THE EFFECT OF IMPLEMENTING MONETARY INCENTIVE
INTO A SEXUALLY TRANSMITTED INFECTION
PREVENTION AND EDUCATION
PROGRAM

by

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ABSTRACT

The purpose of this experimental study was to explore the effects of monetary incentives on the engagement with sexually transmitted infection education and prevention materials in 18- to 24-year-old females enrolled in a large Southeastern university. The Centers for Disease Control (2018) has recently reported a growing number of diagnosed sexually transmitted infections (STIs) in the United States despite $16 billion being spent on STI prevention and education yearly. Over half of all newly diagnosed cases of chlamydia, gonorrhea, and syphilis are in persons age 15-24 years. Screening and education programs exist, but the increasing number of STIs does not reflect their impact.

This experimental study analyzed data from convenience sample of 156 undergraduate females randomly assigned to either a paid or unpaid group. A total of 107 participants completed the study, which consisted of a pretest, six weekly STI education messages delivered via text message, and a posttest six weeks after baseline data was gathered. Paid participants received a total of $50, paid in two increments, during the course of the study. It was conducted during the Fall semester in 2018 and examined four research questions, including, (1) “Is the use of monetary incentives in STI education and prevention a viable method to increase the effectiveness of education provided to adolescents and young adult females college students”, (2) “Will there be a change over time in reported healthy sexual behaviors and intent to be tested for STIs among students who participate in the ISHK program”, (3) “Will there be a difference in sexual attitudes, STI knowledge, reported STI testing rates among participants in the experimental group versus the control group after completion of the ISHK program”, and (4)
“What are reported motivators and deterrents to accessing STI education and prevention services”. The study was conducted utilizing the Hendrick Sexual Attitude Scale, in conjunction with the National Sexual Health Survey and Youth Risk Behavior Survey.

Results revealed significantly more engagement with education in the paid group than the unpaid group. There were mixed results in sexual behavior and attitude changes between and within each of the study groups. Numerous barriers to education were identified by participants and are further explored within the study. Additional research is warranted concerning the full effect of monetary incentive on changing sexual attitudes and behaviors in young adult females.
DEDICATION

This dissertation is first and foremost dedicated to my two precious girls, Ella and Molly, who are my inspiration and reason for wanting to achieve. I hope I make you proud and serve as an example to you throughout your life. I also dedicate this dissertation to my husband, Brody, who has stood by me throughout this process and has encouraged me along each step of the way. You have believed in me since I was 15 years old, and I would not be where I am today without you.
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CHAPTER 1:
INTRODUCTION

Although in recent years progress has been made in sexually transmitted infection (STI) education and prevention, 2017 revealed a growing number of cases of all three notifiable diseases in the United States (Centers for Disease Control and Prevention [CDC], 2018). Syphilis, chlamydia, and gonorrhea, affected adolescents and women the most, but also increased among men (syphilis: 30,644; chlamydia: 1,708,569; gonorrhea: 556,608). In addition to an overall increase in incidence of STI rates in the US population, there were also increases in young people reported in 2017. There were 1,069,111 new cases of chlamydia, increasing 7.5% from last reported surveillance statistics in 2015. During 2016 to 2017, cases of gonorrhea increased 15.5% in those 15-19 years of age and 12.8% in those 20-24 years of age. Syphilis cases also increased in young people 15-24 years of age. In 2017, the rate of reported syphilis in this age group was 5.5 cases per 100,000 females and 26.1 cases per 100,000 males (CDC, 2018). In spite of the numerous STI educational and testing programs available, there is much work to be done in the reduction of STIs as evidenced by the upward trend of cases. Several barriers to individuals seeking STI education and testing have been identified and these need to be addressed in order to adequately implement worthwhile programs to reduce the number of STIs in the United States (US). These barriers include cost to participants (Avuvika et al., 2017; Thatte et al., 2016) stigma from family, friends, and healthcare providers (Avuvika et al., 2017; Normansell et al., 2016; Thatte et al., 2016) and embarrassment related to testing process
practices as well as result delivery methods (Thatte et al., 2016). Monetary incentives, defined as cash payment for healthy behaviors, have the ability to increase the effectiveness of existing STI education programs that have been utilized in recent research (Cornish, Shukla, & Banerji, 2010; Reisner, Mimiaga, Mayer, Tinsley, & Safren, 2008; Saxena, Hall, & Prendergast, 2016; Taaffe, Cheikh, & Wilson, 2016).

**Background**

According to the CDC (2018), there were over 1.7 million reported cases of chlamydia, close to 600,000 cases of gonorrhea, and over 30,000 cases of primary and secondary syphilis reported in the US in 2017. Chlamydia, syphilis, and gonorrhea are the three nationally notifiable STIs that are increasing in number the most at this time. Nationally notifiable diseases require reporting by healthcare providers to the CDC for incidence tracking and to protect the public’s health. Federally funded programs currently exist for the prevention and education of the public surrounding the risks and facts about STIs. The true burden of STIs is not fully known because additional STIs such as human papillomavirus, herpes simplex virus, and trichomoniasis are not routinely reported by healthcare providers. Additionally, many cases of syphilis, chlamydia, and gonorrhea frequently go undiagnosed and unreported, leading to a wider gap in accurate knowledge of rates of STIs, the cost of STI treatment and prevention as well as secondary health effects or sequelae. It is currently projected that over $16 billion is spent each year in the treatment and prevention of STIs (CDC, 2018). Lasting health effects can be left due to untreated STIs or those treated at a later stage of infection including chronic pain, reproductive health complications, and increasing the risk for one’s ability to acquire and transmit HIV infection (CDC, 2016). Those individuals diagnosed with an STI are at greater risk for contracting HIV
due to similar sexual risk-taking behaviors, change in vaginal mucosa and PH, and possible presence of a sore or break in the skin from an STI, allowing HIV to more easily enter the body.

According to the CDC’s State Health Profile (2015), Alabama has the third highest prevalence rates of in chlamydial infections and second highest in gonorrheal infections. Additionally, in 2013, approximately half (57.6%, N=1, 365) of male and female Alabama high school students reported that they had engaged in sexual intercourse and 48.7% (N=438) did not use a condom during their last sexual intercourse experience. It is well documented that risky sexual behaviors, such as these, lead to unintended outcomes including pregnancy and STIs. Currently, the Alabama Department of Public Health supports community programs that address prevention activities including education, recommended screening guidelines, and policy development. In 2014, the state of Alabama spent $2.2 million on STI prevention efforts (CDC, 2015).

According to the CDC (2017), young adults tend to be the ones most affected by STIs due to a variety of reasons. Many of these include lack of education, and also behavioral, biological, and even cultural reasons. It is estimated that adolescents age 15-24 will acquire half of all newly diagnosed cases of STIs in the US (CDC, 2013). Females are also at a higher risk for contracting STIs and experiencing negative and sustained health effects than male counterparts (CDC, 2018). One biological reason for young adult females acquiring STIs more frequently is the increased amount of cervical ectopy, which is the increased amount of columnar cells lying outside of the cervical canal. These cells have an increased prevalence of infection than other cells (CDC, 2016). Cultural and behavioral reasons include barriers to education and testing such as embarrassment of stigma, concerns about confidentiality, and methods of testing (Avuvika et al., 2017; Cuffé et al., 2016; Normansell et al., 2016, Thatte et al., 2016). According to the Office
of Women’s Health, women have more serious health problems from STIs with infertility being the most lasting and serious (2016). In addition, women often do not show typical signs and symptoms of STIs, which lead to delayed or no treatment. In summary, novel approaches need to be explored in the delivery of STI education and screening programs due to the increasing numbers of cases, large amounts of money spent on treatment, and the lasting detrimental effects on individuals.

**Problem Statement**

Appropriate screening and education is vital to the prevention and reduction of these costly and dangerous STIs in the US as well as worldwide. Many STI programs exist and are widely implemented, but the increasing number of cases does not reflect their impact. Several studies have identified barriers to STI testing and treatment and these barriers must be overcome in order to effectively reduce the numbers of STIs in the country. Barriers to participation in STI educational programs and testing among adolescent girls and females included stigmatization from family and community members, parental notification, and lack of participation without active engagement (Avuvika et al., 2017; Cuffe et al., 2016; Normansell et al., 2016; Thatte et al., 2016). It has also been shown that testing uptake numbers still continue to suffer despite the treatability of most STIs (Cunningham, Kerrigan, Jennings, & Ellen, 2009). A number of studies have examined effectiveness of monetary incentive to increase motivation to participate in STI education and screening. According to Harman (2011), “Cash solutions as a means of incentivizing rational behavior change or replacing alternate choices have become increasingly recognized as an effective means of filling these objectives” (p. 867). Many of the results from previous studies show that the implementation of monetary incentives increase STI testing uptake and decrease perceived barriers. There is a lack of literature addressing the use of
monetary incentive to promote STI education and testing in adolescent and young adult females in the US; this study will fill that gap. These conventional strategies need more attention to effectively reduce STI numbers and increase participation in screening as well as educational programs and efforts.

One of the most important aspects in the profession of nursing is patient and client teaching. Nurses pride themselves on the ability to increase health and positive health outcomes through education and prevention efforts. Many times, the nurse is the final and only point of education that individuals receive when engaging with the healthcare system. Innovative and effective educational programs are needed in the reduction and prevention of STIs worldwide and in the US. Nursing, through education and research, has the opportunity to play a vital role. This has the ability to influence how nurse educators instruct future nurses about STI prevention and education as well.

**Theoretical Framework**

This experimental study was guided by The Health Belief Model (HBM), which attempts to predict and explain health behaviors. The model is constructed by six concepts that ultimately influence the health beliefs and behaviors of individuals. These include perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy (Glanz et al., 1997). Since the introduction of this model, it has been used for a variety of health behaviors, including STI prevention. According to D’Angelo (2016), the HBM is the most commonly used model in health promotion and is a useful framework in “addressing problem behaviors that evoke health concerns, e.g. high-risk behaviors” (p. 178).

In this study, to explore the effects of monetary incentive on participation in an STI prevention and education program by young adult females, the hypothesized benefit of the
experimental group was the incentive received for participating in and engaging with educational interventions (Appendix A). This study aimed to increase interaction and engagement with STI education and prevention materials that could potentially lead to changing health behaviors long term. Through the receipt of the incentive by partaking in sexual health and STI education, the participant may change her attitudes about susceptibility and severity to the contraction of an STI. By increasing healthy sexual behaviors through high quality and effective educational efforts, and identifying perceived benefits and risks, the number of newly diagnosed and existing cases of STIs in the US should, over time, decrease.

**Behavioral Economics**

In addition to influences by the Health Behavioral Model, this study was also greatly influenced by the ideas of behavioral economics and how these impact one’s drive to choose healthy behaviors or not. Taylor and Buttenheim (2013) state,

> Behavioral economics, a field that builds heavily on findings from psychology, economics and finance, recognizes the inherent complexity of human decision making and the significant influences of community, culture, and context at the moment of decision making in everyday health decisions. (p. 2)

Most life decisions are based on the presence or lack of money including where to live, what to eat, and which car to drive. Humans are greatly influenced by money, whether it be related to excitement at earning it or the fear of losing it. Tapping into human nature and its desire to attain money to live has already appeared in the 2010 Affordable Healthcare Act, allowing employers to offer rewards or enact penalties for meeting or falling short of health targets including smoking cessation or blood pressure management. Short-term and long-term positive reinforcement, as well as loss aversion, considers the psychological aspects of humans
that monetary incentives have on behavioral economics (Rice, 2013). “Behavioral economics can inform the design of interventions to increase the utilization of a covered service that accounts for the complexity of human behavior” (Matjasko, Cawley, Baker-Goering, & Yokum, 2016).

**Purpose**

The purpose of this experimental study was to explore the effects of monetary incentives on the interaction with STI education and prevention materials in 18- to 24-year-old females enrolled in a large Southeastern university. Interaction with education and prevention materials was measured by time spent reading content rich text messages delivered by Mobit technology to participants and the number of times messages were accessed over time. The independent variable, monetary incentives, was defined as compensation for taking part in the STI prevention and education program. The dependent variable was defined as the amount of interaction with STI education and prevention materials delivered through content rich text messages to participants. Covariables, defined under the umbrella term healthy sexual beliefs and behaviors, included recent sexual history behaviors, condom use attitudes, sexual permissiveness, sexual communion, STI self-risk identification, and use and perception of STI education and prevention services.

**Significance**

The significance of this study is that it has the ability to aid young adult females to access quality preventative education through the use of monetary incentivization, which will hopefully also help address barriers to STI testing. It can also fill gaps in the literature for this age group regarding the use of monetary incentivization to promote STI education and testing while also contributing to the already dense amount of literature regarding STI education and prevention. The study could also affect health policy at university, local, or state levels that would encourage
the use of incentivization to increase the education and prevention of STIs thus decreasing the amount of spending on treatment.

This study delivered STI education and prevention program entitled Increasing Sexual Health Knowledge (ISHK) to college females age 18 to 24. This program, influenced by the CDC’s national STI awareness program, Get Yourself Tested (GYT) and designed by the investigator, delivered a series of six weekly content rich text messages to participants utilizing Mobit Technology, a text message marketing program. This program aimed to educate participants about risks, facts, and testing methods surrounding STIs.

**Research Questions**

Because there is an inadequate amount of literature exploring the use of monetary incentive in STI prevention and education and its effect on adolescent and young adult women, research questions were explored in this study. Research questions considered in this study concerning the use of incentives in STI education and prevention include the following:

1. Is the use of monetary incentives in STI education and prevention a viable method to increase the effectiveness of education provided to adolescents and young adult female college students?

2. Will there be a change over time in reported healthy sexual behaviors and intent to be tested for STIs among students who participate in the Increasing Sexual Health Knowledge (ISHK) program?

3. Will there be a difference in sexual attitudes, STI knowledge, and reported STI testing rates among participants in the experimental group versus the control group after completion of the Increasing Sexual Health Knowledge (ISHK) program?
4. What are reported motivators and deterrents to accessing STI education and prevention services? What role do they play in influencing behavioral and attitude outcomes?

**Summary**

With the ever increasing number of STIs in the United States coupled with the large amount of money spent each year on the prevention, education, testing, and treatment of these infections, more research is warranted in overcoming identified barriers. With half of newly diagnosed cases falling in the age range of adolescent and young adults, more research should be focused in these populations. Novel and more useful approaches to testing and prevention programs are needed. There is support in the current literature for providing incentives, monetary or otherwise, to those participating in STI education and screening programs. There is currently no literature available exploring the efficacy of providing incentives to improve healthy sexual behaviors in college-age females.

This study bridges the gap in the literature and provides meaningful data regarding increasing interaction with STI prevention and education programs. This study addressed the current lack of literature addressing the use of monetary incentive in the southeastern United States, especially among young adult females.
CHAPTER 2:
REVIEW OF LITERATURE

Barriers to Screening and Education

Reported barriers must be understood when discussing the lack of testing uptake and access of educational programs involving STI prevention. There is a mismatch in the number of educational and testing programs available and the number of STIs that still plague the United States and the world. Through the understanding of these barriers, more appropriate and appealing educational programs could be developed in the future to increase participation and screening as well as decrease the rates of STIs, HIV, and other associated negative health outcomes.

Stigmatization

Stigma from others was one identified barrier to access and utilization of STI education throughout much of the current literature (Avuvika et al., 2017; Thatte et al., 2016; & Yeung, Temple-Smith, Fairley, & Hocking, 2015). Stigma can be defined by Merriam-Webster (2018) dictionary as “a mark of shame or discredit.” The stigma would be described as shame for engaging in premarital sexual intercourse or being infected with an STI. Perceived and self-stigma are two forms of stigma thought to influence a person’s desire to seek out STI prevention and testing services (Cunningham et al., 2009). Perceived stigma refers to a person’s fear of attitudes and discrimination from society stemming from being associated with a particular trait (STI diagnosis). Self-stigma, or shame, can be defined as a person’s negative attitudes about
themselves in which they internalize from society’s ideas held about them or their particular trait (Cunningham et al., 2009).

In a group of 17 young women and girls sampled from Mombasa County, Kenya, in a qualitative study identifying perceived barriers to testing, many of the young women reported the fear of stigmatization from their healthcare provider when accessing STI screening services. They feared that others would feel as though they were promiscuous and were not tested to avoid this feeling. The others did not go unless they were symptomatic, which could also be supported by the lack of knowledge about the asymptomatic presentation of some STIs in females (Avuvika et al., 2017). In Thatte et al.’s (2016) study, 30% of the population, which included girls age 13 to 19, reported that stigma from family members and friends was the number one reason for not seeking reproductive health services. These researchers attribute most of these decisions regarding the access of testing services to behavioral attributes. This study explored barriers to HIV/STI testing, abortion, and access of contraceptive services in Ghana.

According to Yueng et al. (2015), unfortunately women in their study believed that others would deem them tainted or spoiled by the need to be tested (p. 326). They identified their parents as the number one group in their lives that would disapprove. This qualitative study, performed in London, examined perceived barriers, attitudes, and access to STI testing in women ages 16 to 25. Yueng et al. (2015) cited the phenomenon of low uptake in STI testing as a “major public health problem worldwide” (p. 322). Respondents partaking in this study were from an inner city further education college, which provides both vocational and educational courses. The researchers identified the women taking part in this study as underserved, highlighting that 11% of further education college students less than age 25 had at least one STI. Thatte et al. (2016)
promotes screening to be, “offered in way that allows them to consider themselves as candidates without fear of social stigma.”

**Testing Methods**

Barriers surrounding testing method attributes as well as test result delivery methods were another cited example of why young women choose not to seek education, testing, and treatment. Cost, mode of screening, and location of screening locations was discussed multiple times by participants (Avuvika et al., 2017). Most of the young female participants stated that the method of screening through pelvic exams was embarrassing, so they decided to refrain from testing although they understood the severity of untreated STIs. There were other reports of testing being too expensive or too far away, which would require parents or family members driving the young woman to be tested. From these results, it could be assumed that there is a small willingness to participate in screening by the young women; however, certain barriers must be overcome to offer more encouragement to participate. Thatte et al. (2016) had reports of cost and safety of access (6.6%) as barriers to testing as well.

Due to high STI rates in the United States in those 15 to 25 years of age and the limited amount of research analyzing barriers to testing at a national level, Cuffe et al. (2016) utilized data from a national survey of male and female youth examining differences in testing behaviors. It was discovered that the majority of youth in this age group never receives testing. In addition to other reported reasons, the greatest cause of concern for not accessing education and testing was the perceived lack of confidentiality in testing and subsequent result delivery. Over 50% of participants feared that their parents or insurance policyholders would find out about their status. Due to communications sent to policyholders explaining benefits, the youth were concerned about their testing status being revealed to their parents. An outlying, unexpected finding in this
study is that 32.5% of respondents stated that their healthcare provider did not mention or suggest screening and testing at their visit (p. 516). Eight percent of participants, more commonly in line with other studies, stated that cost was a factor in them accessing testing. Most of those reported that they were not supported by insurance, therefore skipping testing. This study revealed, that despite the CDC and United States Prevention Task Force recommending STI screening for those who are sexually active, low proportions received testing. Due to those identified barriers, testing uptake numbers remain low.

**Embarrassment**

Embarrassment was another common reported barrier to testing uptake for youth of the world. In Thatte et al.’s (2016) study, being embarrassed or shy was the number one barrier to being tested for STIs among girls as reported by 43.8% of the study participants. This, according to researchers, was consistent with previous reports from this population. They suggest measures need to be taken to overcome the barrier of embarrassment through innovative ideas. Yueng et al. (2015) also reported that embarrassment was a large factor in the lack of seeking testing for most of their study participants. Two participants stated that healthcare provider attitudes could also serve as a barrier to testing and add to the level of embarrassment surrounding the process. They felt as though their healthcare providers could be judgmental, while jumping to conclusions about an accurate diagnosis or the possibility of pregnancy.

**Risk Taking**

The college years, for many, are a time of risk-taking behaviors, exploring boundaries, personal freedom, and identity development. These pose barriers to partaking in education and prevention efforts focused on STIs. In addition to college student risk-taking behaviors, affiliation with on-campus organizations, in particular, Greek sororities and fraternities, can
increase these risks due to ritualistic and socially endorsed behaviors (Scott-Sheldon, Carey, & Carey, 2007). In a study exploring patterns of risk-taking behaviors such as alcohol and drug use, smoking, sexual behaviors, eating, sleeping, and physical activity among Greek and non-Greek students, sexual behaviors and norms were found to hold some significant differences. This study surveyed undergraduate students (n = 1,595) at Syracuse University and assessed differences in instrument scores.

Significant results included that Greek members reported more sexual partners in the last year and past 3 months than their non-Greek counterparts. In addition, more Greek members had sex under the influence of drugs or alcohol and perceived themselves to be at a higher risk of HIV infection. Last, Greek students were less likely to support the belief that friends would think condom use was necessary in conjunction with oral contraceptives. They also believed that friends were less likely to use condoms during each act of sexual intercourse (Scott-Sheldon et al., 2007). Associated with these risky behaviors is the increased risk of STI contraction. This study did not find higher rates of STIs among the Greek population; however, these numbers, they project, could have been contributed to lack of testing by the population and silent symptoms associated with many STIs. Overall, this study supported evidence for greater sexual risk among Greek students and suggests risk reduction efforts be explored. (Scott-Sheldon et al., 2007). Behavioral barriers must be more fully understood in order to overcome them to promote healthier behaviors in groups with strongly based norms and rituals.

**Overcoming Barriers**

Most young adults participating in above mentioned studies expressed that it is rare for a teen to abstain from sexual intercourse due to peer pressure, hormonal tendencies, and widespread access to pornographic material. Results also revealed that there is adequate
knowledge that STIs are a risk, but the breadth and lasting effects of those risks are unknown by this population. In addition, young adult women reported they fear becoming pregnant greater than contracting an STI. Due to this inability to abstain from sexual intercourse, as well as misinformation concerning STIs and pregnancy, it is important for the healthcare community to implement effective and meaningful education as well as testing services. Perceived barriers add another layer to the complex reason that STI rates are on the rise in the United States and worldwide. In conclusion, “Interventions to address barriers to SRH (sexual reproductive health) services among youth must be multifaceted to address the diversity of youth and the complex way barriers differ depending on the service being sought” (Thatte et al., 2016, p. 60). This research study will utilize monetary incentive to explore the possibility of overcoming barriers as reported by the literature to interact with prevention and education materials and participate in testing and screening efforts.

**Monetary Incentive Use**

Cash and other forms of monetary incentive in healthy behavior promotion initiatives have been provided in recent history, first originating in Latin America in the middle of the 1990s (Heise, Lutz, Ranganathan, & Watts, 2013). These incentives were used for low income households to access basic forms of nutrition, primary health, and education. In hopes of providing more equal opportunities for these populations, stipends were provided to increase the health of individuals unable to provide it for themselves (Harman, 2011). Historically, these programs related to overall health, but have more recently been focused on STI and HIV prevention, although there is much more research currently focused on HIV prevention and screening. Monetary incentivization, also referred to as cash transfers or behavioral economics, could become a new means of preventing STIs globally. This is particularly true since “they are
performance oriented, show measurable results, engage in social protection and can be replicated in multiple different contexts” (Harman, 2011, p. 879). The World Bank shows great success and potential in these type of programs. In a study conducted in Malawi, Baird, Chirwa, McIntosh, and Ozler (2009) reported that those receiving cash transfer in an experimental group had a smaller HIV diagnosis rate. In addition, a study performed in Tanzania (deWalque, Dow, Nathan, Abdul, Abilahi, Gong, & Medlin, 2012) saw a 25% decrease in unhealthy sexual behaviors in female and male high school aged students being incentivized with the high value arm of compensation for participating in a sexual health education course. Participants were awarded $20 (high value arm), $10 (low value arm), or no compensation for each negative testing occurrence.

Numerous qualitative studies support these statements as well (Packel, Keller, Dow, De Walque, Nathan, Mtenga, & Sullivan, 2012; Palinkas, Chavarin, Rafful, Um, Mendoza, Staines . . . & Patterson, 2015; Reisner et. al. 2008; Schuster, de Sousa, Rivera, Olson, Pinault, & Young, 2016). Of those participants interviewed in these studies, all were considered low income or to work with low income individuals. Participants in these studies included male sex workers in Boston, counselors and healthcare professionals working with female sex workers in Mexico, high risk individuals living in impoverished areas of Tanzania, and nurses working with mothers infected with HIV in Mozambique. Results from these open-ended interviews revealed there was positive support for the use of cash incentive in prevention, screening, and vertical transfer prevention programs implemented in these studies. It was found that cash incentive encouraged participants to take part in these programs that they would not normally find worthwhile. Male sex workers in the study stated that without some incentive, their time was not worth attending special prevention programs (Reisner et al., 2008). Counselors and healthcare professionals
working with female sex workers revealed that those counseling centers with the additional benefits of cash incentives saw the most participation in prevention programs and they would recommend offering incentives (Palinkas et al., 2015). Tanzanian women reported that incentivization empowered them to refuse sex with their male partners when risk for contracting STIs was high, participate in temporary abstinence when necessary, and take part in screening programs more frequently (Packel et al., 2012). Schuster et al. (2016) stated that nurses in the study reported that mothers diagnosed with HIV lacking intrinsic motivation to take vertical transmission therapy would more frequently comply with recommendations when offered a cash incentive.

Quantitative studies demonstrating the positive correlation of cash incentive as a means of STI prevention and education also studied low-income participants in Mexico, South Africa, and the US at risk of contracting HIV. In studies examining the enrollment into HIV education and prevention programs, it was found that 73.9% of Mexican male sex workers accepted enrollment into an educational and screening program (Gallaraga, Sosa-Rubi, Gonzalez, Badial-Hernandez, Florentino, Conde-Glez, & Mayer, 2014) and greater than 79% of Hispanic families enrolled in an HIV and substance abuse program were retained for the course of the program (McCollister, Freitas, Prado, & Pantin 2014). Galarraga, Sosa-Rubi, Infante, Gertler, & Bertozzi (2014) found that male sex workers in Mexico City reported an average of $13 a month would encourage them to regularly test for HIV; other males not in the sex worker industry reported an average of $24 a month would encourage them to regularly test for HIV. Saxena et al. (2016) report that of the total male parolees in California, 18 years of age or greater enrolled in an HIV education and prevention program, 59% of participants sought testing in the experimental group receiving an incentive and only 47% of participants sought testing that received education only.
Those in the experimental group received a $10 monetary voucher for testing that increased the odds of attending. In addition, Adekeye, Abara, Xu, Lee, Rust, and Satcher (2016) retrospectively analyzed over 26,000 individual’s medical records enrolled in Medicaid that were diagnosed with STIs. Out of these individuals, only 43% were screened for HIV. It was found through this study that incentives should be offered to mitigate the screening costs for individuals. Last, in a study performed in Lesotho, South Africa, it was found female participants age 18 to 32 receiving the largest incentive ($100 lottery ticket) had a 33% lower HIV incidence and 89% decrease in STI prevalence (Nyvquist, Corno, deWalque, & Svensson, 2015). Crea, Reynolds, Sinha, Eaton, Robertson, Mushati . . . and Gregson (2015) studied orphaned children identified as high risk for contracting HIV and provided monetary incentives to guardians to participate in health screening and healthy behaviors. The study showed that households receiving $18 plus $4 for every child in the household reported higher adherence to outlined health programs.

Wilson, Taaffe, Fraser-Hurt, and Gorgens (2014), Taylor and Buttenheim (2013) and Yeung et al. (2015) also show support for the use of cash incentives as behavior change methods in providing effective STI and HIV prevention and education measures. Cash transfer has been utilized in other healthy behavior outcome studies including those influencing smoking cessation, weight loss, medication regimen adherence, and maintenance of sobriety (Taylor & Buttenheim., 2013). Although somewhat controversial in nature, cash transfer as an innovative method of influencing healthy behaviors has gained favor with the World Health Organization (Wilson et al., 2014) and other researchers interested in decreasing STI rates worldwide. Although simple in nature, these cash transfer education and prevention programs should be
implemented within a theoretical framework with psychology, economics and medicine at the center of their design (Yeung et al, 2015).

In summary, cash or monetary incentive, which is encompassed by the idea of behavioral economics, has the potential, as evidenced by current literature, to positively influence behavior change in relation to healthy sexual decisions. Out of reviewed literature, monetary incentives ranged from $10 to $100, with more positive outcomes resulting from larger incentives. More research needs to be performed to determine the appropriate amount of incentive most effective to influence attendance at educational interventions, participation in screening, and adherence to healthy behavior recommendations. In reviewing the literature, mostly low income, high risk individuals were studied revealing a gap in the literature addressing college age women under the age of 24. This study will aim to fill the gap in the literature and examine this population as well as explore the use of a median of a $50 monetary incentive in college age females at risk for STIs.

**Technology Use**

In utilizing novel ways to reach adolescents and young adults with accurate health information and knowledge, technology continues to be a method that needs more exploration concerning use. Although possessing the ability to provide outlets of dangerous actions online and through texting, technology has the ability to contribute forms of accurate health information and methods of remote testing and counseling regarding sex and STIs (Kachur et al., 2013). Avenues of technology utilized in health information delivery include cellphones (text messaging), internet, video games, and virtual reality. According to the CDC, 75% of teens report that they are cell phone users and that they access the internet “several times a day”
(Kachur et al., 2013). It is pertinent that healthcare providers and counselors understand the importance that technology can play in the prevention and education regarding STIs.

Remote testing and counseling is a way in which technology has the ability to be utilized to overcome reported barriers to STI education and screening, which include embarrassment, concerns of confidentiality, and time commitment (Aicken et al., 2016). In a qualitative study exploring attitudes surrounding a proposed remote STI testing and counseling technology entitled eSTI2, 25 individuals aged 16-24 were interviewed about their views of potential use. The technology would allow for individuals to access health information online as well as receive an STI test through mail. Overall, respondents were positive in responses concerning technology use including the following themes: ease of use, more control in health decisions, the ability to conceal healthcare decisions from others, and the ability to take part in faceless healthcare. This study revealed the potential in the use of technology to deliver counseling as well as testing for young adults regarding STIs.

Increasing knowledge through the use of technology regarding STIs is another way in which the internet can provide knowledgeable accurate information to improve reported behaviors and outcomes in young adults. Villegas et al. (2014) completed a study involving 40 women aged 18-24 that delivered four online modules including information about safe sex practices, birth control, and STIs. Pretest and posttests were distributed to participants and it was found that the majority of those involved increase knowledge, as evidenced by post-assessment scores, increased rates of condom use, reported increased self-efficacy regarding sex knowledge, and changed behaviors in risky sexual partner selection. Burns et al. (2016) conducted a thorough review of the literature involving the use of technology to deliver health knowledge and screening recommendations. In 10 studies that satisfied requirements, the authors found that,
overall, there was an increased uptake in HIV and STI testing, increased clinical attendance for those requiring further testing and treatment, decreased amounts of no shows for follow-up appointments, and increased retesting. Video messaging, SMS knowledge-based texts, and SMS appointment reminders were utilized in the studies reviewed. Sufficient evidence was present to support the use of technology in increasing attendance for testing and counseling regarding STIs. This study will fill a gap in literature by utilizing novel approaches of delivering STI education with technology with additional monetary incentive to increase participation.

Mobit Technology

Mobit Technology is an interactive text messaging service used primarily in delivering content rich, succinct marketing messages to a large amount of users at one time. Mobit provides an online interface in which an organizer can design and transmit messages to users who enroll in services by texting a unique keyword to a specified number. Developers of Mobit recognize that numerous types of organizers utilize services to send messages to users including schools and universities, tradespeople, retail chains, political campaigns, and not-for-profits.

Mobit utilizes short codes, or special telephone numbers, designed by mobile phone carriers to send and receive text and content rich text messages quickly and easily. In addition to text messages, the service launches mobile pages displaying media including infographics, videos and other graphics to engage audiences. This service guarantees that 95% of content delivered to users will be read within three minutes of delivery (Mobit, 2018).

In addition to messaging capabilities, Mobit’s user interface utilizes a real-time visual reporting dashboard that presents performance metrics of active mobile marketing or educational campaigns. Important data is stored in one place including message deliverability, message activity including times opened and time spent with each message. All information can be
downloaded in simple Excel and PDF formats for analysis. There are no current studies available
exploring the use of Mobit technology in delivery of STI education.

Get Yourself Tested

Get Yourself Tested (GYT), a national social movement developed in 2009 by the CDC in
partnership with the American College Health Association, Kaiser Family Foundation, National
Coalition of STD Directors, MTV, and Planned Parenthood Federation of America, empowers
and encourages young people to get tested and treated, as applicable, for STIs and HIV (CDC,
2018). This program seeks to increase awareness of STIs in addition to providing information on
prevention, testing, and open dialogue with healthcare providers. Although a nationally created
campaign, local organizations including schools, health departments, and healthcare providers
have adapted GYT to fit their own education and prevention efforts.

According to McFarlane, Brookmeyer, Friedman, Habel, Kachur, and Hogben (2015),
GYT positively impacts young adult and adolescent’s target sexual health behaviors including
testing for STIs, testing for HIV, talking with a partner about STI testing and talking with a
healthcare provider about STI testing. In a survey of 50,000 US youth in a national online panel,
investigators found that 20.7% of respondents indicated that they had heard of GYT and could
accurately identify the program logo. Overall, half of GYT aware respondents reported ever
being tested for an STI, while only 25% of those not aware of the campaign were ever tested
(McFarlane et al., 2015, p. 621).

GYT, in its first year of programming, reached an estimated 20,000 youth with education
and outreach events. Numbers in year two increased to 52,000 youth. In addition, close to 84,000
referrals were made through the online STI testing site locator in year one. Increases in testing of
71% attributed to the GYT campaign were also noted from 2008 to 2010 at nine associated
Planned Parenthood affiliates (Friedman, Brookmeyer, Kachur, Ford, Hogben, Habel, Kantor, Clark, Sabatini, McFarlane, 2014). With GYT being the first comprehensive national campaign promoting STI awareness, testing, and communication among youth in the US, positive results were present in its first two years (Friedman et al., 2014, p. 156). This study will utilize the GYT format to deliver messages in an innovative format.
CHAPTER 3:
METHODOLOGY

Design

An experimental study design was utilized to pilot test the efficacy of the use of monetary incentive in an STI prevention and educational intervention program with a sample of female college students between the ages of 18 and 24 years. This study used a cohort design to examine differences between the experimental group and control group who both participated in the proposed STI intervention program, entitled Increasing Sexual Health Knowledge (ISHK), which used monetary incentives to encourage increased participation regarding STI prevention, education and screening. The program was inspired by the CDC’s GYT, delivering relevant STI education and prevention materials to young adult females enrolled at a large southeastern university between the ages of 18 and 24 years. ISHK adapted topics suggested by GYT and delivered them in a user friendly format through content-rich educational text message to the participant’s smart phone. The study aimed to compare participation rates and attitudes toward healthy sexual behaviors between those who received monetary incentives and those who did not; both the experimental group and control group received the same STI educational text messages. Over time, increased participation in STI education should lead to increased reports of healthy sexual behaviors and increased reports of recommended testing.

The ISHK Educational Intervention Program was implemented over the course of one semester to a group of female college students, divided into a control and experimental group
(Appendix B). The experimental group received a monetary incentive at incremental periods throughout the program and the control group received no incentive; however, both groups received the same educational intervention. After recruitment and enrollment of participants, each participant was presented with a pretest, exploring current sexual behaviors and attitudes. Following the completion of the pretest exploring sexual behaviors, attitudes about sexual activity and testing, and current STI knowledge, a series of six content rich text messages was delivered to all participants using Mobit Technology. Total time commitment to the study from each participant was approximately two hours over the course of eight weeks.

Each participant in the experimental group received an incentive of $50 for participation in the educational intervention divided in two payments. The first $25 was loaded into the student’s campus cash card following the third text message sent in the course of the study. Students were notified by the campus cash card online platform when deposits were made. Participants who were randomized to the experimental group were instructed to follow an external link to a Qualtrics survey included in the third text message to supply last name and their student identification number; this enabled the investigator to pay the participant. The second $25 was awarded to the participant following the completion of the posttest provided by the researcher. The experimental group participant then again followed an external link to a Qualtrics survey included in the sixth and final text message to supply last name and campus-wide identification number. Control group participants received no external link and no incentives for participation in the study.

**Participants and Recruitment Procedures**

Before the study began, Institutional Review Board approval was obtained from the University of Alabama (Appendix K). In this experimental study, the target sample included
college women age 18 to 24 years who were enrolled full-time in an undergraduate or graduate degree program. Sampling occurred through voluntary convenience and recruitment occurred through the posting of recruitment materials such as fliers, posters, and electronic board ads in class buildings, residence halls, and Greek housing throughout campus both electronically and physically (Appendix F). Eligibility criteria included being of the female sex or female by birth, enrolled as a college student at the university where recruitment occurred, between the ages of 18 and 24 years, and able to read and speak English. Exclusionary criteria included those interested participants who did not have access to a smart phone. Recruitment took place over the course of six weeks. Interested participants were directed by information on the flier to contact the investigator to enroll in the study. Once the interested participant contacted the investigator, she received a welcome email containing additional details about the study and instructions and links to complete enrollment (Appendix G). The email contained a link to a Qualtrics survey containing informed consent information (Appendix E), a text code to enroll in Mobit text messaging, and a link to a pretest Qualtrics survey (Appendix D). Informed consent and the pretest were constructed in two different surveys as required by IRB to protect the identity of the participant. Participants were randomized into experimental and control groups using 1:1 allocation. The experimental group received $50 of compensation for completion of the study and the control group received no compensation for completion of the study. Those randomly assigned to the experimental group were asked to text Sex Health to 72000, while those randomly assigned to the control group were asked to text UA Health to 72000. Each special code enrolled participants into a tagged paid or unpaid group within the Mobit technology online user interface. Once the investigator recruited and enrolled 50 participants, a cohort of text
messages was launched. There was a total of three cohorts of participants who participated in the study and received text messages. A total of 156 participants initially enrolled in the study.

**Informed Consent**

Informed consent was obtained via a link in Qualtrics survey. Prior to completing the pretest and enrolling in the text messaging service, potential participants had the ability to read informed consent information describing aims of the study, risks, benefits, procedures and methods of upholding confidentiality within the study. The investigator’s contact information was provided within the informed consent in order for the participant to ask any questions before beginning the study. If agreeable, the participants clicked “I consent, begin the study” and provided her name and email address. Participants were then prompted to create a unique study identification number. The participant could, at any time, opt out of the study by sending a stop code to the text messaging service or withdrawing by not completing one of the surveys.

**Confidentiality**

Confidentiality was kept for all participants during the course of the study. All survey responses were logged using a password protected Qualtrics survey account. Sensitive data provided in the pretest and posttest were anonymized through a participant created unique identifier code. This linked the participant’s pretest and posttest answers since a change in these answers was examined. In order to be paid, each experimental group participant was directed to an external Qualtrics survey link in which last name and campus-wide identification number was provided. This, in no way, could be linked to the sensitive survey data answers. Mobit Technology ensured protection of participant telephone numbers and the investigator had no access to each participant phone number.
Mobit Technology Use

Mobit Technology was utilized in this experimental study to manage participant enrollment and interaction with each educational text message. Once the participant texted the appropriate keyword into the messaging service she was logged into the experimental or control group. The Mobit user interface allowed for the design of each educational message as well as scheduling of time to be sent to each participant. Each educational message sent in this study was delivered to the participant at 10:00 CST each Wednesday. Mobit also collected and managed data including participant interaction with each educational message. Data included number of times each participant opened the text message and any external links within the message the participant follows.

Intervention

Upon self-enrollment into the Mobit text messaging service, the participant received an automated welcome message. Each of the following six messages (Appendix E) were predesigned and scheduled to automatically send to each participant each Wednesday for six weeks. The first educational message following the pretest was entitled Get The Facts and included the importance of knowing the risks associated with STIs as well as basic statistics impacting the United States and the young female population. The second message was titled Talk About It and provided participants with tips for discussing their sexual health with their healthcare provider and overcoming any embarrassment and fear of stigma from others. The third text discussed signs, symptoms, and what to look for if infected with an STI and was entitled Know the Presence. Also included in the third text for those participants enrolled into the paid group, was a link to an external Qualtrics survey asking for the participant’s last name and campus-wide identification number (CWID). This information was utilized to compensate the
experimental group participants through the online student account set up by the school. At this time, the participant was paid half of the total compensation for participation in the study.

*Protect Yourself,* the fourth message, delivered covered methods to avoid contraction of STIs. The fifth message, *Know Your Status,* explained what is involved in testing and what happens at a clinic when a patient seeks counseling and testing for STIs. The final text provided a listing of local and regional resources for testing and counseling, including contact information and location addresses. Each message was formatted as an infographic or short video clip that should have taken the user less than five to ten minutes to read.

Included in the sixth and final text message, a link to a posttest for the participant to complete was included. Those participants enrolled in the experimental paid group had an additional item on the survey containing a link directing them to an external Qualtrics survey, again, asking for their last name and CWID to provide the second half of the compensation for participation in the study. The investigator, in no way, was able to link confidential survey data to the participant’s last name and CWID.

**Sample Size Calculations**

Using G*Power (Faul, Erdfelder, Lang, & Buchner, 2007), it was determined that a total sample size of at least 98 participants (49 per group) was necessary to achieve 80% power to detect a medium effect size ($f = 0.25$) using a repeated-measures ANOVA to detect a between-subjects effect with two time points and an $\alpha$-level of .05. Due to possible attrition, a total of 130 participants were planned to be recruited for and enrolled in the study. Once 50 participants were enrolled, randomization into the control and experimental group and intervention delivery occurred. Once another 50 participants were enrolled, the randomization and intervention process repeated. This process repeated one final time after the last 50 participants were enrolled.
Limitations and Delimitations

Limitations to the proposed study included the lack of a truly random sample of participants. Participation in the study was on a voluntary basis and then once participants enrolled, randomization into control and experimental groups occurred. Due to the lack of random sampling, the results are unable to be applied to a larger general population. Another limitation to the study is time. Because the study is only a snapshot of the results due to conditions at the time, further studies or follow-up may be warranted in the future.

Delimitations of the proposed study was the sampling of enrolled college age females between the ages of 18 and 24 years. Other populations that the results would not be generalizable to include university students not in this age range and those in other non-similar geographical regions.

Measures and Data Collection

The Hendrick Sexual Attitude Scale, in conjunction with the National Sexual Health Survey and Youth Risk Behavior Survey, was adapted and used as the 56-item ISHK program pretest and posttest. In addition to items adapted from these surveys, an investigator developed demographic survey was delivered to participants. The control group and experimental group received both the pretest and posttest to determine any changes in attitudes regarding healthy sexual behaviors over the course of the program. Reliability and validity of each survey was verified in literature and express permission was granted for use of each survey. The questionnaire containing each survey was delivered to participants as a link to a Qualtrics Survey.
Hendrick Sexual Attitude Scale

The Brief Sexual Attitude Scale is a 23-item questionnaire assessing the multidimensional attitude towards sex and was developed from the Sexual Attitude Scale at the request of a shorter psychometric instrument. Each item included in the survey is rated on a 5-point Likert scale that ranges from *strongly agree* to *strongly disagree*. Each participant received four subscale scores based on the mean score for that particular subscale. Hendrick et al. (2006) state that their sexual attitude scale measures the following: permissiveness towards open relationships, responsibility in using birth control, communion with sexual partner, and instrumentality defined as attitudes towards the enjoyment of sex. In particular, this study focused on the permissiveness in open relationships as well as the responsible use of condoms. Both concepts have the ability to prevent or increase the probability of contracting an STI.

A study to test reliability and validity of this scale was performed by Hendrick et al. (2006) to determine if the brief version of this survey was an accurate psychometric instrument to determine attitudes. The sample consisted of 518 participants: 58% were women and 42% were men. The sample consisted of 73% European Americans, 11% Hispanics, 3% African Americans, 3.5% Asian, and 9.5% Other. The Brief Sexual Attitudes Scale consisted of 23 items: Permissiveness (10 items, $\alpha = .95$), Birth Control (3 items, $\alpha = .88$) Communion (5 items, $\alpha = .73$), and Instrumentality (5 items, $\alpha = .77$). Test-retest reliability correlations were conducted with a separate sample and are as follows: Permissiveness = .92, Birth Control = .57, Communion = .86, and Instrumentality = .75 (Hendrick et al., 2006).

National Sexual Health Survey

The National Sexual Health Survey is a detailed, 180-question instrument originally utilized in 1992 to assess attitudes about sexual encounters, birth control use, condom attitudes,
and perceived risk of contracting STIs and HIV as well as a number of other attitudes. In particular, this study focused on the questions assessing use of protective birth control methods as well as perceived risk and attitudes about STIs. The ISHK pretest and posttest adopted 17 of the questions from this survey; they were presented in either a multiple choice format or Likert scale answers ranging from agree a lot to disagree a lot. These pretest and posttest surveys measured the dependent variable, healthy sexual behaviors.

A study to determine reliability and validity of the instrument was conducted to explore risk factors and condom use in the United States (Catania, Coates, Staff, Turner, Peterson, Hearst, Dolcini, Hudes, Gagnon, Wiley, & Groves, 1992). A total of N = 10,630 respondents were polled to determine risk factors related to HIV prevention. Instrumental testing was completed and then changes were made based on the focus group work done. Next, further pretesting was done in a national telephone survey (n = 300).

**Youth Behavior Risk Survey**

The CDC’s Youth Risk Behavior Survey (YRBS) monitors six areas of health related behaviors linked to death and disability in young adults and adolescents. These six areas include sexual behaviors, alcohol and drug use, tobacco use, dietary lifestyle decisions, and physical activity. This study utilized questions from the sexual behavior portion of the survey that includes nine items that are either multiple choice or yes/no answer format. These items explore age of first sexual encounter, number of sexual encounters in the last three months, and condom use.

A study to assess the test-retest reliability of the most current version of the CDC’s YRBS was performed by sampling 4,619 male and female high school students from White, Black, Hispanic, and other racial/ethnic groups on two occasions two weeks apart (Brener, Kann,
McManus, Kinchen, Sundberg, & Ross, 2002). Using qualitative labels as suggested by Landis and Koch (1977), 47.2% of items had substantial reliability ($\kappa > 61\%$) and 93.1% had at least moderate reliability ($\kappa > 41\%$). Analysis of reliability by participant characteristics revealed no significant differences in mean values of $\kappa$ by gender, grade, race, and ethnicity. Investigation of reliability by risk behavior category did reveal some differences. Specifically, items related to sexual behavior (mean $\kappa = 62.7\%$) demonstrated significantly higher reliability than items related to dietary behaviors, physical activity and other health-related topics (Brener et al., 2002, pp. 340-341).

Although reliability is a characteristic of a valid measurement tool, the reliability of the YRBS items does not ensure validity according to investigators of this study. Brener et al. (2002) state that much work needs to be done in assessing and developing validity of self-reported behavior tools, due to the lack of gold standards for behaviors of interest. In addressing issues surrounding this, investigators have used techniques such as computer-assisted data collection, randomized response, and bogus pipeline to ensure valid self-reports of health risk behaviors among adolescents.

**Demographic Data**

Descriptive demographic data consisting of items 1 through 7 of the ISHK survey, such as age, class ranking, major, and race/ethnicity was compared between the experimental and control group. If differences were found in the demographic makeup of the two groups, these differences were controlled for in further analyses.

**Sexual History**

Items 8 through 15 of the survey consisted of sexual history data, both recent and long term. Data collected in this section served as both descriptive as well as analyzed for change.
between pretest and posttest scores. Items 11, 12, and 13 were analyzed for change over time with education. These items assessed the number of sexual partners in the last three months, use of alcohol or drugs before sexual contact, and condom use.

**Condom Use Attitudes**

Items 16 through 22 examined attitudes toward the use of condoms. Each question was rated using a 4-point Likert scale ranging from *agree a lot* to *disagree a lot*. The average response of these items was calculated and analyzed.

**Permissiveness, Sexual Communion, and Birth Control Attitudes**

Items 23 through 40 examined permissiveness in sexual actions as well as sexual communion. These items were scored based on a 5-point Likert scale and was averaged and compared from pretest to posttest.

**Status and Risk Identification**

Items 41 through 56 assessed the participants’ self-identified risk in contracting an STI as well as their intent to seek out education or testing services. These were single item responses that were analyzed individually for change over time.

**Analysis Plan**

The independent variable in this study was the use of monetary incentives in the ISHK Educational Intervention Program. Monetary incentive or cash transfer was defined as compensation for taking part in the ISHK Educational Intervention Program. The dependent variables included scores about attitudes involving sexual health and STIs, number of times engaging with the context rich text messages, posttest scores about attitudes involving sexual health and STIs, and reported intent to be screened for an STI. Between group ANOVA examined the between group means comparing the experimental group receiving monetary incentive and the control group receiving no incentive as well as within group ANOVA to
determine if the overall cohort of participants benefited from the education as evidenced by a change in sexual behavior attitudes.

**Research Question 1**

*Is the use of monetary incentives in STI education and prevention a viable method to increase the effectiveness of education provided to adolescents and young adult female college students?* To answer this question, interaction with each educational text message sent over time was explored. In order to examine whether delivery of monetary incentive altered the engagement with the text messages, the investigator used a 2 (between subjects: Experimental vs. Control) X 2 (within-subjects: Before Compensation and After Compensation) ANOVA. The investigator examined the interaction term to determine if the two groups interacted differently with the text messages after the first monetary compensation. Examination of the moderation effect also allowed the investigator to determine if the delivery text method had an effect on the interaction with educational messages.

**Research Question 2**

*Will there be a change over time in reported healthy sexual behaviors and intent to be tested for STIs among students who participate in the Increasing Sexual Health Knowledge (ISHK) Program?* To examine changes in behaviors as a result of interaction with educational text messages, survey items with scoring attached to them were calculated according to the survey outline instructions for both the pretest and posttest. These scores measured change in condom use, sexual behaviors and attitudes involving sexual health, and permissiveness. Within subjects ANOVA was analyzed to determine if change in attitudes occurred overall before and after participation in the educational intervention. All yes/no survey items including recent sexual history and access to testing information was explored individually as categorical
variables and analyzed using a chi square analysis. Depending on the nature of each question, it was assumed that the answer would change with interaction with the educational intervention.

**Research Question 3**

*Will there be a difference in sexual attitudes, STI knowledge, and reported STI testing rates among participants in the experimental group versus the control group after completion of the ISHK program?* To determine if there was a difference in the pretest and posttest scores comparing the experimental and control group, a between subjects ANOVA was analyzed for items with a Likert scale associated with them. This revealed if the monetary incentive increased receptivity to the delivered educational intervention, thus increasing healthy behaviors and attitudes surrounding sexual health. It was expected that the experimental group would see a positive change in scores after participation in the educational program. Each area of interest including condom use attitudes, sexual permissiveness, birth control attitudes, and AIDS/STI risk likelihood were analyzed separately for change over time in comparison between the experimental and control group. Chi square analysis was analyzed for all items with yes/no answers, including sexual history items as well as use and perception of STI related education and testing services, to determine if positive change occurred over time in the experimental versus the control group.

**Research Question 4**

*Do college aged females from 18 to 24 years of age report self-perceived barriers to accessing STI education and testing services? What are reported motivators and deterrents to accessing STI education and prevention services and what role do they play in influencing behavioral and attitude outcomes?* As an exploratory research question, self-reported
identification of barriers to accessing education and testing services was analyzed using simple descriptive statistics.
CHAPTER 4:

RESULTS

This portion of results presents information related to demographic data of the participants and the statistical analysis of the research data utilized in this study. The overall purpose of this experimental study was to explore the effects of monetary incentives on the interaction with STI education and prevention materials in 18- to 24-year-old females enrolled in a large, public Southeastern university. Through the engagement with STI educational information delivered through content rich text message by Mobit Technology, the investigator explored changes in reported attitudes and behaviors by participants within groups from pretest to posttest and between paid and unpaid participants. The investigator utilized Figure 1 as a model for primary analysis.

![Figure 1](image)

*Figure 1. Primary analysis model.*
The investigator was able to determine that engagement with educational text messages by the paid group of participants was significantly higher than those participants in the unpaid group. By utilizing an online sexual attitudes and behaviors survey, the investigator was able to determine that there were some differences in the experimental paid group versus the control unpaid group; in particular, confidence in knowledge, self-perceived risk of AIDS and STI contraction, and reported barriers to education and screening. The demographic data of the participants were examined and presented by providing descriptive information regarding the subjects in the study. The statistical analyses were conducted and results were based upon the research questions presented within this study. The research questions specifically asked within this study included the following:

1. Is the use of monetary incentives in STI prevention and education a viable method to increase the effectiveness of education provided to adolescents and young adult female college students?

2. Will there be a change over time in reported healthy sexual behaviors and intent to be tested for STIs among students who participated in the Increasing Sexual Health Knowledge (ISHK) program?

3. Will there be a difference in sexual attitudes, STI knowledge, and reported STI testing rates among participants in the experimental group versus the control group after completion of the ISHK program?

4. Do college aged females from 18 to 24 years of age report self-perceived barriers to accessing STI education and testing services? What are reported motivators and deterrents to accessing STI education and prevention services and what role do they play in influencing behavioral and attitude outcomes?
A total of 212 participants who completed informed consent for the study. In order to examine the research questions presented in this study, the results of the investigator-compiled sexual behavior and attitude pretest (N = 156) and posttest (N = 137) were downloaded from the Qualtrics online platform and entered into an Excel spreadsheet. Incomplete pretests (N = 5) and incomplete posttests (N = 2) were excluded from the data analysis. Next, the investigator linked pretest and posttest data by the participant created unique identifier code. A total of 107 participants were found to have completed both the pretest and the posttest with all information present and necessary to link the two, yielding 80% power for the study. Out of this number, 65 paid participants completed the study while only 42 unpaid participants completed the study.

The study consisted of incentivized (paid) participants and not incentivized (unpaid) participants, so the groups were first coded as paid = 1 and unpaid = 2 in Excel. Coding was also completed for pretest and posttest data in Excel for all questions with Likert scale answers including condom use attitudes, sexual permissiveness, sexual communion, contraceptive attitudes, and STI self-perceived risk, on a scale of 1 to 4, then subscale means were calculated as well (Agree a lot = 1, Kind of agree = 2, Kind of disagree = 4, and Disagree a lot = 4) (Strongly agree with statement = 1, Moderately agree with statement = 2, Moderately disagree = 3, and Strongly disagree = 4) (Very likely = 1, Somewhat likely = 2, Somewhat unlikely = 3, and Very unlikely = 4). Subscale means were then calculated for pretest and posttest data for analysis. All categorical questions with yes and no answer selections were then coded 1 = yes and 2 = no. Once data cleanup was complete, the data were entered into the Statistical Package for Social Sciences (SPSS).

Interaction with text messages was analyzed by downloading Mobit Technology created reports into Excel for coding. Groups were tagged with paid = 1 and unpaid = 2. Mobit
technology also reported if each participant accessed each weekly text message for six weeks as well as any external educational hyperlinks. The investigator coded yes = 1 and no = 2 to demonstrate if the participant had accessed the education or followed any links in the message to further educational information. A total number of 156 participants signed up to receive educational text messages. The paid group contained 78 (50%) participants and the unpaid group contained 78 (50%) participants as well. Due to the ability to opt out of the text messages service, 6 (4%) of the participants withdrew from the educational intervention, leaving a total number of 150 participants completing the educational intervention through Mobit Technology.

**Demographics of Study Participants**

There was a total of 212 participants who began the online Qualtrics informed consent survey. The study sample consisted of female college undergraduate students, age 18 to 24 at a large Southeastern university. The final sample included N=156 participants. Group 1, paid participants, contained 78 participants (50%). Group 2, unpaid participants, contained 78 participants (50%), due to one-to-one randomization into experimental and control groups by the investigator.

Study participants were asked to complete demographic data in the pretest in order to understand and evaluate the characteristics of the sample. Table 1 presents the demographic data of the final sample, which were all female and generally White (87.82%), ages 21-22 (55.76%), majoring in nursing (59.62%), and classified as a senior (62.82%).

The investigator also coded each of the variable categories for further analysis of survey data. The codes were included for age (1) less than or equal to 20, and (2) greater than 20; race (1) White, (2) Hispanic Latino, (3) African American, (4) Asian, (5) Native American, (6) Other; class ranking (1) Freshman, (2) Sophomore, (3) Junior, (4) Senior; college (1) Arts and Sciences,

Table 1

Demographic Data of Study Participants

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>13</td>
<td>8.33%</td>
</tr>
<tr>
<td>19</td>
<td>13</td>
<td>8.33%</td>
</tr>
<tr>
<td>20</td>
<td>22</td>
<td>14.10%</td>
</tr>
<tr>
<td>21</td>
<td>60</td>
<td>38.46%</td>
</tr>
<tr>
<td>22</td>
<td>27</td>
<td>17.31%</td>
</tr>
<tr>
<td>23</td>
<td>14</td>
<td>8.97%</td>
</tr>
<tr>
<td>24</td>
<td>7</td>
<td>4.49%</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>137</td>
<td>87.82%</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>3</td>
<td>1.92%</td>
</tr>
<tr>
<td>African American</td>
<td>7</td>
<td>4.49%</td>
</tr>
<tr>
<td>Asian</td>
<td>2</td>
<td>1.28%</td>
</tr>
<tr>
<td>Native American</td>
<td>1</td>
<td>0.64%</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>3.85%</td>
</tr>
<tr>
<td>Class Ranking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshmen</td>
<td>15</td>
<td>9.62%</td>
</tr>
<tr>
<td>Sophomore</td>
<td>10</td>
<td>6.41%</td>
</tr>
<tr>
<td>Junior</td>
<td>33</td>
<td>21.15%</td>
</tr>
<tr>
<td>Senior</td>
<td>98</td>
<td>62.82%</td>
</tr>
<tr>
<td>College</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arts and Sciences</td>
<td>21</td>
<td>13.46%</td>
</tr>
<tr>
<td>Business</td>
<td>10</td>
<td>6.41%</td>
</tr>
<tr>
<td>Communications</td>
<td>5</td>
<td>3.21%</td>
</tr>
<tr>
<td>Education</td>
<td>6</td>
<td>3.85%</td>
</tr>
<tr>
<td>Engineering</td>
<td>12</td>
<td>7.69%</td>
</tr>
<tr>
<td>Human Environ. Sciences</td>
<td>7</td>
<td>4.49%</td>
</tr>
<tr>
<td>Nursing</td>
<td>93</td>
<td>59.62%</td>
</tr>
<tr>
<td>Social Work</td>
<td>1</td>
<td>0.64%</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>0.64%</td>
</tr>
<tr>
<td>Greek Affiliation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>64</td>
<td>14.03%</td>
</tr>
<tr>
<td>No</td>
<td>92</td>
<td>58.97%</td>
</tr>
</tbody>
</table>

N = 156
Sexual history demographic data was also completed by participants in the pretest. Table 2 presents sexual demographic data of the sample, which were generally single (48.08%), participated in first intercourse at age 17 or greater (63.11%), has had six or more lifetime sexual partners (35.25%), has had one sexual partner in the last three months (65.57%), and heterosexual (98.04%). Due to the lack of sexual activity history of some participants and the sensitive nature of survey data, not all participants answered every sexual history demographic survey questions, leaving missing data. Sample size for each question was denoted in Table 2.

Table 2

*Sexual Demographic Data of Study Participants*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Relationship Status (n=156)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In a relationship</td>
<td>72</td>
<td>46.15%</td>
</tr>
<tr>
<td>Single</td>
<td>75</td>
<td>48.08%</td>
</tr>
<tr>
<td>Married</td>
<td>2</td>
<td>1.28%</td>
</tr>
<tr>
<td>Engaged</td>
<td>6</td>
<td>3.85%</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>0.64%</td>
</tr>
<tr>
<td><strong>Age at First Intercourse (n=122)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>4</td>
<td>3.28%</td>
</tr>
<tr>
<td>15</td>
<td>11</td>
<td>9.02%</td>
</tr>
<tr>
<td>16</td>
<td>30</td>
<td>24.59%</td>
</tr>
<tr>
<td>17 or greater</td>
<td>77</td>
<td>63.11%</td>
</tr>
<tr>
<td><strong>Lifetime Sexual Partners (n=122)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>32</td>
<td>26.23%</td>
</tr>
<tr>
<td>2</td>
<td>12</td>
<td>9.84%</td>
</tr>
<tr>
<td>3</td>
<td>17</td>
<td>13.93%</td>
</tr>
<tr>
<td>4</td>
<td>11</td>
<td>9.02%</td>
</tr>
<tr>
<td>5</td>
<td>7</td>
<td>5.74%</td>
</tr>
<tr>
<td>6 or more</td>
<td>43</td>
<td>35.25%</td>
</tr>
</tbody>
</table>

*(table continues)*
<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last 3 Month Sexual Partners (n=122)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>21</td>
<td>17.21%</td>
</tr>
<tr>
<td>1</td>
<td>80</td>
<td>65.57%</td>
</tr>
<tr>
<td>2</td>
<td>13</td>
<td>10.66%</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>3.28%</td>
</tr>
<tr>
<td>4 or more</td>
<td>4</td>
<td>3.28%</td>
</tr>
<tr>
<td>Sexual Orientation (n=153)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterosexual</td>
<td>150</td>
<td>98.04%</td>
</tr>
<tr>
<td>Homosexual</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>Bisexual</td>
<td>2</td>
<td>1.31%</td>
</tr>
<tr>
<td>Other/Unsure</td>
<td>1</td>
<td>0.65%</td>
</tr>
</tbody>
</table>

**Descriptive Statistics**

Following the completion of the demographic data portion of the survey, the participants completed the ISHK pretest consisting of questions exploring attitudes on sexual health and behaviors over a one-week time period following the initial recruitment. The ISHK posttest was completed following week six of the six-week text message-delivered sequence of education. The participants were given one week to complete the posttest as well. The ISHK pretest and posttest contained five subscales measuring condom use attitudes, sexual permissiveness, sexual communion, and STI/AIDs self-perceived risk. Subscale scores for each participant were determined by calculating the mean for each category of the ISHK survey. Pretest and posttest means were compared during statistical analysis of the surveys. A total of 107 participants were included in the statistical analysis as having completed both the pretest and the posttest.
Table 3

*Paid and Unpaid Participants*

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Paid/incentivized</td>
<td>65</td>
</tr>
<tr>
<td>(2) Unpaid/not incentivized</td>
<td>42</td>
</tr>
</tbody>
</table>

N=107

*49 participants did not complete both the pretest and the posttest of the ISHK program*

The mean and standard deviation of subscale Likert scores of the participants who completed both the pretest and the posttest of the ISHK program are presented in Tables 4 and 5. Means for subscales including condom use attitudes, sexual permissiveness, sexual communion, and contraceptive attitudes are presented separately. Pretest results revealed that at baseline participants already had generally positive attitudes toward permissiveness of an open relationship with a paid mean of 2.59 and unpaid mean of 2.55. These means reveal that the average response of participants indicate that they would not be permissive toward an open relationship. In addition, participants had a positive attitude towards condom use with a paid mean of 2.69 and unpaid mean of 2.61. This revealed participants had a generally healthy outlook on the use of condoms. Pretest results also revealed participants also had a generally positive attitude toward sexual communion with a paid mean of 1.62 and unpaid mean of 1.49, indicating that the average response of participants reveals a positive attitude toward the importance of connecting with a sexual partner. Pretest survey results also reveal that participants have a generally positive attitude toward contraceptive responsibility with a paid mean of 1.20 and unpaid mean of 1.19, indicating a strong attitude of responsibility towards utilizing contraception. Both the paid and unpaid groups had a realistic self-perceived risk of contracting AIDS or an STI indicating that the mean response for paid and unpaid participants was between somewhat likely to somewhat unlikely.
Table 4

Paid and Unpaid Group Pretest Likert Scale Item Descriptive Statistics

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Range</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Condom Use</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>2.69</td>
<td>0.61</td>
<td>1-4</td>
<td>63</td>
</tr>
<tr>
<td>Unpaid</td>
<td>2.61</td>
<td>0.63</td>
<td>1-4</td>
<td>59</td>
</tr>
<tr>
<td><strong>Permissiveness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>2.59</td>
<td>0.89</td>
<td>1-4</td>
<td>63</td>
</tr>
<tr>
<td>Unpaid</td>
<td>2.55</td>
<td>0.89</td>
<td>1-4</td>
<td>59</td>
</tr>
<tr>
<td><strong>Communion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>1.62</td>
<td>0.55</td>
<td>1-4</td>
<td>63</td>
</tr>
<tr>
<td>Unpaid</td>
<td>1.49</td>
<td>0.52</td>
<td>1-4</td>
<td>59</td>
</tr>
<tr>
<td><strong>Contraception</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>1.20</td>
<td>0.41</td>
<td>1-2</td>
<td>63</td>
</tr>
<tr>
<td>Unpaid</td>
<td>1.19</td>
<td>0.36</td>
<td>1-2</td>
<td>59</td>
</tr>
<tr>
<td><strong>AIDs Risk</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>2.93</td>
<td>0.86</td>
<td>1-4</td>
<td>62</td>
</tr>
<tr>
<td>Unpaid</td>
<td>2.88</td>
<td>0.82</td>
<td>1-4</td>
<td>54</td>
</tr>
<tr>
<td><strong>STI Risk</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>2.58</td>
<td>0.58</td>
<td>2-4</td>
<td>61</td>
</tr>
<tr>
<td>Unpaid</td>
<td>2.31</td>
<td>0.67</td>
<td>2-4</td>
<td>57</td>
</tr>
</tbody>
</table>

Table 5

Paid and Unpaid Group Posttest Likert Scale Item Descriptive Statistics

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Range</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Condom Use</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>2.67</td>
<td>0.42</td>
<td>1-3</td>
<td>61</td>
</tr>
<tr>
<td>Unpaid</td>
<td>2.75</td>
<td>0.39</td>
<td>1-4</td>
<td>41</td>
</tr>
<tr>
<td><strong>Permissiveness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>2.64</td>
<td>0.86</td>
<td>1-4</td>
<td>61</td>
</tr>
<tr>
<td>Unpaid</td>
<td>2.49</td>
<td>0.89</td>
<td>1-4</td>
<td>41</td>
</tr>
<tr>
<td><strong>Communion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>1.32</td>
<td>0.47</td>
<td>1-4</td>
<td>61</td>
</tr>
<tr>
<td>Unpaid</td>
<td>1.46</td>
<td>0.49</td>
<td>1-4</td>
<td>41</td>
</tr>
<tr>
<td><strong>Contraception</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>1.20</td>
<td>0.41</td>
<td>1-2</td>
<td>59</td>
</tr>
<tr>
<td>Unpaid</td>
<td>1.12</td>
<td>0.38</td>
<td>1-2</td>
<td>31</td>
</tr>
<tr>
<td><strong>AIDs Risk</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>2.93</td>
<td>0.55</td>
<td>2-4</td>
<td>61</td>
</tr>
<tr>
<td>Unpaid</td>
<td>3.00</td>
<td>0.56</td>
<td>1-4</td>
<td>39</td>
</tr>
<tr>
<td><strong>STI Risk</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>2.51</td>
<td>0.59</td>
<td>2-4</td>
<td>60</td>
</tr>
<tr>
<td>Unpaid</td>
<td>2.41</td>
<td>0.59</td>
<td>2-4</td>
<td>31</td>
</tr>
</tbody>
</table>
Figure 2 demonstrates the positive change in the areas of condom use (decrease in mean), permissiveness (increase in mean), sexual communion (decrease in mean), and AIDs risk (decrease in mean) among paid group participants.

Figure 2. Paid group participant reported change over time to likert scale survey items.

Figure 3 demonstrates the positive areas of change in the areas of sexual communion (decrease in mean), and contraceptive attitudes (decrease in mean) among unpaid group participants. The change in these areas is less noticeable than the paid group participants.
Figure 3. Unpaid group participant reported change over time to likert scale survey items

**Homogeneity of Variance**

Levene’s Tests of Equality of Error Variances are listed in Table 6 for each of the Likert scale items included in the pretest. There is not a significant variance difference between the pretest items in the following categories: condom use ($F = 1.318$ (1, 121), $p = .226$), permissiveness ($F = .24$ (1, 121), $p = .878$), communion ($F = .763$ (1, 121), $p = .385$), contraception ($F = 2.120$ (1, 121), $p = .149$), AIDS risk ($F = 3.078$ (1, 115), $p = .083$), and STI risk ($F = 1.449$ (1, 117), $p = .232$). There was homogeneity of variances as determined by Levene’s Test of Homogeneity of Variance ($p > .05$).
Table 6

*Levene’s Test of Equality of Error Variances*

<table>
<thead>
<tr>
<th>Item</th>
<th>F</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condom Use</td>
<td>1.318</td>
<td>1</td>
<td>121</td>
<td>.226</td>
</tr>
<tr>
<td>Permissiveness</td>
<td>0.24</td>
<td>1</td>
<td>121</td>
<td>.878</td>
</tr>
<tr>
<td>Communion</td>
<td>0.763</td>
<td>1</td>
<td>121</td>
<td>.385</td>
</tr>
<tr>
<td>Contraception</td>
<td>2.120</td>
<td>1</td>
<td>121</td>
<td>.149</td>
</tr>
<tr>
<td>AIDS Risk</td>
<td>3.078</td>
<td>1</td>
<td>115</td>
<td>.083</td>
</tr>
<tr>
<td>STI Risk</td>
<td>1.449</td>
<td>1</td>
<td>117</td>
<td>.232</td>
</tr>
</tbody>
</table>

Crosstab tables are presented for pretest and posttest items with categorical answers for those participants completing both the pretest and posttest in Tables 7 and 8. Due to the sensitivity of the questions, many participants did not complete some of the survey items. Pretest items reveal that a significant number of participants felt confident in their knowledge concerning STIs before the educational intervention (n=101), felt comfortable asking their healthcare provider about sexual health information (n=122), and have already sought out STI screening and education services (n=103). Only a total number of 45 participants indicated they felt as though they faced barriers to seeking STI screening and education services. A total number of 42 participants indicated they intended on being screened for an STI in the next three months.
Table 7

Comparison of Pretest Paid and Unpaid Group Yes/No Survey Item Responses

<table>
<thead>
<tr>
<th>Group</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Confidence in STI Knowledge, n=146</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>52 (68%)</td>
<td>24 (32%)</td>
<td>76</td>
</tr>
<tr>
<td>Unpaid</td>
<td>49 (70%)</td>
<td>21 (30%)</td>
<td>70</td>
</tr>
<tr>
<td><strong>Comfort in asking HCP Questions, n=141</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>65 (89%)</td>
<td>8 (11%)</td>
<td>73</td>
</tr>
<tr>
<td>Unpaid</td>
<td>57 (84%)</td>
<td>11 (16%)</td>
<td>68</td>
</tr>
<tr>
<td><strong>Barriers to Accessing STI Services, n=151</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>25 (33%)</td>
<td>51 (67%)</td>
<td>76</td>
</tr>
<tr>
<td>Unpaid</td>
<td>20 (27%)</td>
<td>55 (73%)</td>
<td>75</td>
</tr>
<tr>
<td><strong>Past STI services Sought, n=121</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>58 (92%)</td>
<td>5 (8%)</td>
<td>63</td>
</tr>
<tr>
<td>Unpaid</td>
<td>45 (76%)</td>
<td>13 (23%)</td>
<td>58</td>
</tr>
<tr>
<td><strong>Intent to be Screened in Next 3 Months, n=104</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>10 (20%)</td>
<td>39 (80%)</td>
<td>49</td>
</tr>
<tr>
<td>Unpaid</td>
<td>32 (58%)</td>
<td>23 (42%)</td>
<td>55</td>
</tr>
</tbody>
</table>

Table 8

Comparison of Posttest Paid and Unpaid Group Yes/No Survey Item Responses

<table>
<thead>
<tr>
<th>Group</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Confidence in STI Knowledge, n=84</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>44 (85%)</td>
<td>8 (15%)</td>
<td>52</td>
</tr>
<tr>
<td>Unpaid</td>
<td>31 (97%)</td>
<td>1 (3%)</td>
<td>32</td>
</tr>
<tr>
<td><strong>Comfort in asking HCP Questions, n=101</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>55 (90%)</td>
<td>6 (10%)</td>
<td>61</td>
</tr>
<tr>
<td>Unpaid</td>
<td>38 (95%)</td>
<td>2 (5%)</td>
<td>40</td>
</tr>
<tr>
<td><strong>Barriers to Accessing STI Services, n=68</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>12 (32%)</td>
<td>25 (68%)</td>
<td>37</td>
</tr>
<tr>
<td>Unpaid</td>
<td>13 (42%)</td>
<td>18 (58%)</td>
<td>31</td>
</tr>
<tr>
<td><strong>Past STI services Sought, n=93</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>42 (68%)</td>
<td>20 (32%)</td>
<td>62</td>
</tr>
<tr>
<td>Unpaid</td>
<td>21 (68%)</td>
<td>10 (32%)</td>
<td>31</td>
</tr>
<tr>
<td><strong>Intent to be Screened in Next 3 Months, n=84</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>48 (94%)</td>
<td>3 (6%)</td>
<td>51</td>
</tr>
<tr>
<td>Unpaid</td>
<td>8 (25%)</td>
<td>24 (75%)</td>
<td>32</td>
</tr>
</tbody>
</table>
Figure 4 demonstrates the change over time of paid group participants’ responses to categorical survey items. There was an increase in positive responses to confidence in knowledge and STI resources, comfort in asking healthcare provider STI related questions, a decrease in identified barriers, increased likelihood that that participant will access STI services, and intent to be screened for STIs within the next three months.

![Bar chart showing change over time of paid group participants' responses to survey items](image)

**Figure 4.** Paid group participant reported change over time to yes/no behavioral survey items

Figure 5 demonstrates the change over time of unpaid group participants’ responses to categorical survey items. There was an increase in positive responses to confidence in knowledge and STI resources and comfort in asking healthcare provider STI related questions for those participants in the unpaid group.
Figure 5. Unpaid group participant reported change over time to yes/no behavioral survey items

Figure 6 demonstrates the change over time in Likert scale means for all participants completing the study. There was a positive change in the following subscales: sexual communion, contraceptive attitudes, and self-perceived AIDs and STI risk.

Figure 6. Paid and unpaid group participant reported change over time to likert scale survey items

Figure 7 demonstrates the change over time of all group participants’ responses to categorical survey items. There was an increase in positive responses to confidence in
knowledge, comfort in asking healthcare professionals STI related questions, and intent to be screened for STIs in the next three months.

![Graph showing change over time to Likert scale survey items]

Figure 7. Paid and unpaid group participant reported change over time to likert scale survey items

Data displaying each group’s text delivery access record is presented in Table 9. It was found that after the first monetary compensation after the delivery of the Week 3 message, the number of unpaid participants decreased each subsequent week. In Week 4 only 15% of unpaid participants accessed the message whereas 68% of paid participants did. In Week 5 only 13% of unpaid participants accessed the message whereas 69% of paid participants did. Last, only 7% of unpaid participants accessed the message in Week 6 as opposed to the 54% of participants in the paid group.
### Table 9

**Mobit Technology Weekly Message Access Record by Group**

<table>
<thead>
<tr>
<th>Week</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Week 1: “Get the Facts”, Importance, Risks, Basic Statistics surrounding STIs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Paid</td>
<td>60 (77%)</td>
<td>18 (23%)</td>
</tr>
<tr>
<td></td>
<td>Unpaid</td>
<td>53 (68%)</td>
<td>25 (32%)</td>
</tr>
<tr>
<td></td>
<td>Week 2: “Talk About It”, Tips for discussing sexual health with HCP</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Paid</td>
<td>41 (53%)</td>
<td>37 (47%)</td>
</tr>
<tr>
<td></td>
<td>Unpaid</td>
<td>53 (68%)</td>
<td>25 (32%)</td>
</tr>
<tr>
<td></td>
<td>Week 3: “Know the Presence”, Signs and symptoms of common STIs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Paid</td>
<td>57 (73%)</td>
<td>21 (27%)</td>
</tr>
<tr>
<td></td>
<td>Unpaid</td>
<td>40 (51%)</td>
<td>38 (49%)</td>
</tr>
<tr>
<td></td>
<td>Week 4: “Protect Yourself”, Methods to avoid contraction of STIs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Paid</td>
<td>53 (68%)</td>
<td>25 (32%)</td>
</tr>
<tr>
<td></td>
<td>Unpaid</td>
<td>11 (15%)</td>
<td>61 (85%)</td>
</tr>
<tr>
<td></td>
<td>Week 5: “Know Your Status”, STI Testing methods explained</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Paid</td>
<td>54 (69%)</td>
<td>24 (31%)</td>
</tr>
<tr>
<td></td>
<td>Unpaid</td>
<td>9 (13%)</td>
<td>63 (87%)</td>
</tr>
<tr>
<td></td>
<td>Week 6: “Local Resources”, Listing of local and regional STI resources</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Paid</td>
<td>42 (54%)</td>
<td>36 (46%)</td>
</tr>
<tr>
<td></td>
<td>Unpaid</td>
<td>5 (7%)</td>
<td>67 (93%)</td>
</tr>
<tr>
<td></td>
<td>Extra Clicks: Participant engagement by following external websites with STI information</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Paid</td>
<td>15 (19%)</td>
<td>63 (81%)</td>
</tr>
<tr>
<td></td>
<td>Unpaid</td>
<td>4 (6%)</td>
<td>68 (94%)</td>
</tr>
</tbody>
</table>

N=156

*Number of participants decreased in the unpaid group after Week 3

**Chi Square Analysis of Interaction and Group**

A chi-square test of independence was performed to examine the relation between enrollment in the paid versus unpaid participant group and interaction with weekly delivered STI education. The relation between these variables was significant for Week 2 ($X^2 (1, N = 156) = 11.778, p = .001$); Week 4 ($X^2 (1, N = 156) = 34.281, p < .001$; Week 5($X^2 (1, N = 156) = 40.655, p < .001$); and Week 6 ($X^2 (1, N = 156) = 32.390, p < .001$). Paid group participants were more likely to interact with weekly text messages than unpaid group participants during these weeks. Week 1 ($X^2 (1, N = 156) = .459, p = .498$) and Week 3 ($X^2 (1, N = 156) = 1.628, p = .202$).
interaction showed no significance between paid and unpaid participants. Overall, there was significant effect on whether or not the participant was a paid or unpaid member of the study and access of the educational text message.

**Moderator Effect**

Simple linear regression ANOVA revealed that the number of educational intervention views before and after compensation overall for both groups was not statistically significant \( F(1,3) = 1.048, p = .406 \). Further, simple linear regression revealed that the number of educational intervention views per week was statistically significant \( F(1,11) = 5.348, p = .043 \) based on random assignment to the paid or unpaid group. This confirmed that compensation was the main factor in motivating interaction with the education rather than other varying factors such as delivery of education through the use of technology.

**Between and Within Subject Effects**

Sexual attitude change scores were subjected to a two-way analysis of variance having two levels of message engagement (unpaid, paid) exploring between subject variance and two levels of source expertise (before education, after education) exploring within group variance. Two of six effects were statistically significant at the .05 significance level.

The main effect of message engagement for self-perceived STI risk yielding an \( F = 0.397, df = 105, p = .530 \), indicating that there was no significant difference in pretest and posttest for the group as a whole. The interaction effect of message discrepancy for self-perceived STI risk yielded an \( F = 0.070, df = 105, p = .001 \), indicating that the mean change score was significantly greater for those randomly assigned to the paid group than for the unpaid group. Main effects of self-perceived AIDs risks yielded an \( F = 0.043, df = 105, p = 0.836 \), indicating that there was no significant difference in pretest and posttest scores for the group as a
whole. Similar interaction group effects existed for self-perceived AIDs risk yielding an
\[ F = 0.43, df = 105, p < 0.001, \] indicating that the mean change score was also significantly
greater for those randomly assigned to the paid group than for the unpaid group.

Main and interaction effects were all insignificant for condom use attitudes, sexual
permissiveness, sexual communion, and contraceptive attitudes. Main effects for condom use
attitudes yielded an \[ F = .338, df = 1, p = .563 \] and interaction effect yielded an \[ F = .186, df = 105, p = .668, \] indicating that the mean change score for those assigned to the paid and unpaid
group was insignificant in comparison as well as pretest and posttest scores for the sample group
as a whole. Main effects for sexual permissiveness yielded an \[ F = 1.057, df = 1, p = .307 \] and
interaction effect yielded an \[ F = 1.941, df = 105, p = .167, \] indicating that the mean change score
for those assigned to the paid and unpaid group was insignificant in comparison as well as pretest
and posttest scores for the sample group as a whole. Main effects for sexual communion yielded
an \[ F = .1312, df = 105, p = .255 \] and interaction effect yielded an \[ F = .024, df = 1, p = .879, \]
indicating that the mean change score for those assigned to the paid and unpaid group were
insignificant in comparison as well as pretest and posttest scores for the sample group as a
whole. Main effects for contraception attitudes yielded an \[ F = .082, df = 1, p = .775 \] and
interaction effect yielded an \[ F = 1.431, df = 105, p = .235, \] indicating that the mean change score
for those assigned to the paid and unpaid group was insignificant in comparison as well as pretest
and posttest scores for the sample group as a whole.

**Chi Square Analysis of Group and Categorical Survey Item Data**

A chi-square test of independence was performed to examine the relationship between
enrollment in the paid versus unpaid participant group and interaction with confidence in STI
knowledge before and after participation in ISHK educational intervention, perception of barriers
to education and screening, comfort in asking healthcare professional questions concerning STI information, access of STI education and screening services, and intent to be screened within the next three months. The relation between these variables was significant for confidence \( \chi^2 (1, N = 107) = 3.112, p = .048 \) and barriers \( \chi^2 (1, N = 107) = 2.301, p = .029 \), but statistically insignificant for comfort \( \chi^2 (1, N = 107) = 2.799, p = .094 \), access \( \chi^2 (1, N = 107) = 5.464, p = .243 \) and intent \( \chi^2 (1, N = 107) = 0.040, p = .841 \).

**Analysis of the Data Compared to the Research Questions**

Research question 1: Is the use of monetary incentives in STI education and prevention a viable method to increase the effectiveness of education provided to adolescent and young adult female college students? According to the results of the chi square analysis, there was a difference in engagement with text messages in Weeks 2, 4, 5, and 6 with the paid group engaging with these messages more than the unpaid group. In addition, according to the 2 x 2 ANOVA, there was a significant difference in engagement with the text messages. Simple linear regression ANOVA revealed that the number of educational intervention views per week was statistically significant \( F(1,11) = 5.348, p = .043 \) based on random assignment to the paid or unpaid group, confirming that the paid group was more likely to engage with delivered messages containing STI education. In addition, simple linear regression ANOVA revealed that the number of educational intervention views before and after compensation overall for both groups was not statistically significant \( F(1,3) = 1.048, p = .406 \), confirming compensation was the main factor in motivating engagement with the education rather than other factors.

Research question 2: Will there be a change over time in reported healthy sexual behaviors and intent to be tested for STIs among students who participate in the Increasing Sexual Health Knowledge (ISHK) Program? There was a statistically significant difference
before and after the educational intervention in the following areas: confidence in knowledge regarding STI education resources and self-perceived barrier identification to STI screening and education resources. According to main effects examined in the study by within group means, there was no statistically significant difference in attitudes for participants before and after the educational intervention in the following areas: condom use attitudes, sexual permissiveness, sexual communion and contraceptive attitudes, STI self-perceived risk, AIDs self-perceived risk, comfort with asking healthcare professionals STI related questions, intent to be screened for STIs within three months, and if the participant had accessed screening and educational services.

When examining pretest and posttest data there was, according to Figure 7, a small positive change in the following subscales: sexual communion, contraceptive attitudes, and self-perceived AIDs and STI risk. According to Figure 7, there was a small increase in positive responses to confidence in knowledge, comfort in asking healthcare professionals STI related questions, and intent to be screened for STIs in the next three months. Although not statistically significant, there was a small change in categories in the overall group of participants.

**Research question 3: Will there be a difference in sexual attitudes, STI knowledge, and reported STI screening rates among participants in the experimental group versus the control group after completion of the ISHK program?** According to the interaction effects in this study there was a significant difference in change in STI and AIDs self-perceived risk between the experimental and control group as well as a significant change in confidence in knowledge regarding STI education resources and self-perceived barrier identification to STI screening and education resources between the control and experimental group in the study. The paid group saw more positive change in attitudes and behaviors in the preceding categories than counterparts in the unpaid group.
Research question 4: What are reported motivators and deterrents to accessing STI education and prevention services? What role do they play in influencing behavioral and attitude outcomes? As an exploratory analysis, simple descriptive statistics described identified barriers to education and screening in the study population. A total of 30% (N=156) of all participants reported barriers to screening and education access on the pretest including embarrassment (n=22), fear of confidentiality from parents or other loved ones (n=15), and cost of testing or insurance (N=8). At the conclusion of the study a total of 37% (N=107) of all participants reported barriers to screening and education access, including embarrassment (N=12) and cost (N=6).
CHAPTER 5:
DISCUSSION AND RECOMMENDATIONS

The purpose of this experimental study was to explore the effects of monetary incentives on the interaction with STI education and prevention materials in 18 to 24-year-old females enrolled in a large, public Southeastern university. This study was conducted due to the high rates of STIs currently diagnosed each year in the United States and worldwide despite the number of prevention and education programs currently available. The literature showed that novel ways of increasing engagement with STI screening and education programs through monetary incentive had the ability to overcome reported barriers including cost, embarrassment, stigma, and fear of confidentiality.

This study examined three research questions with a fourth exploratory research question:

1. Is the use of monetary incentives in STI education and prevention a viable method to increase the effectiveness of education provided to adolescents and young adult female college students?

2. Will there be a change over time in reported healthy sexual behaviors and intent to be tested for STIs among students who participate in the Increasing Sexual Health Knowledge (ISHK) Program?

3. Will there be a difference in sexual attitudes, STI knowledge, and reported STI testing rates among participants in the experimental group versus the control group after completion of the ISHK program?
4. Do college aged females from 18 to 24 years of age report self-perceived barriers to accessing STI education and testing services? What are reported motivators and deterrents to accessing STI education and prevention services and what role do they play in influencing behavioral and attitude outcomes? This chapter will discuss conclusions based on the results of the study, the relationship of study findings to literature, limitations of the study, and implications for future research.

Discussion of Results

A voluntary convenience sample of 156 undergraduate female students from a large Southeastern University completed this research study. The sample consisted of mainly White (87%), senior (63%), and age 21 (38%) females. The sample included two groups of randomly assigned participants in a paid group (N=78) and unpaid group (N=78). Each participant completed the educational intervention beginning with a pretest and concluding with a posttest in the fall semester of 2018. The surveys consisted of demographic data and sexual behaviors and attitudes in the form of Likert scale and categorical data items. The educational intervention consisted of six weekly content rich text messages delivered to the participant’s smart phone with STI education materials by Mobit Technology.

In this research study, there was a difference in engagement with the text messages between the paid and unpaid group. The participants who were paid for their participation demonstrated higher rates of interaction with the majority of the weekly delivered messages, and unpaid group participants had a sharp decline in participation following the delivery of the first of two payments at the halfway point of the study. There was also a statistically significant difference in some self-reported attitudes and behaviors between the paid and unpaid group including STI and AIDS self-perceived risk, confidence in knowledge regarding STI education
resources, and self-perceived barrier identification to STI screening and education resources. There was a not a statistically significant difference within the participant group as a whole from the pretest to posttest; however, small changes in attitudes occurred in the following categories: sexual communion, contraceptive attitudes and self-perceived AIDS and STI risk, confidence in knowledge, comfort in asking healthcare professionals STI related questions, and intent to be screened for STIs in the next three months. There were reported barriers to screening and education by both the paid and unpaid group, including cost of testing, fear of lack of confidentiality, and embarrassment. Report of barriers decreased overall in participants after the educational intervention.

The results of this study answered four research questions due to the lack of available literature exploring this topic in this specified population: 1) Is the use of monetary incentives in STI education and prevention a viable method to increase the effectiveness of education provided to adolescents and young adult female college students? 2) Will there be a change over time in reported healthy sexual behaviors and intent to be tested for STIs among students who participate in the Increasing Sexual Health Knowledge (ISHK) Program? 3) Will there be a difference in sexual attitudes, STI knowledge, and reported STI testing rates among participants in the experimental group versus the control group after completion of the ISHK program? 4) Do college aged females from 18 to 24 years of age report self-perceived barriers to accessing STI education and testing services? What are reported motivators and deterrents to accessing STI education and prevention services and what role do they play in influencing behavioral and attitude outcomes? There were differences in the paid and unpaid group’s engagement with the text delivered education, however there was not enough difference overall in attitudes and
behaviors to confirm that the compensation of participants changed one group more than the other.

**Relationship to Literature**

The literature review revealed that monetary incentive has the ability to increase participation in STI education and screening programs thus changing health behaviors over time (Baird et al., 2009; Harman, 2011; Heise et al., 2013; Packel et al, 2012; Palinkas et al., 2015; Reisner et al., 2008; Schuster et al., 2016), which is similar to the results of this study. The majority of studied populations in the literature review include low income populations, opening a new population of interest in this particular study. The two groups in this study, the paid and unpaid participants, interacted differently with text messages following the third message and compensation of the first half of the $50 provided for completing the study. Overall, unpaid participants’ engagement with educational materials delivered greatly declined following the first monetary compensation halfway through the study. This result demonstrated that money was a motivator in the intervention. Those in the unpaid group who engaged with the educational materials throughout the course of the study following the lack of compensation could have continued due to the ease of delivery and access. Literature also revealed the success and growing use of technology to reach adolescents and young adults with health information and knowledge (Aicken et al., 2016; CDC, 2013b; Burns et al., 2016; Villegas et al., 2016), which could have remained a motivator to them to continue in the study and interacting with the education.

The results of the study did not reveal a statistically significant difference in change of reported attitudes and behaviors between paid and unpaid participants before and after the educational intervention in opposition to the literature (deWalque et al., 2012; Gallaraga et al.,
2014; Saxena et al., 2016). This could be due to a number of reasons. When reviewing the baseline attitudes and behaviors from the pretest, it was found that overall, participants reported attitudes and behaviors considered healthy by the measure subscales. When reviewing sexual demographic history, however, more than 35% of participants indicated they have had six or more lifetime sexual partners which is considered a risk for contracting STIs (CDC, 2013). This disconnect in self-perceived attitudes and behaviors could be attributed to report of survey data and the discomfort with admitting the truth even when anonymous. This phenomenon is called social desirability bias and refers to the fact that in self-reports, people will many times report inaccurately on sensitive topics to present themselves in a better light (Fisher, 1993). With STI prevention and screening being a sensitive behavioral topic, this could explain the disconnect in some of the reported behaviors. Another explanation for the number of positive pretest subscales could be the number of nursing students sampled in the study (approximately 60%). Nursing school curriculum includes information concerning STI education, which could play a role in the amount of knowledge many participants began the study possessing. Time could also be a determinant in the lack of statistically significant change in reported behaviors and attitudes. The educational intervention took place over the course of six weeks; more time could have been required for inherent beliefs and actions to change within the study population.

The results of the study did support the literature in reported barriers to screening uptake and access of educational programs (Avuvika et al., 2017; Thatte et al., 2016; Yueng et al., 2015). A total of 30% (N=45) of all participants reported barriers to screening and education access on the pretest including embarrassment (N=22), fear of confidentiality from parents or other loved ones (N=15), and cost of testing or insurance (N=8). At the conclusion of the study a total of 37% (N=25) of all participants reported barriers to screening and education access
including embarrassment (N=12) and cost (N=6). It is inconclusive whether this study decreased self-perception of barriers to the participants. Another barrier explored in the literature review was affiliation with a Greek organization. Out of all the participants, 14% identified as a member of a Greek house on campus. As an exploratory analysis, cue to action of screening and risk severity was analyzed for those identifying as Greek. On the posttest (N=43), only 15 (35%) members of Greek houses reported they intended to be tested within three months and the majority of respondents did not feel as though they were at risk of contracting STIs or AIDS, with a mean subscale score of 3.4. These results are similar to the literature supporting that those associated with Greek organizations have increased risk due to lack of self-perceived risk and socially endorsed behaviors (Scott-Sheldon et al., 2007).

The theoretical framework that guided this study, suggested that situational factors, motivators, deterrents, and a path to action all influence and impact desirable health behaviors (Jones et al., 2015). The Health Belief Model, through the results of this study, was a positive starting point for understanding sexual health behaviors and attitudes, but would be most useful in conjunction with other more explanatory models suggesting in-depth strategies for changing sexual health-related behaviors. Situational factors including monetary incentive delivery and text message delivery of education both were successful in engaging participants with the intervention. There was a statistically significant relationship between paid participants and interaction with the education in Weeks 4, 5, and 6 after the first incentive was delivered. There were also a number of participants in the paid group who viewed Week 4 (N=11), Week 5 (N=9), and Week 6 (N=5). Ease of access through smart phone could have been a determining factor in education. Motivators including knowledge concerning resources, STI and AIDS self-perceived risk all had positive change. Deterrents including barriers to screening and education
were identified as well as a positive change in confidence in speaking to healthcare professionals about STI related topics. Benefits identified included monetary gain from participating in the study. Overall, the intended goal of healthy behavior was achieved: participation and interaction with STI education, some reported positive changes in risky sexual behaviors and some reported intent to be screened for an STI within the next three months. Although not all changes were statistically significant based on assignment into the paid or unpaid group, there were still small changes in behavior overall.

**Limitations to the Study**

There are a number of identified limitations that may have affected validity of this particular study. First, selection bias could have affected the validity of this study. The study participants were recruited and selected through a convenience sample of undergraduate female students at a large Southeastern University. Therefore, the findings may not be consistent with other college students from private institutions or from colleges outside of the Southeast. The participants may have not fully disclosed correct information regarding questions due to their sensitive nature. Another identified threat to the validity of this study is the lack of diversity within the study sample. The study participants were mainly White (99%) nursing (60%) students primarily aged 21-24 (70%). Therefore, the homogeneity of the study sample may cause the results to not be generalized to diverse populations of students.

In discussion of the majority of participants being enrolled in nursing, it is possible that the already favorable baseline knowledge, attitudes and behaviors could be attributed to the foundational knowledge from a traditional nursing school curriculum. In addition social desirability bias or the desire of the participant to provide information he or she believes the
investigator wants to hear could have been reasoning for the generally positive responses on the pretest.

**Future Implications and Conclusion**

Despite identified limitations to the study, results revealed that monetary compensation has the ability to incentivize college age females to participate in and interact with an STI related educational intervention (Baird et al., 2009; Harman, 2011; Heise et al., 2013; Packel et al., 2012; Palinkas et al., 2015, Reisner et al., 2008, Schuster et al., 2016). The review of literature revealed favorable results in the use of monetary incentive to encourage low-income individuals to partake in STI and AIDS screening and education programs. In addition, the literature discussed existence of numerous barriers to access of screening uptake and education in adolescent and young adults such as fear of stigma, embarrassment, cost, confidentiality concerns, and socialized norms (Avuvika et al., 2017, Thatte et al., 2016, Yueng et al., 2015). The identification and understanding of these concepts is important to combat the growing worldwide problem with increased STI rates and negative sequelae from the lack of treatment (CDC, 2015). Young adults and adolescents are being diagnosed with STIs such as chlamydia, gonorrhea, and syphilis at alarming rates throughout the US and worldwide (CDC, 2015). There is little to limited research that explores STI prevention and innovative programs in college age females. In particular, there is limited research that explores the use of monetary incentive to increase participation in STI programs in this population. Additionally, this study uncovered mixed results in positive change of behaviors and attitudes related to STI prevention and education. Further research exploring a more diverse sample with less favorable initial STI related behaviors and attitudes would give greater insight into the ability for change with increased interaction with education through incentivization. It would also provide public health
officials and program planners with valuable information to plan population appropriate and meaningful interventions to decrease the amount of diagnosed STIs in this population as well as risky sexual behaviors. In addition to increased exploration into behaviors of females enrolled in college, future research could explore changes in attitudes and behaviors of women ages 18 to 24 not enrolled in college. A convenience sample was used to complete this study; however, there may be a knowledge gap in females who have had little to no higher education exposure.

Last, this study has the potential to impact nursing education and curriculum greatly. With innovative methods of education needed to increase engagement, newer ways of discussing education with nursing students is also needed. Curriculum critique and redesign could possibly be completed to determine if best methods of education are being provided to nursing students to ensure up to date and innovative delivery of STI related materials. More discussion about the nature of discussing sensitive health information related to sexual behaviors and attitudes with clients and the use of technology to deliver further education could be topics of increased inclusion into curriculum.

Meaningful and purposeful interventions need further research to combat the growing problem of STIs in today’s healthcare environment. With increased healthcare spending on the treatment of STIs, the reallocation of funds from treatment to prevention through incentivization could provide a needed change in the way public health is viewed and managed. Technology delivered education has also shown great promise in a world that is device driven. Utilizing new methods such as incentive and technology to increase participation with meaningful education and screening uptake with already established programs could prove useful in overcoming identified barriers in young adults and adolescent females who are most at risk for contracting STIs and experiencing negative outcomes from lack of treatment. This study served as an initial
exploration into the ability of monetary incentivization to prove effective. With initial favorable results, increased research is warranted.
REFERENCES


APPENDIX A:

THEORETICAL FRAMEWORK MODEL
APPENDIX B:

INCREASING SEXUAL HEALTH KNOWLEDGE, STI PREVENTION, AND EDUCATION PROGRAM
Experimental Group

- Pretest
  - Text Delivery (3)
  - Monetary Incentive Delivery ($25)
  - Text Delivery (3)

  - Posttest
    - Monetary Incentive Delivery ($25)

Control Group

- Pretest
  - Text Delivery (3)

  - No Monetary Incentive Delivery
  - Text Delivery (3)

  - Posttest
    - No Monetary Incentive Delivery
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| Pretest       | • Demographic Data Survey  
|               |   • Brief Sexual Attitudes Survey  
|               |   • National Sexual Health Survey  
|               |   • Youth Risk Behavior Survey |
| Text Message 1 | • “Get the Facts”  
|               |   • Importance, risk, basic statistics |
| Text Message 2 | • “Talk about it”  
|               |   • Tips for discussing sexual health with healthcare practitioner |
| Text Message 3 | • “Know the Presence”  
|               |   • Signs and symptoms of common STIs |
| Text Message 4 | • “Protect Yourself”  
|               |   • Methods to avoid contraction of STIs |
| Text Message 5 | • “Know your Status”  
|               |   • Testing method explanation |
| Text Message 6 | • “Local Resources”  
|               |   • List local and regional resources for testing |
| Posttest      | • Brief Sexual Attitudes Survey  
|               |   • National Sexual Health Survey  
|               |   • Youth Risk Behavior Survey |
APPENDIX D:

COHORT DELIVERY TIMELINE
<table>
<thead>
<tr>
<th>Table: Cohort 1 Intervention Dates</th>
<th>9/19/18-9/25/18</th>
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APPENDIX E:

TEXT MESSAGES
Sexually Transmitted Infections/Diseases take a huge toll on young people. They account for over 20 million new STD infections in the US every year. STDs can be spread during vaginal, oral or anal sex. Some STDs also can be spread by other types of contact—for example, skin to skin contact with infected sores.

Everyone needs to take steps to prevent STDs. Knowing your risk and the facts about STDs is the first step. Young people are able to protect themselves from STDs by getting tested and reducing risky behaviors.
Talking to your healthcare provider whether that is a nurse practitioner or a doctor about your sexual history is very important in knowing your risk of getting an STD. It can sometimes be embarrassing, but it is important to find a provider you are comfortable talking to about sexual health.

Look for a doctor or nurse practitioner who:

- Treats you with respect
- Listen to your opinions and concerns
- Encourages you to ask questions
- Explains things in ways you understand
- Recommends services like testing and shots
- Treats many health problems like STDs

Watch this brief video about talking sexual health with your healthcare provider.

https://youtu.be/dvmb9eUu0p4

Here are a few questions you should expect and be prepared to answer honestly:

- Have you been sexually active in the last year?
- Do you have sex with men, women, or both?
- In the past 12 months, how many sexual partners have you had?
- Do you have anal, oral, or vaginal sex?
- What are you doing to protect yourself from STDs?
We will discuss signs you may have one of the top three reportable STDs: chlamydia, gonorrhea and syphilis. These three can be cured but many times have no symptoms. It is important to be tested regularly for each of these.

Women with symptoms of chlamydia may notice
- An abnormal vaginal discharge;
- A burning sensation when urinating.

Women can also get infected with chlamydia in their rectum and notice
- Rectal pain
- Discharge
- Bleeding

You can get gonorrhea by having vaginal, anal, or oral sex with someone who has gonorrhea. Most women with gonorrhea do not have any symptoms. Even when a woman has symptoms, they are often mild and can be mistaken for a bladder or vaginal infection. Women with gonorrhea are at risk of developing serious complications from the infection, even if they don’t have any symptoms.

Symptoms in women can include:
- Painful or burning sensation when urinating;
- Increased vaginal discharge;

Vaginal bleeding between periods. Rectal infections may either cause no symptoms or cause symptoms in both men and women that may include:
- Discharge;
- Anal itching;
- Soreness;
- Bleeding;
- Painful bowel movements.
You can get syphilis by direct contact with a syphilis sore during vaginal, anal, or oral sex. You can find sores on or around the penis, vagina, or anus, or in the rectum, on the lips, or in the mouth. Symptoms of syphilis vary by stage:

- **Stage 1**: firm, round and painless sores lasting 3-6 weeks. The sore is located where syphilis entered your body.
- **Stage 2**: skin rashes and lesions in the mouth or genital area (vagina and rectum). The rash can look like rough, red spots. Fever, swollen lymph nodes, sore throat, hair loss, head and muscle aches, weight loss and feeling tired.
- **Latent stage**: a period of time where no symptoms occur. If you do not receive treatment, you can have syphilis in your body for months to years with no symptoms.
- **Tertiary stage**: can occur 10-30 years after the infection began. At this stage, internal organs and death can happen.

The three of these STDs listed CAN be treated when tested or symptoms occur. There are others out there that CANNOT be cured such as herpes, HPV, HIV and Hepatitis B. To learn more about these STDs visit the following site:

[https://www.cdc.gov/std/default.htm](https://www.cdc.gov/std/default.htm)
Text Message 4
Not having sex is the only sure way to avoid getting STDs through sex. There are other ways to show affection, such as hugging or talking. If you do have sex:

- Be sure to use a latex condom **every time**. They do not make sex 100% safe, but they can help protect against STDs. Remember, condoms can slip or break and certain STDs can be caused by contact with infected areas not covered by a condom. Use a new condom for each sex act.
- If allergic to latex, ask your doctor or nurse practitioner about other options. Lambskin condoms do not protect against STDs.
- Stay faithful to one uninfected sex partner.
- Never mix alcohol and other drugs with sex, because they are more likely to affect your risk.

**If you do have sex, use DUAL PROTECTION.**

Even if you or your partner is using another type of birth control, agree to use a condom every time you have sex, to reduce the risk to both of you for HIV and most other STDs.

**Remember!**
- Use a condom and birth control.
- Condoms must be used correctly and used every time you have sex.
- Sometimes you or your partner might not know if one of you has an STD.
How do you put a condom on correctly?

The condom should be put on before any genital contact. Sperm may come out of the penis before the male ejaculates, so put the condom on before any skin-to-skin contact begins. You should also know that some STDs can be transmitted without intercourse, through genital (skin-to-skin) contact. To reduce the risk of pregnancy and STDs (including HIV), males need to wear a condom the entire time from the beginning to the end of genital contact, each and every time.

1. When you are opening the package, gently tear it on the side. Do not use your teeth or scissors because you might rip the condom that's inside. Pull the condom out of the package slowly so that it doesn't tear.

2. Put the rolled up condom over the head of the penis when it is hard.

3. Pinch the tip of the condom enough to leave a half inch space for semen to collect.

4. Holding the tip of the condom, unroll it all the way down to the base of the penis.

https://youtu.be/EdSq2HB7jqU
Text Message 5
Nervous about being tested? Don’t be! Knowing your status is so important! Watch this video about “Molly’s” experience being tested:

https://youtu.be/kyA7zbjF26g

When should you be tested?
- Everyone age 13-64 should be tested for HIV at least once.
- All sexually active women younger than 25 should be tested for chlamydia and gonorrhea once a year.
- Anyone with unsafe sex practices or shares injection drug equipment should be tested for HIV once a year.
- You may also need regular pap smears as decided by your doctor or nurse practitioner.

How is it done?
- Depending on the type of test being done you might urinate in a cup, have your blood drawn or have a vaginal swab taken.

Is testing confidential and where is it done?
Yes! Testing is confidential and can be done at any public health facility, private doctor’s office, student health center or doc-in-the-box.
Stay tuned to your next weekly message for local testing services!
What are risks of not being tested?

- Knowing your status is important to be treated if you are positive for an STD.
- If women are not treated for chlamydia or gonorrhea it can lead to pelvic inflammatory disease, a painful infection of a woman’s reproductive organs, or can make it difficult or impossible to get pregnant.
Text Message 6

There are many resources to reach out to for further STD testing and education locally.

Tuscaloosa County Health Department
2350 Hargrove Road East Tuscaloosa, AL 35405
205-562-6900

Five Horizons Health Services
2720 6th Street Tuscaloosa, AL 35401
205-759-8470
*Second floor of the United Way Building-enter in back
Now, you have gotten a lot of information about STIs, have you opinions and behaviors changed?

To complete this study, follow this link to take the post-test.
APPENDIX F:

INCREASING SEXUAL HEALTH KNOWLEDGE
PRETEST AND POSTTEST
Increasing Sexual Health Knowledge Pretest

**Demographic Data**

1. Participant Created Identifier (Last two digits of campus wide ID, plus year of birth [ie, 1987 would be 87], plus first initial: ______________)

2. What is your age?
   a. 18
   b. 19
   c. 20
   d. 21
   e. 22
   f. 23
   g. 24
   h. 25

3. What would best describe you?
   a. African American
   b. Asian
   c. Hispanic or Latino
   d. Native American
   e. White (Caucasian)
   f. Other (please specify)

4. What is your class ranking?
   a. Freshmen
   b. Sophomore
   c. Junior
   d. Senior

5. What would you consider your relationship status?
   a. Single
   b. In a relationship
   c. Engaged
   d. Married

6. Greek affiliation:
   a. Yes
   b. No

7. College:
   a. Arts and Sciences
   b. Business
   c. Communications
   d. Social Work
   e. Nursing
f. Human Environmental Sciences
g. Engineering
h. Education
i. Community Health Sciences
j. Other
k. Undeclared

**Sexual History**

8. Have you ever had sexual intercourse?
   a. Yes
   b. No

9. How old were you when you had sexual intercourse for the first time?
   a. I have never had sexual intercourse
   b. 11 years old or younger
   c. 12 years old
   d. 13 years old
   e. 14 years old
   f. 15 years old
   g. 16 years old
   h. 17 years old or older

10. During your life, with how many people have you had sexual intercourse?
    a. I have never had sexual intercourse
    b. 1 person
    c. 2 people
    d. 3 people
    e. 4 people
    f. 5 people
    g. 6 or more people

11. During the past 3 months, with how many people did you have sexual intercourse?
    a. I have never had sexual intercourse
    b. I have had sexual intercourse, but not during the past 3 months
    c. 1 person
    d. 2 people
    e. 3 people
    f. 4 people
    g. 5 people
    h. 6 or more people
12. Did you drink alcohol or use drugs before you had sexual intercourse the last time?
   a. I have never had sexual intercourse
   b. Yes
   c. No

13. The last time you had sexual intercourse; did you or your partner use a condom?
   a. I have never had sexual intercourse
   b. Yes
   c. No

14. During your life, with whom have you had sexual contact?
   a. I have never had sexual contact
   b. Females
   c. Males
   d. Females and males

15. Which of the following best describes you?
   a. Heterosexual (straight)
   b. Gay or lesbian
   c. Bisexual
   d. Not sure
   e. Other: __________(Fill in the blank)

Condom Use Attitudes
16. Using condoms is immoral.
   a. Agree a lot
   b. Kind of agree
   c. Kind of disagree
   d. Disagree a lot
   e. Don’t know

17. It is embarrassing to buy condoms in a store.
   a. Agree a lot
   b. Kind of agree
   c. Kind of disagree
   d. Disagree a lot
   e. Don’t know

18. Condoms take all of the fun out of sex.
   a. Agree a lot
   b. Kind of agree
   c. Kind of disagree
   d. Disagree a lot
   e. Don’t know
19. Using condoms is a good way to protect your sex partner from disease people can get through sex.
   a. Agree a lot
   b. Kind of agree
   c. Kind of disagree
   d. Disagree a lot
   e. Don’t know
20. It’s hard to find places to buy condoms.
   a. Agree a lot
   b. Kind of agree
   c. Kind of disagree
   d. Disagree a lot
   e. Don’t know
21. Condoms are just too much of a hassle to use.
   a. Agree a lot
   b. Kind of agree
   c. Kind of disagree
   d. Disagree a lot
   e. Don’t know
22. People should always use a condom when having sex with a new person.
   a. Agree a lot
   b. Kind of agree
   c. Kind of disagree
   d. Disagree a lot
   e. Don’t know

Permissiveness
23. I do not need to be committed to a person to have sex with him/her.
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral—neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement
24. Casual sex is acceptable
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral—neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement
25. I would like to have sex with many partners
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral—neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

26. One night stands are sometimes very enjoyable
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral—neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

27. It is okay to have ongoing sexual relationships with more than one person at a time
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral—neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

28. Sex as a simple exchange of favors is okay if both people agree to it
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral—neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

29. The best sex is with no strings attached
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral—neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

30. Life would have fewer problems if people could have sex more freely
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral—neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement
31. It is possible to enjoy sex with a person and not like that person very much.
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

32. It is okay for sex to be just good physical release
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

**Sexual Communion**

33. Sex is the closest form of communication between two people
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

34. A sexual encounter between two people deeply in love is the ultimate human interaction
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

35. At its best, sex seems to be the merging of two souls
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

36. Sex is a very important part of life
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement
37. Sex is usually an intensive, almost overwhelming experience
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

Birth Control Attitudes
38. A woman should share responsibility for birth control
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

39. A man should share responsibility for birth control
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

40. Birth control is part of sexual responsibility
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

Status and Risk Identification
41. Have you ever been tested for the AIDS virus?
   a. Yes
   b. No
   c. Don’t know

42. How many times have you had the AIDS virus test done before?
43. In what month and year were you most recently tested?
   a. ________________
   b. Don’t know

44. What was the result of your most recent AIDS/HIV test?
   a. Positive
   b. Negative
   c. Test was required so I was never notified, so I assume I am negative
   d. Don’t know
45. In the next five years, it is likely or unlikely that you will get the AIDS virus?
   a. Very likely
   b. Somewhat likely
   c. Somewhat unlikely
   d. Very unlikely
   e. I already have the AIDS virus
   f. Don’t know

46. In the next five years, it is likely or unlikely that the average woman in your age group in the United States will get the AIDS virus?
   a. Very likely
   b. Somewhat likely
   c. Somewhat unlikely
   d. Very unlikely
   e. Don’t know

47. Syphilis, gonorrhea, chlamydia, crabs, genital herpes are all types of sexually transmitted infections. Have you ever had a doctor or nurse tell you that had a sexually transmitted infection?
   a. Yes
   b. No
   c. Don’t know

48. If you have had a sexually transmitted infection, did you seek treatment?
   a. Yes
   b. No
   c. Not applicable

49. If you did seek treatment, where did treatment sought?
   a. Public health department
   b. Student health center
   c. Private physician’s office
   d. Other
   e. Not applicable

50. In the next five years, is it likely or unlikely that you will get a sexually transmitted infection?
   a. Very likely
   b. Somewhat likely
   c. Somewhat unlikely
   d. Very unlikely
   e. Currently have a sexually transmitted infection
   f. Don’t know
51. In the next five years, is it likely or unlikely that the average woman in your age
group in the United States will get a sexually transmitted infection?
   a. Very likely
   b. Somewhat likely
   c. Somewhat unlikely
   d. Very unlikely
   e. Currently have a sexually transmitted infection
   f. Don’t know

**Use and Perception of Education and Prevention Services**

52. Have you ever visited a health facility or doctor’s office of any kind to receive
   services or information concerning contraception, pregnancy, abortion, or sexually
   transmitted infections?
   a. Yes
   b. No

53. During this visit, did you feel comfortable enough to ask questions?
   a. Yes
   b. No
   c. Not applicable

54. Do you feel as though you face any barriers to seeking testing or education such as
   embarrassment or fear of lack of confidentiality?
   a. Yes
   b. No

55. Do you feel confident in your knowledge on local resources in which sexually
   transmitted infection education or testing services are located?
   a. Yes
   b. No

56. In the next three months, do you plan on seeking out additional sexually transmitted
   infection education or testing services?
   a. Yes
   b. No

57. Additional item on posttest for those in experimental group. A link will direct
   participant to separate survey asking for their CWID and last name. This will be used
to compensate them for their participation. (This idea was strongly suggested by
IRB).
Increasing Sexual Health Knowledge Experimental Group Posttest

**Demographic Data**
1. Participant Created Identifier (Last two digits of campus wide ID, plus year of birth [ie, 1987 would be 87], plus first initial:______________

**Sexual History**
2. Have you ever had sexual intercourse?
   a. Yes
   b. No
3. How old were you when you had sexual intercourse for the first time?
   a. I have never had sexual intercourse
   b. 11 years old or younger
   c. 12 years old
   d. 13 years old
   e. 14 years old
   f. 15 years old
   g. 16 years old
   h. 17 years old or older
4. During your life, with how many people have you had sexual intercourse?
   a. I have never had sexual intercourse
   b. 1 person
   c. 2 people
   d. 3 people
   e. 4 people
   f. 5 people
   g. 6 or more people
5. During the past 3 months, with how many people did you have sexual intercourse?
   a. I have never had sexual intercourse
   b. I have had sexual intercourse, but not during the past 3 months
   c. 1 person
   d. 2 people
   e. 3 people
   f. 4 people
   g. 5 people
   h. 6 or more people
6. Did you drink alcohol or use drugs before you had sexual intercourse the last time?
   a. I have never had sexual intercourse
   b. Yes
   c. No
7. The last time you had sexual intercourse; did you or your partner use a condom?  
   a. I have never had sexual intercourse  
   b. Yes  
   c. No  
8. During your life, with whom have you had sexual contact?  
   a. I have never had sexual contact  
   b. Females  
   c. Males  
   d. Females and males  
9. Which of the following best describes you?  
   a. Heterosexual (straight)  
   b. Gay or lesbian  
   c. Bisexual  
   d. Not sure  
   e. Other: __________(Fill in the blank)  

**Condom Use Attitudes**  
10. Using condoms is immoral.  
   a. Agree a lot  
   b. Kind of agree  
   c. Kind of disagree  
   d. Disagree a lot  
   e. Don’t know  
11. It is embarrassing to buy condoms in a store.  
   a. Agree a lot  
   b. Kind of agree  
   c. Kind of disagree  
   d. Disagree a lot  
   e. Don’t know  
12. Condoms take all of the fun out of sex.  
   a. Agree a lot  
   b. Kind of agree  
   c. Kind of disagree  
   d. Disagree a lot  
   e. Don’t know
13. Using condoms is a good way to protect your sex partner from disease people can get through sex.
   a. Agree a lot
   b. Kind of agree
   c. Kind of disagree
   d. Disagree a lot
   e. Don’t know

14. It’s hard to find places to buy condoms.
   a. Agree a lot
   b. Kind of agree
   c. Kind of disagree
   d. Disagree a lot
   e. Don’t know

15. Condoms are just too much of a hassle to use.
   a. Agree a lot
   b. Kind of agree
   c. Kind of disagree
   d. Disagree a lot
   e. Don’t know

16. People should always use a condom when having sex with a new person.
   a. Agree a lot
   b. Kind of agree
   c. Kind of disagree
   d. Disagree a lot
   e. Don’t know

Permissiveness

17. I do not need to be committed to a person to have sex with him/her.
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

18. Casual sex is acceptable
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement
19. I would like to have sex with many partners
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

20. One night stands are sometimes very enjoyable
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

21. It is okay to have ongoing sexual relationships with more than one person at a time
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

22. Sex as a simple exchange of favors is okay if both people agree to it
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

23. The best sex is with no strings attached
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

24. Life would have fewer problems if people could have sex more freely
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement
25. It is possible to enjoy sex with a person and not like that person very much.
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

26. It is okay for sex to be just good physical release
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

Sexual Communion

27. Sex is the closest form of communication between two people
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

28. A sexual encounter between two people deeply in love is the ultimate human interaction
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

29. At its best, sex seems to be the merging of two souls
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

30. Sex is a very important part of life
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement
31. Sex is usually an intensive, almost overwhelming experience
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

**Contraceptive Attitudes**
32. A woman should share responsibility for birth control
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

33. A man should share responsibility for birth control
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

34. Birth control is part of sexual responsibility
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

**Status and Risk Identification**
35. Have you ever been tested for the AIDS virus?
   a. Yes
   b. No
   c. Don’t know

36. How many times have you had the AIDS virus test done before?
37. In what month and year were you most recently tested?
   a. ______________________
   b. Don’t know

38. What was the result of your most recent AIDS/HIV test?
   a. Positive
   b. Negative
   c. Test was required so I was never notified, so I assume I am negative
   d. Don’t know
39. In the next five years, it is likely or unlikely that you will get the AIDS virus?
   a. Very likely
   b. Somewhat likely
   c. Somewhat unlikely
   d. Very unlikely
   e. I already have the AIDS virus
   f. Don’t know
40. In the next five years, it is likely or unlikely that the average woman in your age group in the United States will get the AIDS virus?
   a. Very likely
   b. Somewhat likely
   c. Somewhat unlikely
   d. Very unlikely
   e. Don’t know
41. Syphilis, gonorrhea, chlamydia, crabs, genital herpes are all types of sexually transmitted infections. Have you ever had a doctor or nurse tell you that had a sexually transmitted infection?
   a. Yes
   b. No
   c. Don’t know
42. If you have had a sexually transmitted infection, did you seek treatment?
   a. Yes
   b. No
   c. Not applicable
43. If you did seek treatment, where did treatment sought?
   a. Public health department
   b. Student health center
   c. Private physician’s office
   d. Other
   e. Not applicable
44. In the next five years, is it likely or unlikely that you will get a sexually transmitted infection?
   a. Very likely
   b. Somewhat likely
   c. Somewhat unlikely
   d. Very unlikely
   e. Currently have a sexually transmitted infection
   f. Don’t know
45. In the next five years, is it likely or unlikely that the average woman in your age group in the United States will get a sexually transmitted infection?
   a. Very likely
   b. Somewhat likely
   c. Somewhat unlikely
   d. Very unlikely
   e. Currently have a sexually transmitted infection
   f. Don’t know

**Use and Perception of Education and Prevention Services**

46. Have you ever visited a health facility or doctor’s office of any kind to receive services or information concerning contraception, pregnancy, abortion, or sexually transmitted infections?
   a. Yes
   b. No

47. During this visit, did you feel comfortable enough to ask questions?
   a. Yes
   b. No
   c. Not applicable

48. Do you feel as though you face any barriers to seeking testing or education such as embarrassment or fear of lack of confidentiality?
   a. Yes
   b. No

49. Do you feel confident in your knowledge on local resources in which sexually transmitted infection education or testing services are located?
   a. Yes
   b. No

50. In the next three months, do you plan on seeking out additional sexually transmitted infection education or testing services?
   a. Yes
   b. No

51. Again, congratulations, you are a member of the experimental paid group. Follow this external link to provide your last name and CWID in order to be paid. You will receive payment on your student account. In no way will your identifying information be able to be linked back to your confidential survey responses.
Increasing Sexual Health Knowledge Control Group Posttest

**Demographic Data**
1. Participant Created Identifier (Last two digits of campus wide ID, plus year of birth [ie, 1987 would be 87], plus first initial: ________________

**Sexual History**
2. Have you ever had sexual intercourse?
   a. Yes
   b. No
3. How old were you when you had sexual intercourse for the first time?
   a. I have never had sexual intercourse
   b. 11 years old or younger
   c. 12 years old
   d. 13 years old
   e. 14 years old
   f. 15 years old
   g. 16 years old
   h. 17 years old or older
4. During your life, with how many people have you had sexual intercourse?
   a. I have never had sexual intercourse
   b. 1 person
   c. 2 people
   d. 3 people
   e. 4 people
   f. 5 people
   g. 6 or more people
5. During the past 3 months, with how many people did you have sexual intercourse?
   a. I have never had sexual intercourse
   b. I have had sexual intercourse, but not during the past 3 months
   c. 1 person
   d. 2 people
   e. 3 people
   f. 4 people
   g. 5 people
   h. 6 or more people
6. Did you drink alcohol or use drugs before you had sexual intercourse the last time?
   a. I have never had sexual intercourse
   b. Yes
   c. No
7. The last time you had sexual intercourse; did you or your partner use a condom?  
   a. I have never had sexual intercourse  
   b. Yes  
   c. No  
8. During your life, with whom have you had sexual contact?  
   a. I have never had sexual contact  
   b. Females  
   c. Males  
   d. Females and males  
9. Which of the following best describes you?  
   a. Heterosexual (straight)  
   b. Gay or lesbian  
   c. Bisexual  
   d. Not sure  
   e. Other: ____________ (Fill in the blank)  

**Condom Use Attitudes**  
10. Using condoms is immoral.  
   a. Agree a lot  
   b. Kind of agree  
   c. Kind of disagree  
   d. Disagree a lot  
   e. Don’t know  
11. It is embarrassing to buy condoms in a store.  
   a. Agree a lot  
   b. Kind of agree  
   c. Kind of disagree  
   d. Disagree a lot  
   e. Don’t know  
12. Condoms take all of the fun out of sex.  
   a. Agree a lot  
   b. Kind of agree  
   c. Kind of disagree  
   d. Disagree a lot  
   e. Don’t know
13. Using condoms is a good way to protect your sex partner from disease people can get through sex.
   a. Agree a lot
   b. Kind of agree
   c. Kind of disagree
   d. Disagree a lot
   e. Don’t know

14. It’s hard to find places to buy condoms.
   a. Agree a lot
   b. Kind of agree
   c. Kind of disagree
   d. Disagree a lot
   e. Don’t know

15. Condoms are just too much of a hassle to use.
   a. Agree a lot
   b. Kind of agree
   c. Kind of disagree
   d. Disagree a lot
   e. Don’t know

16. People should always use a condom when having sex with a new person.
   a. Agree a lot
   b. Kind of agree
   c. Kind of disagree
   d. Disagree a lot
   e. Don’t know

**Permissiveness**

17. I do not need to be committed to a person to have sex with him/her.
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral—neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

18. Casual sex is acceptable
   a. Strongly agree with statement
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   a. Strongly agree with statement
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   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
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   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
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23. The best sex is with no strings attached
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
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   c. Neutral-neither agree nor disagree
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25. It is possible to enjoy sex with a person and not like that person very much.
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   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

26. It is okay for sex to be just good physical release
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

**Sexual Communion**

27. Sex is the closest form of communication between two people
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

28. A sexual encounter between two people deeply in love is the ultimate human interaction
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

29. At its best, sex seems to be the merging of two souls
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

30. Sex is a very important part of life
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement
31. Sex is usually an intensive, almost overwhelming experience
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

**Birth Control Attitudes**

32. A woman should share responsibility for birth control
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

33. A man should share responsibility for birth control
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

34. Birth control is part of sexual responsibility
   a. Strongly agree with statement
   b. Moderately agree with statement
   c. Neutral-neither agree nor disagree
   d. Moderately disagree with the statement
   e. Strongly disagree with the statement

**Status and Risk Identification**

35. Have you ever been tested for the AIDS virus?
   a. Yes
   b. No
   c. Don’t know

36. How many times have you had the AIDS virus test done before?

37. In what month and year were you most recently tested?
   a. ________________
   b. Don’t know

38. What was the result of your most recent AIDS/HIV test?
   a. Positive
   b. Negative
   c. Test was required so I was never notified, so I assume I am negative
   d. Don’t know
39. In the next five years, it is likely or unlikely that you will get the AIDS virus?
   a. Very likely
   b. Somewhat likely
   c. Somewhat unlikely
   d. Very unlikely
   e. I already have the AIDS virus
   f. Don’t know

40. In the next five years, it is likely or unlikely that the average woman in your age group in the United States will get the AIDS virus?
   a. Very likely
   b. Somewhat likely
   c. Somewhat unlikely
   d. Very unlikely
   e. Don’t know

41. Syphilis, gonorrhea, chlamydia, crabs, genital herpes are all types of sexually transmitted infections. Have you ever had a doctor or nurse tell you that had a sexually transmitted infection?
   a. Yes
   b. No
   c. Don’t know

42. If you have had a sexually transmitted infection, did you seek treatment?
   a. Yes
   b. No
   c. Not applicable

43. If you did seek treatment, where did treatment sought?
   a. Public health department
   b. Student health center
   c. Private physician’s office
   d. Other
   e. Not applicable

44. In the next five years, is it likely or unlikely that you will get a sexually transmitted infection?
   a. Very likely
   b. Somewhat likely
   c. Somewhat unlikely
   d. Very unlikely
   e. Currently have a sexually transmitted infection
   f. Don’t know
45. In the next five years, is it likely or unlikely that the average woman in your age group in the United States will get a sexually transmitted infection?
   a. Very likely
   b. Somewhat likely
   c. Somewhat unlikely
   d. Very unlikely
   e. Currently have a sexually transmitted infection
   f. Don’t know

**Use and Perception of Education and Prevention Services**

46. Have you ever visited a health facility or doctor’s office of any kind to receive services or information concerning contraception, pregnancy, abortion, or sexually transmitted infections?
   a. Yes
   b. No

47. During this visit, did you feel comfortable enough to ask questions?
   a. Yes
   b. No
   c. Not applicable

48. Do you feel as though you face any barriers to seeking testing or education such as embarrassment or fear of lack of confidentiality?
   a. Yes
   b. No

49. Do you feel confident in your knowledge on local resources in which sexually transmitted infection education or testing services are located?
   a. Yes
   b. No

50. In the next three months, do you plan on seeking out additional sexually transmitted infection education or testing services?
   a. Yes
   b. No
APPENDIX G:

INFORMED CONSENT STATEMENT
UNIVERSITY OF ALABAMA
Individual’s Consent to be in a Research Study
You are being asked to participate in a research study. This study is called “Implementation of Monetary in a Sexually Transmitted Infection Prevention and Education Program”. This study is being done by Haley Townsend. She is a doctoral student in the Capstone College of Nursing at the University of Alabama.
This study is being completed to satisfy degree requirements for the EdD: Nurse Educator program.

What is this study about?
The Centers for Disease Control (CDC) has recently reported a growing number of diagnosed sexually transmitted infections (STIs) in The United States despite approximately 16 billion dollars being spent on STI prevention and education each year. Over half of all newly diagnosed cases of Chlamydia, Gonorrhea and Syphilis are in adolescents and young adults age 15-24 each year. Among the fifty states, Alabama has the third highest rate of prevalence in chlamydial infections and second in gonorrheal infections. In addition, over half of adolescents and young adults are reporting being sexually active and not using condoms in the prevention of STIs. This study will look at innovative ways of implementing sexually transmitted infection prevention and education programs.

Why is this study important?—What good will the results do?
The findings will help the researcher understand best methods of educating adolescent and young adult females about potential risks and ways to avoid contracting STIs.

Why have I been asked to take part in this study?
You have either signed up through the Psychology research participant pool, through one of the flyers posted on campus or in person with the researcher on campus.

How many other people will be in this study?
The investigator hopes to enroll 180 participants in this study.

What will I be asked to do in this study?
If you agree to be in this study, we will first ask that you enroll by joining a text message group sponsored by Mobit technology. To your smart phone, you will have a pretest sent initially in which you will fill out on week one of the study. Once a week for the following six weeks you will have an interactive and educational content rich text message sent to your phone in which you should read or view. On the eighth week of the study, you will have a similar posttest link sent to your phone, which you will be asked to complete at that time. Content of the text messages will include education on sexual health and sexually transmitted infections.

How much time will I spend being in this study?
The pretest and the posttest delivered in this study should take no more than 25 minutes each of your time to take. Each content rich text message out of the six delivered will take less than five minutes to open, read or view an attached video.

Will being in this study cost me anything?
The only cost to you from this study is your time.
Will I be compensated for being in this study?
If randomly assigned to the experimental group you will earn $50 for participating in this study.

What are the risks (problems or dangers) from being this study?
The chief risk to you is that you may find some of the questions asked of you in the pretest and posttest of sensitive nature. You may also find some of the educational content of sensitive nature as well. You can control this possibility by not being in the study, by refusing to answer a particular question, or by not viewing portions of the educational material.

What are the benefits of being in this study?
There are no direct benefits to you unless you find it pleasant or helpful to learn more about risks and positive actions about your sexual health. You may also feel good about knowing that you have helped a doctoral student finish her dissertation study.

How will my confidentiality be protected?
The only place where your name appears in connection with this study is on this informed consent. The consent forms will be kept in a locked file drawer in Haley Townsend’s office, which is locked when she is not there. The records of this study will be kept confidential. Any identifying information including participant phone number, demographics and campus wide ID will be decoded and stored in a password protected online UA Box. Any paper records will be kept in a locked filing cabinet in the research investigator’s office. Only the principal investigator and faculty mentor will have access to research records. Research records will be kept for a total of three years after conclusion of the study, and then will be destroyed.

The investigator plans on writing research articles on this study but participants will be identified only as “persons from a large Southeastern university”. No one will be able to know you participated.

What are the alternatives to being in this study?
The only alternative is not to participate.

What are my rights as a participant?
Being in this study is totally voluntary. It is your free choice. You may choose not to be in it at all. If you start the study, you can stop at any time. However, if you stop participation, you will not receive potential compensation. Not participating or stopping participation will have no effect on your relationships with the University of Alabama.

The University of Alabama Institutional Review Board is a committee that looks out for the ethical treatment of people in research studies. They may review the study records if they wish. This is to be sure that people in research studies are being treated fairly and that the study is being carried out as planned.

Who do I call if I have questions or problems?
If you have questions about this study right now, please ask them. If you have questions later on, please call Haley Townsend at 205-394-2406. If you have questions or complaints about your
rights as a research participant, call Ms. Tanta Myles, the Research Compliance Officer of the University at 205-348-8461 or toll-free at 1-877-820-3066.

You may also ask questions, make a suggestion, or file complaints and concerns through the IRB Outreach Website at http://osp.ua.edu/site/PRCO_Welcome.html. After you participate, you are encouraged to complete the survey for research participants that is online there, or you may ask Haley Townsend for a copy of it. You may also e-mail us at participantoutreach@bama.ua.edu.

- I consent, begin the study.
- I do not consent.

Name: ______________________
Email address: ___________________
APPENDIX H:

RESEARCH STUDY ON SEXUAL HEALTH BEHAVIORS
Research study on sexual health behaviors

Research participants needed.

- **Who?**
  - Female college students age 18-24
  - You must have access to a smart phone with text message capability

- **Where?**
  - In conjunction with the Capstone College of Nursing EdD Nurse Educator program
  - Study will be delivered via text message education

- **Will I get paid?**
  - There is a possibility for compensation based on random assignment to control or experimental group

- **How will my data be used?**
  - Your data will be anonymized and kept confidential. This data is being used to complete a doctoral dissertation and will be reported through that avenue

**Interested?**
If you meet the requirements for the study and you are interested in participating, please email Haley Townsend via email, hmfranklin@crimson.ua.edu or call 205-394-2406.
APPENDIX I:

RECRUITMENT EMAIL
Hello!

Thank you for your interest in completing the study exploring sexual health attitudes and behaviors as well as sexually transmitted infection prevention and education. I am thankful you are willing to help me finish the study to fulfill the requirements of the EdD: Nurse Educator degree.

The first educational text message goes out this Wednesday, so enrollment should occur before then. Please pay close attention to the following instructions in order to complete the enrollment. (There are three steps).

1. Follow this link to read and sign informed consent: [https://universityofalabama.az1.qualtrics.com/jfe/form/SV_0xsX0J8l2sY1jG5](https://universityofalabama.az1.qualtrics.com/jfe/form/SV_0xsX0J8l2sY1jG5)

2. Grab your smart phone and text Keyword to 72000
   *You must complete this step in order to receive messages.

3. Follow this link to take the anonymous study pretest [https://universityofalabama.az1.qualtrics.com/jfe/form/SV_1FXEoY3MFOU5Ye9](https://universityofalabama.az1.qualtrics.com/jfe/form/SV_1FXEoY3MFOU5Ye9)

Once you complete these three steps you are all done for now. You will begin receiving educational messages weekly for the next six weeks starting Wednesday. Please be sure to complete these three steps before then.

If you have any questions, please reach out to me at hmfranklin@crimson.ua.edu or 205-394-2406.

Thank you,
Haley Townsend
<table>
<thead>
<tr>
<th>Research Question</th>
<th>Variable Measure</th>
<th>Survey Items</th>
</tr>
</thead>
</table>
| Is the use of monetary incentives in STI education and prevention a viable method to increase the effectiveness of education provided to adolescents and young adult females? | Text message engagement measured as:  
1. Total time spent reading each message  
2. Number of times engaging with each text  
Moderation effect variable to determine if each group interacts differently with the text messages after the first monetary compensation. | N/A: Mobit Technology recorded and reported data |
| Will there be a difference in sexual attitudes, STI knowledge, and reported STI testing rates among participants in the experimental group versus the control group after completion of the Increasing Sexual Health Knowledge program? | Post test score comparison (experimental vs. control) of sexual health and STI risk behavior and attitudes  
1. Recent sexual history  
2. Condom use attitudes  
3. Sexual Permissiveness  
4. Sexual Communion  
5. Contraceptive Attitudes  
6. STI Status and Risk Identification  
7. Use and Perception of Education and Prevention Services | 1. Items 8-15  
2. Items 16-22  
3. Items 23-32  
4. Items 33-37  
5. Items 38-40  
6. Items 41-51  
7. Items 52-56 |
| Will there be a change over time in reported healthy sexual behaviors and intent to be tested for STIs among students who participated in the Increasing Sexual Health Knowledge program? | Sexual health and STI risk behavior and attitudes difference score  
8. Recent sexual history  
9. Condom use attitudes  
10. Sexual Permissiveness  
11. Sexual Communion  
12. Contraceptive Attitudes  
13. STI Status and Risk Identification  
14. Use and Perception of Education and Prevention Services | 1. Items 8-15  
2. Items 16-22  
3. Items 23-32  
4. Items 33-37  
5. Items 38-40  
6. Items 41-51  
7. Items 52-56 |
APPENDIX K:

IRB APPROVAL
August 20, 2018

Haley Townsend
Capstone College of Nursing
The University of Alabama
Box 870358

Re: IRB # 18-OR-298-ME “The Use of Monetary Incentives in an STI Education and Prevention Program”

Dear Ms. Townsend:

The University of Alabama Institutional Review Board has granted approval for your proposed research. Your application has been given expedited approval according to 45 CFR part 46. You have also been granted the requested waiver of documentation of informed consent. Approval has been given under expedited review category 7 as outlined below:

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

Your application will expire on August 19, 2019. If your research will continue beyond this date, complete the relevant portions of Continuing Review and Closure Form. If you wish to modify the application, complete the Modification of an Approved Protocol Form. When the study closes, complete the appropriate portions of FORM: Continuing Review and Closure.

Please use reproductions of the IRB approved informed stamped consent form to obtain consent from your participants.

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

Good luck with your research,

Sincerely,

[Signature]

Carpentaro T. Myles, MSM, CIP, CIP
Director & Research Compliance Officer
Office for Research Compliance