviewed literature of studies on the relationship between non-Facebook-based prevention messaging and intent to change risky sexual behaviors related to STI/HIV. However, research has shown that other web-based messaging can be effective in promoting knowledge of sexual health among young people (Danielson et al., 2013).

The lack of association between non-Facebook messaging and intent to change is important from the perspective of STI prevention. It suggests that Facebook messaging alone can be effective in generating intent to change sexual behaviors, regardless of whether individuals have seen similar messaging elsewhere. Policymakers and practitioners hoping to improve sexual health in African American communities might focus on Facebook, given this information. Ybarra et al. (2014) showed that young people, especially females, are interested in receiving online messages regarding sexual health. My study showed that Facebook-based messages were more important in participants’ decisions to change than other internet sources. Therefore, this study supports previous research suggesting that social media can be effective for public health promotion (see Gold et al., 2012; Jones et al., 2012; Park et al., 2011; Park & Calamaro, 2013; Ralph et al., 2011; Robinson & Lee, 2014).

Theoretical Framework

The constructs of the TPB helps to understand the process of intent to change.

The TPB is a modification of the TRA which assumes that human beings usually make systematic use of the information available to them (Ajzen & Fishbein, 1980). This theory is a framework for understanding, predicting, and changing human social behavior. In this study, I recruited participants through social media; participants only qualified for the study if they had seen sexual health messages on Facebook. Based on the TPB, participants should have made reasoned use of Facebook health messaging to decide whether or not to change their risky sexual behaviors (see Jiang, Lu, Hou, & Yue, 2013). Indeed, this study's participants cited Facebook messages as the most significant factor in their decisions to change their risky sexual behavior. About three-quarters of participants who intended to change sexual behavior reported that Facebook had at least some effect on their decisions. The TPB seems to be an appropriate model for understanding the importance of FB for participants regarding intent to change behavior. Based on the data analysis for this study, there was no association between any of the demographic variables or previous exposure to non-Facebook-based prevention messages and intent to change. This strongly supports the TPB being a good model for this study based on the information received on the importance of FB. It suggests that Facebook messages, which spark conscious behavioral intentions, had a relation to intent to change; this study revealed no passive relationships with behavioral intent to change that might have contradicted the TPB. Web and Sheeran (2006) found that a change in intention directly brings about a change in behavior. Therefore, in order to bring about social change and improvement in sexual health among young African Americans, it is important to focus on messaging that can lead to planned behavioral intent to change.

Limitations of the Study

There are several notable limitations of the study. The study sample consisted of a convenience sample of 112 African Americans between the ages of 18 and 49 living in the Southeastern United States who had viewed STI/HIV information on Facebook. Because I used a convenience sample, the sample is not representative of the entire population. This limitation could have an effect on external validity, because the results may not be generalizable to other situations and other people. The majority of the respondents were from Georgia, although Mississippi, Alabama, and Tennessee were included. Therefore, readers should interpret results only with caution, even when considering African Americans in the Southeastern United States.

Another limitation of the study was I contacted all participants using Facebook. This means that the sample consisted of individuals who had internet access, had an account on Facebook, and who logged into Facebook during the time of recruitment. These factors may have limited the generalizability of the study, since individuals who had seen Facebook messages but did not log in during the time of recruitment, or who did not have regular internet access, did not participate.

Similarly, there is a potential for self-selection bias, since participants were those who agreed to participate based on my outreach and advertisements. The sample may be highly motivated, which could have skewed results. Because the data were gathered using self-reports, there is the possibility of bias in the data. Participants could have reported information that was quite different from what they actually do. This is a particularly concern for the present study because I asked about sensitive sexual information.

Participants might not have admitted to risky sexual behaviors owing to social acceptability bias. However, given the high rate of risky sexual behaviors among the participants, social acceptability bias is not a large concern. Similarly, participants may have reported intending to change because they thought that was the most acceptable answer. Therefore, there is a chance that intent to change is somewhat over reported in this study. However, I assured participants that their responses were anonymous and confidential, mitigating this potential bias.

Recommendations

The results of this study indicated that none of the demographic variables (gender, age, income, and education) influenced intent to change behavior after viewing sexual health messages on Facebook. The outcome of the study does not offer enough insight into other social, cultural, and emotional contexts into the lives of this population. I therefore recommend a mixed method study of this same population that would examine motivations in their lives that are causing them to decide to change their risky sexual behaviors or not. About half of the participants indicated that they intended to change their risky sexual behaviors, but this study revealed no information about the differences between the two groups. Therefore, there is a need for more research with a larger sample size to increase power to detect effects of interest. I also recommend that researchers conduct studies similar to this one among a broader sample of African Americans living in the United States to see if there are different stressors in different regions that could influence risky sexual behavior.

According to Young and Jaganath (2014), the rapid growth of social networking

sites such as Facebook makes Facebook a promising tool for STI/HIV prevention. Thus, there is a need for more studies to determine which populations would benefit from this method of prevention, and there is a need for more studies to determine which types of messages are most effective for the target populations.

African Americans living in the Southeastern region of the United States disproportionately contract STIs, including HIV (CDC, 2014c; Reif, 2014). There is a need for more studies to determine the most effective methods to reach this population. The present study suggests that Facebook messaging can be effective, but Facebook messaging should be part of a broader strategy, since Facebook messaging alone did not lead to intent to change among all participants. Qualitative studies that ask specific questions about what types of interventions African Americans feel would most benefit them could help to determine more effective STI prevention interventions. Finally, given the race gap in STI rates, there is a need to identify more culturally competent prevention strategies. A study similar to this one including individuals from multiple racial and ethnic backgrounds could begin to identify whether Facebook messaging is an effective strategy for African Americans as compared with other groups.

Implications

The information obtained from this study contributes to the existing body of research related to the disparities of African Americans when it comes to STI/HIV contraction. This study provides insight into how many African Americans in the Southeastern United States have the same risky behavioral practices regardless of gender, age, education, or socioeconomic status. This implies that there is a need for the

expansion of STI/HIV interventions to include all African Americans regardless of gender, age, education, or income.

Further, this study suggests that Facebook messaging can be effective among African Americans in the Southeastern United States, regardless of other demographic factors and non-Facebook-based messaging. Although only half of participants in this study indicated that they planned to change their sexual behaviors, this half cited Facebook as the most important factor in their decisions to change. Therefore, increased Facebook messaging may be effective. Increased prevention strategies at the clinical level might also help. In this study, medical professionals were the second most important factor in participants' decisions to change their risky sexual behaviors. Because healthcare providers provide a major line of defense and are a trusted source of health information, it is imperative that they assist their patients in finding ways to reduce their risky sexual behaviors.

This study could influence positive social change among and for African Americans by providing researchers with information about how STI/HIV prevention messages on Facebook could lead to behavior change, thus decreasing the rates of infection in this population. The findings could help with developing interventions on Facebook that could lead to changes in the sexual behaviors of this population. Social networking sites like Facebook could become one of the primary media for disseminating positive and informational sexual health information, thus changing high-risk behavioral practices and reducing the rates of STD/HIV in the African American community.

Conclusion

Statistics show that there has been an increase in HIV/AIDS cases and other STIs among African Americans living in the Southern region of the United States (Reif et al., 2014). There is a need to better understand prevention techniques to contribute to improvements in public health and reduction of STI and HIV transmission African Americans in the Southeastern United States who have viewed Facebook-based sexual health messaging in the last year, intention to change sexual behavior is not associated with sex, age, education, or income level; however about half the study sample indicated their intent to change risky behaviors based on exposure to HIV prevention messages on Facebook in the last 12 months . Among those who reported intending to change, Facebook messaging was the most important factor in their decisions. These results indicate a major need for the expansion of STI/HIV programs for all African Americans, with a focus on the potential of Facebook and other social networking sites.

References

- Abamecha, F., Godesso, A., & Girma, E. (2013). Intention to voluntary HIV counseling and testing VC among health professionals in Jimma zone, Ethiopia: the theory of planned behavior (TPB) perspective. *BMC Public Health*, *13*(140), 140-153. doi:10.1186/1471-2458-13-140
- Adimora, A. A., Ramirez, C., Schoenbach V. J, & Cohen, M. S. (2014). Policies and politics that promote HIV infection in southern United States. *AIDS*, *28*, 1393-1397. doi:10.1097/QAD.0000000000000225
- Aghafar, M. A., Witt, C., Kamarulzaman, A., Ismail, R., Lederman, M. M., Rodriguez, B., ... Price, P. (2012). Genetic variations in loci relevant to natural killer cell function are affected by ethnicity but are generally not correlated with susceptibility to HIV-1. *Tissue Antigens*, *79*(5), 367-371. doi:10.1111/j.1399-0039.2012.01843.x
- Ajzen, I., Joyce, N., Sheikh, S. & Cote, N. G. (2011). Knowledge and the prediction of behavior: The role of information accuracy in the theory of planned behavior. *Journal of Basic and Applied Social Psychology*, *33*(2), 101-117. doi:10.1080/01973533.2011.568834
- Alabama Department of Public Health. (2014). *HIV incidence estimates, Alabama 2010-2012*. Montgomery, AL: Alabama Department of Public Health. Retrieved from http://www.adph.org/aids/assets/HIV_IncidenceEstimation_2010-2012.pdf
- An, Q. X. (2013). Association between community socioeconomic position and HIV diagnosis rate among adults and adolescents in the United States, 2005 to 2009.

American Journal of Public Health, 103(1), 120-126. doi:10.2105/AJPH.2012.300853

Bachmann, L. W. (2013). Impact of a computer-assisted, provider-delivered intervention on sexual risk behaviors in HIV-positive men who have sex with men (MSM) in a primary care setting. *AIDS Education & Prevention*, 25(2), 87-101. doi:10.1521/aeap.2013.25.2.87

Bingham, T., Harawa, N. T., Williams, J. K. (2013). Gender role conflict among African American men who have sex with men and women: Associations with mental health and sexual risk and disclosure behaviors. *American Journal of Public Health*, 103(1), 127-133. doi:10.2105/AJPH.2012.300855

Booth, A. R., Norman, P., Harris, P. R., & Goder, E. (2013). Using the theory of planned behavior and self-identity to explain Chlamydia testing intentions in young people living in deprived areas. *British Journal of Health Psychology*, 19(1), 101-112, doi:10.1111/bjhp.12036

Branch-Vital, A., Fernandez, M., Ross., M., Wenyaw, C., & Smith, W. (2011). Condom use knowledge and condom use among African-American women: Evidence from a cross-sectional study in Harris County, Texas. *National Forum of Multicultural Issues Journal*, 9(1), 1-11. Retrieved from <http://www.nationalforum.com/Journals/NFMIJ/NFMIJ.htm>

Broadus, M. R., DiFranceisco, W. J., Kelly, J. A., St. Lawrence, J. S., Amirkhanian, Y. A., & Dickson-Gomez, J. D. (2015). Social media use and high-risk sexual

- behavior among black men who have sex with men: A three-city study. *AIDS and Behavior*, 19(2), 90-97. doi:10.1007/s10461-014-0980-z
- Buhi, E. R., Klinkenberger, N., Hughes, S., Blunt, H. D., & Rietmeijer, C. (2013). Teens' use of digital technologies and preferences for receiving STD prevention and sexual health promotion messages: Implications for the next generation of intervention initiatives. *Journal of the American Sexually Transmitted Diseases Association*, 40(1), 52-54. doi:10.1097/OLQ.0013e318264914a
- Bull, S. S., Levine, D. K., Black, S. R., Schmiede, S. J., & Santelli, J. (2012). Social media-delivered sexual health intervention: a cluster randomized controlled trial. *American Journal of Preventative Medicine*, 43(5), 467-474. doi:10.1016/j.amepre.2012.07.022
- Capurro, D., Cole, K., Echevarria, M. I., Joe, J., Neogi, T., & Turner, A. M. (2014). The use of social networking sites for public health practice and research: A systematic review. *Journal of Medical Internet Research*, 16(3), 79. doi:10.2196/jmir.2679
- Centers for Disease Control and Prevention. (2014a). CDC.gov and social media metrics, November 2014. Atlanta, GA: U.S. Department of Health and Human Services. Retrieved from <http://www.cdc.gov/metrics/reports/2014/oadc-metrics-report-november2014.pdf>
- Centers for Disease Control and Prevention (2014b). *HIV among African Americans*. Retrieved from <http://www.cdc.gov/hiv/risk/raciaethnic/AfricanAmerican/facts/index.html>

- Centers for Disease Control and Prevention. (2014c). *Sexually transmitted disease surveillance 2013*. Atlanta, GA: U.S. Department of Health and Human Services. Retrieved from <http://www.cdc.gov/std/stats13/surv2013-print.pdf>
- Centers for Disease Control and Prevention. (2013a). *Sexually transmitted disease surveillance 2012*. Retrieved from <http://www.cdc.gov/sTD/stats12/minorities.htm>
- Centers for Disease Control and Prevention. (2013b). *HIV surveillance report; vol. 24*. Atlanta, GA: U.S. Department of Health and Human Services. Retrieved 27 January, 2015, from <http://www.cdc.gov/hiv/library/reports/surveillance>
- Centers for Disease Control and Prevention. (2013c). *HIV surveillance in urban and nonurban areas*. Atlanta, GA: U.S. Department of Health and Human Services. Retrieved 27 January, 2015, from http://www.cdc.gov/hiv/pdf/statistics_surveillance_urban-nonurban.pdf
- Centers for Disease Control and Prevention. (2012). *African Americans and sexually transmitted diseases*. Atlanta, GA: U.S. Department of Health and Human Services. Retrieved from <http://www.cdc.gov/nchhstp/newsroom/docs/AFRICAN AMERICANS-and-STD-Fact-Sheet.pdf>
- Charania, M. R., Crepaz, N., Guenther-Gray, C., Henny, K., Liao, A., Willis, L. A., & Lyles, C. M. (2011). Efficacy of structural-level condom distribution interventions: A meta-analysis of U.S. and international studies, 1998–2007. *AIDS and Behavior*, *15*(7), 1283-1297. doi:10.1007/s10461-010-9812-y

- Chávez, N. R., Shearer, L. S., & Rosenthal, S. L. (2014). Use of digital media technology for primary prevention of STIS/HIV in youth. *Journal of Pediatric & Adolescent Gynecology*, 27(5), 244-257. doi:10.1016/j.jpag.2013.07.008
- Cohen, J. (2013). *Statistical power analysis for the behavioral sciences*. New York, NY: Routledge Academics.
- Cooley, L. A., Oster, A. M., Rose, C. E., Wejnert, C., Le, B. C., & Paz-Bailey, G. (2014). Increases in HIV testing among men who have sex with men — National HIV behavioral surveillance system, 20 U.S. metropolitan statistical areas, 2008 and 2011. *Plos ONE*, 9(9), 1-9. doi:10.1371/journal.pone.0104162
- Crosby, R. A. (2013). State of condom use in HIV prevention science and practice. *Current HIV/AIDS Report*, 10(1), 59-64. doi:10.1007/s11904-012-0143-7
- Crosby, R., & Bounse, S. (2012). Condom effectiveness: Where are we now? *Sex Health*, 9(1), 10-17. doi:10.1071/SH11036
- Crouch, A., & Fagan, P. (2012). Communities and condoms - How difficult can it be?. *Australian & New Zealand Journal of Public Health*, 36(6), 506-508. doi:10.1111/j.1753-6405.2012.00942.x
- Cyr, B., Berman, S., & Smith, M. (2015). The role of communication technology in adolescent relationships and identity development. *Child & Youth Care Forum*, 44(1), 79-92. doi:10.1007/s10566-014-9271-0
- Daniolos, P. T. (2013). Gender identity: On being versus wishing. *Journal of the American Academy of Child & Adolescent Psychiatry*, 52(6), 569-571. doi:10.1016/j.jAfrican Americanc.2013.03.014

- DeNavas-Walt, C., & Proctor, B. D. (2014). *U.S. Census Bureau, current population reports, Income and poverty in the United States: 2013*. Washington, DC: U.S. Government Printing Office.
- Divecha, Z., Divney, A., Ickovics, J., & Kershaw, T. (2012). Tweeting about testing: Do low-income, parenting adolescents and young adults use new media technologies to communicate about sexual health? *Perspectives on Sexual and Reproductive Health, 44*(3), 176-183. doi:10.1363/4417612
- Dorell, C. G., Sutton, M. Y., Oster, A. M., Hardnett, F., Thomas, P. E., Gaul, Z. J., ... Heffelfinger, J. D. (2011). Missed opportunities for HIV testing in health care settings among young African American Men who have sex with men: Implications for the HIV epidemic. *AIDS Patient Care & STDS, 25*(11), 657-664. doi:10.1089/apc.2011.0203
- Eaton, L. A., Huedo-Medina, T. B., Kalichman, S. C., Pellowski, J. A., Sagherian, M. J., Warren, M., ... Johnson, B. T. (2012). Meta-analysis of single-session behavioral interventions to prevent sexually transmitted infections: Implications for bundling prevention packages. *American Journal of Public Health, 102*(11), e34-e44. doi:10.2105/AJPH.2012.300968
- Enah, C., Moneyham, L., Vance, D. E., Gakumo, C. A., & Chandler, M. (2014). Make it like the real world: Adolescents' recommendations for the design of a digital HIV prevention game. *Journal of HIV/AIDS & Social Services, 13*(2), 163-178. doi:10.1080/15381501.2012.749821

- Fischer, P., Greitemeyer, T., Kastenmuller, A., Vogrincic, C., & Sauer, A. (2011). The effects of risk-glorifying media exposure on risk-positive cognitions, emotions, and behaviors: A meta-analytic review. *Psychological Bulletin, 137*(3), 367-390. doi:10.1037/a0022267
- Friedman, A. L., Uhrig, J., Poehlman, J., Scales, M., & Hogben, M. (2014). Promoting sexual health equity in the United States: Implications from exploratory research with African-American adults. *Health Education Research, 29*(6), 993-1004. doi:10.1093/her/cyu003
- Garcia, R. & Cokely, E. T. (2011). Effective communication of risks to young adults: Using message framing and visual aids to increase condom use and STD screening. *Journal of Experimental Psychology, 17*(3), 270-287, doi:10.1037/a0023477
- Garcia-Retamero, R., & Cokely, E. T. (2015). Simple but powerful health messages for increasing condom use in young adults. *Journal of Sex Research, 52*(1), 30-42. doi:10.1080/00224499.2013.806647
- Georgia Department of Community Health (2014). *Georgia HIV/STD facts & statistics*. Retrieved from http://dch.georgia.gov/sites/dch.georgia.gov/files/imported/vgn/images/portal/cit_1210/29/60/163230586Georgia%20HIV_STD%20FactsStatistics.pdf
- Georgia Department of Public Health. (2012). *Data summary*. Retrieved from <http://dph.georgia.gov/sites/dph.georgia.gov/files/STD%20Summary%20%28Data%20Morbidity%20Report%29.pdf>

- Georgia Department of Public Health. (2013). *HIV surveillance fact sheet*. Retrieved from
<https://dph.georgia.gov/sites/dph.georgia.gov/files/HIV%20EPI%202012%20Georgia%20Fact%20Sheet.pdf>
- Georgia Department of Public Health. (2014). *STD epidemiology*. Retrieved from
<http://dph.georgia.gov/std-epidemiology>
- Gold, J., Pedrana, A. E., Sacks-Davis, R., Hellard, M. E., Chang, S., Howard, S., ...
 Stooove, M. A. (2011). A systematic examination of the SE of online social
 networking sites for sexual health promotion. *BMC Public Health, 11*, 583.
 doi:10.1186/1471-2458-11-583
- Gold, J. Pedrana, A. E., Stooove, M. A., Chang, S., Howard, S., Asselin, J., ... Hellard,
 M. E. (2012). Developing health promotion interventions on social networking
 sites: Recommendations from the FaceSpace project. *Journal of Medical Internet
 Research, 14*(1), e30. doi:10.2196/jmir.1875
- Hakre, S., Oyler, R. J., Ferrell, K. A., Fang, L., Michael, N. L., Scott, P. T., &
 Petruccelli, B. P. (2014). Chlamydia trachomatis infection rates among a cohort
 of mobile soldiers stationed at Fort Bragg, North Carolina, 2005–2010. *BMC
 Public Health, 14*(1), 1-20. doi:10.1186/1471-2458-14-181
- Haley, D. F., & Justman, J. E. (2013). The HIV epidemic among women in the
 United States: A persistent puzzle. *Journal of Women's Health, 22*(9), 715-717.
 doi:10.1089/jwh.2013.4562

- Hampon, K.N., Goulet, L.S., Rainie, L., Purcell, K. (2011). *Social networking sites and our lives: Pew Internet and American Life Project*. Retrieved from:
<http://www.namingandtreating.com/wp-content/uploads/2011/07/PIP-Social-networking-sites-and-our-lives.pdf>
- Hasnain, M., Levy, J. A., Mensah, E. K., & Sinacore, J. M (2007). Association of educational attainment with HIV risk in African American active injection drug users. *AIDS Care, 19*(1), 87-91. doi:20.1080/09540120600872075
- Hoffman, S. (2013). The female condom in the age of antiretroviral-based HIV prevention. *Journal of Women's Health, 22*(1), 7-8. doi:10.1089/jwh.2012.4069
- Jeffries, W. L. (2011). The number of recent sex partners among bisexual men in the United States. *Perspectives on Sexual & Reproductive Health, 43*(3), 151-157. doi:10.1363/4315111
- Jenkins, W. D., Rabins, C., & Bhattacharya, D. (2011). Importance of physicians in Chlamydia trachomatis control. *Preventive Medicine, 53*(4-5), 335-337. doi:10.1016/j.ypmed.2011.08.022
- Jiang, F., Lu, S., Hou, Y., & Yue, X. (2013). Dialectical thinking and health behaviors: The effects of theory of planned behavior. *International Journal of Psychology, 48*(3), 206-214. doi:10.1080/00207594.2012.656130
- Jones, K., Baldwin, K., Lewis, P. R. (2012). The potential influence of social media intervention on risky sexual behavior and Chlamydia incidence. *Journal of Community Health Nursing, 2*, 106-120. doi:10.1080/07370016.2012.670579

- Jones, L. M., Mitchell, K. J., & Finkelhor, D. (2012). Trends in youth internet victimization: Findings from three youth internet safety surveys, 2000–2010. *Journal of Adolescent Health, 50*(2), 179-186.
doi:10.1016/j.jadohealth.2011.09.015
- Junco, R. (2013). Comparing actual and self-reported measures of Facebook use. *Computers in Human Behavior, 29*(3), 626-631. doi:10.1016/j.chb.2012.11.007
- Kakoko, D. C., Astrom, A. N., Lugoe, W. L., Lie, G. T. (2006). Predicting intended use of voluntary HIV counseling and testing services among Tanzanian teachers using the theory of planned behavior. *Social Science & Medicine, 63*(4) 991-999.
doi:10.1016/j.socscimed.2006.02.016
- Kingdon, M. J., Storholm, E. D., Halkitis, P. N., Jones, D. C., Moeller, R. W., Siconolfi, D., & Solomon, T. M. (2013). Targeting HIV prevention messaging to a new generation of gay, bisexual, and other young men who have sex with men. *Journal of Health Communication, 18*(3), 325-342.
doi:10.1080/10810730.2012.727953
- Klimentidis, Y. C., Aissani, B., Shriver, M. D., Allison, D. B., & Shrestha, S. (2011). Natural selection among Eurasians at genomic regions associated with HIV-1 control. *BMC Evolutionary Biology, 11*(1), 173-183. doi:10.1186/1471-2148-11-173
- Kominski, R., & Siegel, P. M. (1993, September). Measuring education in the current population survey. *Monthly Labor Review, 34-38*. Retrieved from <http://www.bls.gov/mlr/>

- Krzmarzick, A. (2013). Social media matures into viable, valuable communications tool. *Public Manager*, 42(1), 21-23. Retrieved from <https://www.td.org/Publications/Magazines/The-Public-Manager>
- Lichtenstein, B. (2003). Stigma as a barrier to treatment of sexually transmitted infection in the American Deep South: Issues of race, gender, and poverty. *Social Science & Medicine*, 57(12): 2435-2445.
doi:10.1016/j.socscimed.2003.08.002
- Mazzuca, S. A. (1982). Does patient education in chronic disease have therapeutic value? *Journal of Chronic Diseases*, 35, 521-529. doi:10.1016/0021-9681(82)90071-6
- Manlove, J., Welti, K., Barry, M., Peterson, K., Schelar, E., & Wildsmith, E. (2011). Relationship characteristics and contraceptive use among young adults. *Perspectives on Sexual and Reproductive Health*, 43(2), 119-128.
doi:10.1363/4311911
- Martin O., Wu, E., Shultz, A.Z., Capote, J., Lopez, R.J., Sandfort, T., ... Rhodes, S.D. (2014). Still a hard-to-reach population? Using social media to recruit Latino gay couples for an intervention adaptation study. *Journal of Medical Internet Research*, 16(4), 113. doi:10.2196/jmir.3311.
- Matamela, N. A., Bello, N. U., & Idemudia, E. S. (2014). Sexual attitudes, marriage attitudes, and sexual behaviours of females raised by single mothers and both parents: A comparative study. *Gender & Behaviour*, 12(3), 5911-5923.
Retrieved from <http://www.ajol.info/index.php/gab>

- McEachan, R. R. C., Conner, M., Taylor, H. J., & Lawton, R. J. (2011). Prospective prediction of health-related behaviors with the theory of planned behavior: A meta-analysis. *Health Psychology Review, 5*(2): 97-144.
doi:10.1080/17437199.2010.521684
- Meadowbrooke, C. A. (2014). Information behavior and HIV testing intentions among young men at risk for HIV/AIDS. *Journal of the Association for Information Science & Technology, 65*(3), 609-620. doi:10.1002/asi.23001
- Mirkuzie, A. H., Sisay, M. M., Moland, K. M., Astrom, A. N. (2011). Applying the theory of planned behavior to explain HIV testing in antenatal settings in Addis Ababa. *BMC Health Services Research, 11*, 196. doi:10.1186/1472-6963-11-196
- Mississippi State Department of Health. (2014). *HIV disease: 2013 fact sheet, Mississippi*. Jackson, MS: Mississippi State Department of Health. Retrieved from http://msdh.ms.gov/msdhsite/_static/resources/6008.pdf
- Moorhead, S. A., Hazlett, D. E., Harrison, L., Carroll, J. K., Irwin A., Hoving, C. (2013). A new dimension of health care: systematic review of the uses, benefits, and limitations of social media for health communication. *Journal of Medical Internet Research, 215*(4), e85. doi:10.2196/jmir.1933
- Morris, J. L., Lippman, S. A., Philip, S., Bernstein, K., Neilands, T. B., & Lightfoot, M. (2014). Sexually transmitted infection related stigma and shame among African American male youth: Implications for testing practices, partner notification, and treatment. *AIDS Patient Care & Standards, 28*(9), 499-506.
doi:10.1089/apc.2013.0316

- Neiger, B. L., Thackeray, R., Van Wagenen, S. A., Hanson, C. L., West, J. H., Barnes, M. D., & Fagen, M. C. (2012). Use of social media in health promotion: Purposes, key performance indicators, and evaluation metrics. *Health Promotion Practice, 13*(2), 159-164. doi:10.1177/1524839911433467
- Nguyen, P., Gold, J., Pedrana, A., Chang, S. Howard, S., Ilic, O., ... Stoove, M. (2013). Sexual health promotion on social networking sites: A process evaluation of the FaceSpace Project. *Journal of Adolescent Health, 53*(1), 98-104. doi:10.1016/j.jadohealth.201.02.007
- Nhigula, P. N. (2012). *Differences in HIV/AIDS knowledge between historically Black college and university students who use and do not use real-time technology* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (African American 1022177569)
- Noar, S. M., Webb, E., Stee, S. V., Price, S. F., Crosby, R., Willoughby, J. F., & Troutman, A. (2012). Sexual partnerships, risk behaviors, and condom use among low-income heterosexual African Americans: A qualitative study. *Archives of Sexual Behavior, 41*(4), 959-970. doi:10.1007/s10508-011-9890-6
- Oakhurst, J. O. (2010). Understanding the correlations between wealth and poverty and human immunodeficiency virus infection in African countries. *Bulletin of the World Health Organization, 88*, 519-526. doi:10.2471/BLT.09.070185
- Ohl, M. E., & Perencevich, E. (2011). Frequency of human immunodeficiency virus (HIV) testing in urban vs. rural areas of the United States: Results from a

nationally-representative sample. *BMC Public Health*, *11*(1), 681-687.

doi:10.1186/1471-2458-11-681

Park, B. K., & Calamaro, C. (2013). A systematic review of social networking sites: Innovative platforms for health research targeting adolescents and young adults.

Journal of Nursing Scholarship, *45*(3), 256-264. doi:10.1111/jnu.12032

Park, H., Rodgers, S., & Stemmler, J. (2011). Health organizations use of Facebook for health advertising and promotion. *Journal of Interactive Advertising*, *12*(1),

62-77. doi:10.1080/15252019.2011.10722191

Pedrana, A., Hellard, M., Gold, J., Ata, N. A., Chang, S., Howard, S., ... Stooove, M.

(2013). Queer as f**k: Reaching and engaging gay men in sexual health promotion through social networking sites. *Journal of Medical Internet*

Research, *15*(2), 25. doi:10.2196/jmir.2334

Porter, R., Downey, R. A., McDougale, J., & Foley, L. (2013). Exploring the impacts of a community-based HIV/AIDS prevention intervention in south Mississippi:

The HOPE project. *Journal of HIV/AIDS & Social Services*, *12*(2), 224-235.

doi:10.1080/15381501.2013.792206

Prejean, J., Song, R., Hernandez, A., Ziebell, R., Green, T., Walker, F., ... Hall, H. I.

(2011). Estimated HIV incidence in the United States, 2006, 2009. *PLOS ONE*, *6*(8), e17502. doi:10.1371/journal.pone.0017502

Prejean, J., Tang, T., & Hall, I. H. (2013). HIV diagnoses and prevalence in the

southern region of the United States, 2007-2010. *Journal of Community Health*,

38(3), 414-426. doi:10.1007/s10900-012-9633-1

- Ralph, L. J., Berglas, N. F., Schwartz, S. L., & Brindis, C. D. (2011). Finding teens in TheirSpace: Using social networking sites to connect youth to sexual health services. *Sexuality Research and Social Policy*, 8, 38-49. doi:10.1007/s13178-011-0043-4
- Reif, S. W. (2014). HIV/AIDS in the Southern USA: A disproportionate epidemic. *AIDS Care*, 26(3), 351-359. doi:10.1080/09540121.2013.824535
- Reif, S., Geonnotti, K. L., & Whetten, K. (2006). HIV infection and AIDS in the Deep South. *American Journal of Public Health*, 96(6), 970-973, doi:10.2105/AJPH.2005.063149
- Robinson, J., & Lee, C. (2014). Society's (virtually) time-free transition into the digital age. *Social Indicators Research*, 117(3), 939-965. doi:10.1007/s11205-013-0374-z
- Rogers, S. M., Turner, C. F., Miller, W. C., Erbelding, E., Eggleston, E., Tan, S., & ... Ganapathi, L. (2014). Gender-based screening for chlamydial infection and divergent infection trends in men and women. *Plos ONE*, 9(2), 1-10. doi:10.1371/journal.pone.0089035
- Scott, M. E., Wildsmith, E., Welti, K., Ryan, S., Schelar, E., & Steward-Streng, N. R. (2011). Risky adolescent sexual behaviors and reproductive health in young adulthood. *Perspectives on Sexual & Reproductive Health*, 43(2), 110-118. doi:10.1363/4311011
- Sharpe, T. T., Voute, C., Rose, M. A., Cleveland, J., Dean, H. D., & Fenton. (2012). Social determinants of HIV/AIDS and sexually transmitted diseases among

black women: Implications for health equity. *Journal of Women's Health*, 21(2), 249-254. doi:10.1089/jwh.2011.3350

Singh, G., Azuine, R., Siahpush, M., & Kogan, M. (2013). All-cause and cause-specific mortality among US youth: Socioeconomic and rural-urban disparities and international patterns. *Journal of Urban Health*, 90(3), 388-405. doi:10.1007/s11524-012-9744-0

Smith, A. (2011). Why Americans use social media. *Pew Research Internet Project*. Retrieved from: http://aosresourcecenter.com/file_depot/010000000/390000400000/398422/folder/1145143/WhyAmericansUseSocialMedia.pdf

Sullivan, A. B., Gesink, D. C., Brown, P., Zhou, L., Kaufman, J. S., Fitch, M., & ... Miller, W. C. (2011). Are neighborhood sociocultural factors influencing the spatial pattern of gonorrhea in North Carolina?. *Annals of Epidemiology*, 21(4), 245-252. doi:10.1016/j.annepidem.2010.11.015

Tennessee Department of Health. (2014). *HIV Disease Epi Profile for Tennessee State, 2013*. Nashville, TN: Tennessee Department of Health. Retrieved 27 January, 2015, from http://health.state.tn.us/STD/EPI_Pofiles_HIVAIDS/Entire%20State%20Website/TN_HIV.pdf

Thomas, T. L., Yarandi, H. N., Dalmida, S. G., Frados, A., & Klienert, K. (2015). Cross-cultural differences and sexual risk behavior of emerging adults. *Journal of Transcultural Nursing*, 26(1), 64-72. doi:10.1177/1043659614524791

- Vance, K., Howe, W. & Dellavalle, R. P. (2009). Social internet sites as a source of public health information. *Dermatologic Clinics*, 27(2), 133-136.
doi:10.1016/j.det.2008.11.010
- Voisin, D. R., Bird, J. P., Shiu, C., & Krieger, C. (2013). "It's crazy being a Black, gay youth." Getting information about HIV prevention: A pilot study. *Journal of Adolescence*, 36(1), 111-119. doi:10.1016/j.adolescence.2012.09.009
- Vyas, A. M., Landry, M., Schnider, M., Rojas, A. M., Wood, S. F. (2012). Public health interventions: Reaching Latino adolescents via short message service and social media. *Journal of Medical Internet Research*, 14(4), 99.
doi:10.2196/jmir.2178
- Web, T. L., & Sheeran, P. (2006). Does changing behavioral intentions engender behavior change? A meta-analysis of the experimental evidence. *Psychological Bulletin*, 132(2), 249-268. doi:10.1037/0033-2909.132.2.249
- Wingood, G. M., DiClemente, R. J., Robinson, L., Lang, D. L., Caliendo, A., & Hardin, J. W. (2013). Efficacy of an HIV intervention in reducing high-risk human papillomavirus, nonviral sexually transmitted infections, and concurrency among African American women: a randomized controlled trial. *Journal of Acquired Immune Deficiency Syndromes*, 63, 36-43,
doi:10.1097/QAI.0b013e318290031
- Woods-Jaeger, B. A., Sparks, A., Turner, K., Griffith, T., Jackson, M., & Lightfoot, A. F. (2013). Exploring the social and community context of African American

adolescents' HIV vulnerability. *Qualitative Health Research*, 23(11), 1541-1550.

doi:10.1177/1049732313507143

Wright, E., Fortune, T., Juzang, I., & Bull, S. (2011). Text messaging for HIV prevention with young Black men: Formative research and campaign

development. *AIDS Care*, 23(5), 534-541. doi:10.1080/09540121.2010.524190

Ybarra, M. L., DuBois, L. Z., Parsons, J. T., Prescott, T. L., & Mustanski, B. (2014).

Online focus groups as an HIV prevention program for gay, bisexual, and queer adolescent males. *AIDS Education & Prevention*, 26(6), 554-564.

doi:10.1521/aeap.2014.26.6.554

Young, S. D., & Jaganath, D. (2014). Online social networking for HIV education and prevention: a mixed methods analysis. *Journal of Sexually Transmitted*

Diseases, 40(2). doi:10.1097/OLQ.ob013e318278bd12

Young, S. D., Cumberland, W. G., Lee, S., Jaganath, D., Szekeres, G., & Coates, T.

(2013). Social networking technologies as an emerging tool for HIV Prevention: A cluster randomized trial. *Annals of Internal Medicine*, 159(5), 318-324.

doi:10.7326/0003-4819-159-5-201309030-00005

Zeglin, R. J., & Stein, J. P. (2015). Social determinants of health predict state incidence of HIV and AIDS: A short report. *AIDS Care*, 27(2), 255-259.

doi:10.1080/09540121.2014.954983

Zhang, D., Bi, P., Hiller, J. E., & Lv, F. (2008). Web-based HIV/AIDS behavioral surveillance among men who have sex with men: potential and challenges.

Internet Journal of Infectious Diseases, 12(2), 126-131.

doi:10.1016/j.ijid.2007.06.007

Appendix A: Study Participation Invitation

My name is Yoshika Eason and I am a doctoral candidate at Walden University. I am working on a study to try to determine if there is an association between select demographical variables of individuals and intent to change sexual behaviors after viewing sexual health prevention messages on Facebook. Sexually transmitted infections (STI) including Human Immunodeficiency Syndrome (HIV) continue to be a public health concern. Over the past few years there has been a significant increase in the number of people who use social media sites such a Facebook in their daily lives. With so many people using social media it appears to be a perfect venue to provide sexual health prevention messages in hopes of reducing the rates of STI/HIV.

I am seeking adult participants between the ages of 18-49 to fill out a confidential online survey that should take no more than 10 minutes. In order to participate in this survey you must currently live in Georgia, Mississippi, Alabama, or Tennessee. You must have viewed a sexual health prevention message on Facebook and have had oral, vaginal, or anal intercourse within the past 12 months.

The survey is confidential and your name or contact information will never be asked. There is no financial reward for taking this survey but your participation would be a contribution to research and helping to protect people from HIV/STIs. If you are interested in participating in the study and taking the survey please click on the link below for more information and directions for completing the process. My contact information was included on the linked page for you to reach me if any questions may arise.

Thank you for your time and consideration.

Appendix B: Eligibility Questions

Please answer the following questions as honestly as possible and to the best of your ability.

*In the question below sexual health messages refers to any type of message that promotes safer sexual practices (i.e. messages about condom use, monogamy, getting tested for sexually transmitted infections (STI) including Human Immunodeficiency Virus (HIV), STI/HIV prevention, etc.)

1. Are you African American?
Yes
No
2. Are you between the ages of 18 and 49?
Yes
No
3. Do you live in Georgia, Mississippi, Alabama, or Tennessee?
Yes
No
4. Have you had oral, vaginal or anal intercourse within the past year?
Yes
No
5. Have you ever seen a sexual health message on Facebook?
Yes
No

Please click “Next” to continue.

If participants answer “yes” to all of the eligibility questions they will move on to the eligibility portion

1. You are eligible to take this survey please click “Ok” to continue and proceed to the consent form.

Ok

I do not wish to continue

If participants answer “no” to any of the eligibility questions they will move to the disqualification page which states:

You are not eligible to take this survey. Thank you for your time and interest.

2. Do you consent to the terms of this form?

Yes

No

Appendix C: Demographic Questions

Section 1: First I would like to ask you some questions about yourself:

1. Do you identify as:
Male
Female
Other (please specify)_____
2. How old were you on your last birthday?
_____(write in number of years)
3. What is the highest level of education that you have completed? (Please check one of the following)
Less than high school
High school or equivalent (e.g., GED)
Some college but no degree
Associate or Technical degree
Bachelor Degree
Graduate Degree
4. What is your approximate individual annual income before taxes?
_____(write in the number)
5. In which state do you currently reside? (Please check one of the following)
Georgia
Mississippi
Alabama
Tennessee

Please click "Next" to continue.

Appendix D: Survey Questions

Section 2: Now I would like to ask you some question regarding prevention messages and how they have impacted you.

Please answer these questions as honestly as possible and to the best of your ability.

*In the questions below sexual health messages refer to any type of message that promotes safer sex (i.e. messages about condom use, monogamy, getting tested for sexually transmitted infections (STI) including Human Immunodeficiency Virus (HIV), STI/HIV prevention, etc.). For the purpose of this survey risky sexual behaviors include: vaginal sex without a condom, anal sex without a condom, and multiple sexual partners.

1. When was the last time that you saw a sexual health prevention message on Facebook? (Please check one of the following)
 - Less than one month ago
 - More than one month ago but less than 3 months ago
 - More than 3 months ago but less than 6 months ago
 - More than 6 months ago but less than 1 year ago
 - More than 1 year ago

2. What type of sexual health prevention messages have you seen on FB? (Please check all that apply)
 - Text only
 - Graphics only
 - Graphics and text
 - Video
 - Other (please specify)_____

3. Do you identify as male?
 - Yes
 - No (If no skip to question 10)

4. If you identify as a male, have you participated in any of the following risky sexual behaviors that could lead to STI/HIV in the past year? (Please check all that apply)
 - Insertive vaginal sex without a condom
 - Anal sex, you to female, without a condom
 - Anal sex, you to male, without a condom
 - Anal sex, male to you without a condom

- Multiple sexual partners
5. Do you identify as female?
Yes
No (If no skip to question 12)
6. If you identify as a female, have you participated in any of the following risky sexual behaviors in the past year? (Please check all that apply)
Receptive vaginal sex without a condom
Receptive anal sex without a condom
Multiple sexual partners
I do not identify as a female
7. Do you identify as transgender or other?
Yes
No (If no skip to question 14)
8. If you identify as transgender or any other, have you participated in any of the following risky sexual behaviors in the past year? (Please check all that apply)
Insertive vaginal sex without a condom
Anal sex, you to female, without a condom
Anal sex, you to male, without a condom,
Anal sex, male to you without a condom
Multiple sexual partners
9. Do you intend to change your risky sexual behaviors as a result of seeing these sexual health prevention messages on Facebook?
Yes
No (If no skip to question 16)
10. If you answered yes how much do you think seeing the sexual health messages on Facebook impacted your decision to change? (Please check one of the following)
It had a significant impact
It had a minor impact
It had no impact
11. Have you already changed your risky sexual behaviors?
Yes
No (If no then skip to question 18)

12. If yes, then what influenced your decision? (Please check all that apply)

Facebook

Family

Medical Professional

Friends

Religious Affiliation

Television

Internet

Other (please specify)_____

13. Have you received sexual health messages from any sources other than Facebook?

Yes

No (If no skip to the end of the survey)

14. If you answered yes what were the sources of these sexual health messages? (Please check all that apply)

Family

Medical Professional

Friends

Religious Affiliation

Television

Internet

Other (please specify)_____

Please click "Next" to continue

You have reached the end of this survey. Thank you so much for taking the time out to participate in this research.

Appendix E: Data Collection Protocol

The following steps will be taken to collect data for this study:

Step 1: Facebook advertisements will be created that was specifically geared towards the target population

Step 2: Potential participants will be notified about the Facebook page that contains a description of the study and the eligibility criteria

Step 3: Invitations to participate will also be displayed on personal Facebook pages and inboxes of those who appear to meet the eligibility criteria.

Step 4: Qualified participants will be asked to invite other participants who they think meet the eligibility criteria to participate.

Step 5: There will be a link on the Facebook page to the screener and study on SurveyMonkey.

Step 6: Participants will answer the screener questions.

Step 7: If participants do not meet the eligibility criteria they will be advised that they do not qualify for the study and thanked for their interest

Step 8: If participants meet the eligibility criteria they will continue to the informed consent document.

Step 9: If they consent to the terms of the study then they will continue to take the survey.

Step 10: After completing survey they will continue to the debriefing section which will provide more information about the study and contact information

Step 11: The survey will be available for a period of 1 month.

Step 12: After one month the data will be analyzed to determine if there are any associations.

Step 13: All of the data will be kept in a password-protected file on a password-protected computer

Step 14: After 5 years, all of the study data will be deleted from the computer

Appendix F: Descriptive Statistics Tables

I. DESCRIPTIVE STATISTICS

To Describe the Sample

Table 1: Study population by age and gender ($N = x$)

| Gender | 18-29 | 30-39 | 40-49 | Total |
|-------------|------------|------------|------------|------------|
| Male | (Number) % | (Number) % | (Number) % | (Number) % |
| Female | (Number) % | (Number) % | (Number) % | (Number) % |
| Transgender | (Number) % | (Number) % | (Number) % | (Number) % |
| Totals | (Number) % | (Number) % | (Number) % | (Number) % |

Objective: I

Procedure: Tabulation counts, percentages

Source: Eason Survey, Part 1: Demographic Data

Table 2: Study population by age and state ($N=x$)

| State | 18-29 | 30-39 | 40-49 | Total |
|-------------|------------|------------|------------|------------|
| Georgia | (Number) % | (Number) % | (Number) % | (Number) % |
| Mississippi | (Number) % | (Number) % | (Number) % | (Number) % |
| Alabama | (Number) % | (Number) % | (Number) % | (Number) % |
| Tennessee | (Number) % | (Number) % | (Number) % | (Number) % |
| Totals | (Number) % | (Number) % | (Number) % | (Number) % |

Table 3: Number and Percent of study subjects who stated they intended to change their sexual behaviors after viewing sexual health messages on Facebook ($N = x$). September 1 – October 1, 2015

| Gender | Yes (Number)% | No (Number)% | Total (Number)% |
|-------------|---------------|--------------|-----------------|
| Male | () % | () % | () % |
| Female | () % | () % | () % |
| Transgender | () % | () % | () % |
| Totals | () % | () % | () 100% |

Procedure: Tabulations, Percentages

Source: Eason Survey

Table 4: Number and percent of study subjects who stated that they intended to changed their sexual behaviors due to a source other hand Facebook ($N=x$). September 1- October 1

| Gender | Family | Medical Professional | Friends | Religious Affiliation | Television | Internet | Other |
|-------------|-----------------|----------------------|-----------------|-----------------------|---------------|-----------------|-----------------|
| Male | (Number)) % | (Number) % | (Number)) % | (Number) % | (Number) % | (Number)) % | (Number)) % |
| Female | (Number)) % | (Number) % | (Number)) % | (Number) % | (Number) % | (Number)) % | (Number)) % |
| Transgender | (Number)) % | (Number) % | (Number)) % | (Number) % | (Number) % | (Number)) % | (Number)) % |
| Totals | (Number)) % | (Number) % | (Number)) % | (Number) % | (Number) % | (Number)) % | (Number)) % |

Appendix G: Analytical Statistics

I. ANALYTICAL STATISTICS
To Explain Relationships between Variables

Table 3: Intent to change sexual behaviors for all demographic variables ($N = x$)

| | Yes (Number) % | No (Number) % | Chi Square | P-Value |
|-------------------------------|----------------|---------------|------------|---------|
| Male | () % | () % | | |
| Female | () % | () % | | |
| Other | () % | () % | | |
| 18-29 | () % | () % | | |
| 30-39 | () % | () % | | |
| 40-49 | () % | () % | | |
| Less than high school | () % | () % | | |
| High School or GED | () % | () % | | |
| Some college but no degree | () % | () % | | |
| Associate or Technical degree | () % | () % | | |
| Bachelor Degree | () % | () % | | |
| Graduate Degree | () % | () % | | |
| Georgia | () % | () % | | |
| Mississippi | () % | () % | | |
| Alabama | () % | () % | | |
| Tennessee | () % | () % | | |

Procedure: Odds Ratio, Chi Square, P Value

Source: Eason Survey

Appendix H: Facebook Advertisement

The screenshot shows the Facebook interface for the 'Sexual Health Promotion' page. At the top, there is a search bar and navigation links for 'Page', 'Messages', 'Notifications', and 'Publishing Tools'. A 'Complete Page Info' progress bar is at 0% complete, with options to 'Add a Profile Picture', 'Add a Cover Photo', and 'Add Contact Info'. The page header features the page name 'Sexual Health Promotion' and the word 'Community'. Below this are tabs for 'Timeline', 'About', 'Photos', 'Likes', and 'More'. A post is visible with the text: 'My name is Yoshika Eason and I am a doctoral candidate at Walden University. I am working on a study to try to determine if there is an association between select demographical variables of individuals and intent to change sexual behaviors after viewing sexual health prevention messages on Facebook. Sexually transmitted infections (STI) including Human Immunodeficiency Syndrome (HIV) continue to be a public health concern. Over the past few years there has been a signfica... See More'. A 'Boost Post' button is present below the post. A tooltip is visible over the 'Like' button, stating: 'Choose whether to like and comment as yourself or as one of the Pages you manage.' The bottom of the page shows 'EARLIER IN 2015' and a 'Chat (61)' indicator.