

EVALUATION OF A SEX EDUCATION PROGRAM IN MAURY COUNTY,
TENNESSEE

by

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I dedicate this research to my father Joseph Folarinle Fasan of blessed memory.

I love and miss you, Papa mi.

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ABSTRACT

Unprotected sexual behavior among adolescents is a major public health concern because it can lead to HIV/AIDS, other sexually transmitted infections (STIs), and unwanted pregnancies. The purpose of this study was to evaluate the effect of a sex education program, provided by Pregnancy Center of Middle Tennessee, on adolescents' knowledge of STIs, teen pregnancy and assessment of adolescent's risky sexual behavior in Maury County schools.

A survey was conducted prior to and immediately after the intervention among participants in the experimental (N = 60) and control (N = 60) groups. A quasi-experimental pretest-posttest design was performed to assess the effectiveness of the sex education program on participants' knowledge of STIs, teen pregnancy and assessment of adolescent's risky sexual behavior. Significant beneficial effects of the intervention were found on participants' postscores on knowledge of STIs and teen pregnancy. Overall, the findings indicate that the program had a positive impact on participants.

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CHAPTER 1

INTRODUCTION

Many young people engage in risky sexual behaviors that can result in unintentional outcomes that are detrimental to their health. Sexual risk behaviors place adolescents at risk for HIV infection and other sexually transmitted infections (STIs), pregnancies, parenthood as well as other social and economic complications. In spite of significant reduction in teen pregnancy in the United States, pregnancy, birth rates and several STIs are still very high. Paying attention to sex education in schools will encourage adolescents in learning important information that will empower them by not seeking inaccurate answers from media messages and peers. Sex education prevention intervention is of utmost importance; it will promote change among adolescents in communities as a whole.

Adolescent Risky Sexual Habit

STIs are a major health risk to all sexually active adolescents and young adults, these infections are one of the most serious health struggles the nation faces today. The Centers for Disease Control and Prevention (CDC, 2011) reported that teen pregnancy and childbearing carry many social and economic costs on teen parents and their children due to direct and long-term consequences. The National Campaign to prevent Teen and Unplanned Pregnancy (July 2012) reported that consequences of teen pregnancy and

childbearing include educational outcomes such as: (a) *young* teen mothers who has a child before the age of 18 years old are less likely to graduate from high school, (b) by age 22, only around 50 percent of teen mothers have received a high school diploma, (c) only 30 percent have earned a General Education Development (GED) certificate, (d) however, 90 percent of women who did not give birth during adolescence receive a high school diploma, (e) teen fathers have a 25 to 30 percent lower probability of graduating from high school than teenage boys who are not fathers. (Planned Parenthood Federation of America Inc. 2012).

The CDC (2011) stated that teen pregnancy accounts for nearly \$11 billion per year in costs to U.S. taxpayers for increased health care and foster care, increased incarceration rates among children of teen parents, and lost tax revenue because of lower educational attainment and income among teen mothers (Centers for Disease Control and Prevention [CDC], 2011).

According to The Washington Times (Stobbe, 2010), the rate of teen births in the United States is at its lowest level in almost 70 years, the sobering perspective concerning this is the fact that teen pregnancy rate is far lower in many other countries than in the United States. Stobbe also reported that the most substantial reason for the difference in pregnancy rates is that contraceptive use is greater among teens in most Western European countries than in the United States. A study done by Sousa, Soares, and Vilar (2007) established that participants of adolescent sex education programs tend to refer

more frequently to the use of safe methods for preventing STIs and unwanted pregnancies.

The CDC reports that there are 19 million new infections every year in the United States, more than one out of 20 adolescents contract curable STI yearly. More than half of all new STIs occur in people between the ages of 15 to 24 years. The CDC stated also that rates of chlamydia and gonorrhea are highest among females aged 15–19 years, and that individuals acquire HPV infection during their adolescent years (CDC, 2011).

In the Ilorin Nigeria study, Esere (2006) reported that sexually transmitted infections (STIs) are a major health concern that affects mostly young people in developing and in developed countries such as the United States. In his study, Esere defined the stage of adolescence as a stage in which physiological and anatomical changes take place which results in reproductive maturity in the individual. Esere explained that during the development stages, some adolescents handle the changes effectively while others experience major stress and find themselves getting involved in inappropriate behaviors such as sexual experimentation, exploration, and promiscuity. Adolescents' atypical display of sexual behavior and their evolving characteristics may put them at risk for STIs which may eventually affect their general well-being (Esere, 2006). As the size of this problem becomes more obvious, health professionals are being called upon to provide effective and confidential sex educational intervention programs for young people (Esere, 2006).

The national surveys, according to the Henry J. Kaiser Family Foundation/ABC Television, report that most Americans support a more comprehensive approach to sex education. Eighty-one percent say schools should teach both abstinence and sex education. They claim this will give teens enough information as well as assist them in preventing unplanned pregnancies and the spread of STIs. Eighteen percent support teaching only abstinence until marriage. Tennessee is one of 21 states that require schools to provide both abstinence as well as STIs and/or HIV/AIDS education (Henry J. Kaiser Family Foundation, 2002, p. 1).

Tennessee Sexuality Education Law and Policy

According to the Sexual Information and Education Council of the United States, (SIECUS, 2010) Tennessee State law states that if any county in Tennessee has pregnancy rates higher than 19.5 pregnancies per 1,000 females (middle and high schools), every school district in that county must implement family life education in accordance with curriculum guidelines provided by the state board of education. This education must emphasize abstinence until marriage and must include instruction in the prevention of HIV/AIDS and sexually transmitted diseases (STIs). Family life education must be taught for four years after the release of the initial teen pregnancy rates. If the school district fails to develop and implement its own family life education program, then it must adopt “the complete plan of family life instruction developed by the state board.” If the school board does not implement family life education, the commissioner of

education for the state is instructed to withhold state funding. In Fiscal Year 2010, the state of Tennessee received the Personal Responsibility Education Program funds totaling \$1,012,182 and the Title V State Abstinence Education Program funds totaling \$1,141,533. In Fiscal Year 2010, local entities in Tennessee received Teen Pregnancy Prevention Initiative funds totaling \$3,002,846.

The KC website of the Annie E. Casey Foundation reported that in 2010 the teen pregnancy rate in Maury County was 32.0 per 1,000. This county is one of the counties that reported high teen pregnancy rate in the year 2010. The rate was defined by the Tennessee Department of Health as number of 15-17 year old females who are pregnant during a given calendar year, regardless of the pregnancy outcome, and their ratio per 1,000. (p 6)

Choosing the Best Sex Education Curricula

The Maury County sex education program is provided to middle and high school students by Pregnancy Center of Middle Tennessee. The agency provides abstinence-centered sex education program by using curriculums developed by the Choosing the Best organization. The Choosing the Best organization produces five curricula namely: (1) Choosing the Best WAY for 6 grade, (2) Choosing the Best PATH for 7 grade, (3) Choosing the Best LIFE for 8 grade, (4) Choosing the Best JOURNEY for 9-10th grade, and (5) Choosing the Best SOUL MATE for 11-12th grade. Choosing the best organization claims that their program is an abstinence-centered sex education program and it uses risk

avoidance approach that strongly promotes abstinence as the best and healthiest choice, while also teaching students about goal-setting, healthy relationships, refusal skills, and character building. Creators of Choosing the Best PATH for 7th grade emphasize that the curriculum particularly provide students with assertiveness training by teaching them how to say “NO” to premarital sex and “YES” to healthy relationships and the fact that it utilizes five keys namely: Motivational Learning Environment, Medical Learning Model, Relationship Education and Refusal Skills, Parent Involvement, and Character Education. The organization states that the Choosing the Best PATH program for 7th grade is a creative and engaging 8 sessions video. Each lesson is made in 50-minute segments and leads to discussion that assist students in learning facts about risks and consequences of sex before marriage, as well as the benefits of choosing healthy relationships. This evaluation was focused solely on the Choosing the Best PATH curriculum for 7 graders.

Purpose of Study

The initial purpose of this study was to examine whether or not participation in the Choosing the Best PATH curriculum provided by Pregnancy Center of middle Tennessee will have an effect on middle school student’s knowledge of STIs, prevention of unwanted pregnancies, and their likelihood of engaging in risky sexual behavior. For the purpose of this evaluation, educational outcomes were hypothesized to include knowledge and complications of STIs,

awareness of complications of unwanted pregnancy, and avoidance of risky sexual behavior.

Goal of Program Evaluation

The goals of this project were to: (a) assist in improving the efficiency and reliability of adolescent sex education programs in Maury County middle schools; (b) provide data to the agency that could be used to make decisions about developing or modifying future instructional programs; and (c) support the agency in delivering well-organized programs that will promote students sexual health which will help them feel comfortable with their current stage of sexual development.

To reach these goals, the program outcomes were defined as follows: (a) carrying out a pretest and posttest analysis before and after the program; (b) curriculum has to meet the needs of the students; (c) curriculum has to be consistent with community standards (d) curriculum has to be consistent with research and best practices; and (e) curriculum has to be consistent with Tennessee state law. According to the Planned Parenthood Federation of America, precise as well as detailed evaluation of sex education programs is the best practice for determining program effectiveness. Evaluating programs like this will assist in improving the agency's effort of imparting knowledge and awareness concerning STIs, prevention of unwanted pregnancies and avoidance of risky sexual behaviors among adolescents in communities.

Research Question

For the purpose of this study, it was hypothesized that: When controlling for sex and age, what effect does sex education program provided by the Pregnancy Center of Middle Tennessee have on middle school students' knowledge of STIs, prevention of unwanted pregnancies, and likelihood of engaging in risky sexual behavior?

Hypothesis

Middle school students who participate in a sex education program provided by the agency have more knowledge about STIs, prevention of unwanted pregnancies, and exposure to risky sexual behaviors than students who do not participate in the program.

CHAPTER II

REVIEW OF LITERATURE

This chapter is focused on critical points of current knowledge including essential findings as well as theoretical and methodological contributions by other researchers in the area of adolescent STI, teen pregnancy, risky sexual behavior, and sex education in schools. For the purpose of this study, the following research question was raised: When controlling for sex and age, what effect does the sex education program provided by the Pregnancy Center of middle Tennessee have on middle school students' knowledge of STIs, prevention of unwanted pregnancies, and likelihood of engaging in risky sexual behavior?

Sexually Transmitted Infections

Sexually transmitted Infections (STI) are infections generally acquired by sexual contact. There are at least 25 different sexually transmitted diseases with a range of different symptoms, these disease include syphilis, Chlamydia, Gonorrhea, Human papillomavirus, Crabs or Pubic Lice, Genital warts, and Herpes. The organisms (bacteria or virus) that cause sexually transmitted diseases may pass from person to person in blood, semen, or vaginal and other bodily fluids. The diseases may be spread through vaginal, anal, and oral sex.

Some of these infections can also be transmitted nonsexually, such as from mother to infant during pregnancy or childbirth, or through blood transfusions or shared needles.

The CDC estimates that there are approximately 19 million new STI's each year and almost half of them are among young people between ages 13 and 24. The cost of STI's to the United States health care system is estimated to be as much as \$15.9 billion annually. Many cases of STI's go undiagnosed and some common viral infections, such as human papillomavirus (HPV) and genital herpes are not reported to CDC. The reported cases of chlamydia, gonorrhea, and syphilis represent only a fraction of the true burden of STI's in the United States (CDC, 2010).

According to Centers for Disease Control and Prevention (CDC, 2011) and CDC's 2009 National Youth Risk Behavior Survey (YRBS), many adolescents begin having sexual intercourse at early ages: 46.0% of high school students have had sexual intercourse, and 5.9% reported first sexual intercourse before the age of 13. Out of the 34.2% of students reporting sexual intercourse during the 3 months before the survey, 38.9% did not use a condom. Young people with older sex partners may be at increased risk for HIV. The CDC also states that HIV education needs to take place before young people engage in sexual behaviors that put them at risk (CDC, 2011). Parental communication and monitoring will play a significant role in reaching youths early with prevention messages. The presence of an STI may greatly increase one's likelihood of

acquiring or transmitting human immunodeficiency virus (HIV). Some of the highest STI rates in the country are among young people, especially young people of minority races and ethnicities.

Consequences of untreated STIs

Sexually Transmitted Infections (STIs) are a common source of adolescent morbidity; consequences of these infections are particularly challenging and expensive in females. Several serious complications may result from previous Chlamydia Trachomatis (CT) infection in women, the most serious of which include pelvic inflammatory disease (PID), ectopic pregnancy, and infertility. Asymptomatic infection, an infection that does not display any clinical symptoms but may still be capable of transmitting disease, is common among both men and women (Centers for Disease Control and Prevention [CDC], 2011). To detect STIs, health-care providers frequently rely on screening tests. Annual screening of all sexually active women aged ≤ 25 years is recommended by the Centers for Disease Control and Prevention and screening of older women with risk factors (e.g., those who have a new sex partner or multiple sex partners) is also recommended (CDC, 2011).

For a mixture of behavioral, biological, and cultural reasons, sexually active adolescents aged 13–19 years and young adults aged 20–24 years are at higher risk of acquiring sexually transmitted diseases compared to older adults. The Centers for Disease Control and Prevention reported that female adolescents tend to have a physiologically increased susceptibility particularly to

chlamydia trachomatis infection due to their increased cervical ectopy (CDC, 2010). Cervical ectopy is the extension of cells that normally line the inside of the cervical canal on to the surface of the cervix; these are cells that are more easily damaged related to the fact that the cervix is covered with delicate tissue compared to tissues in other organs of the body. The cervix also has a tendency to bleed making it more susceptible to STIs.

Adolescent Early Sexual Experience

The decreasing age of first sexual intercourse has been suggested to be possible clarification for the surge in numbers of STIs and unwanted pregnancies in adolescents. Samkange-Zeeb, Spallek, a Zeeb reported that results from few European countries conclude that the average age of first sexual intercourse has declined over few decades; adolescents now report sexual activity before the age of 16 years. They stated that early onset of sexual activity may increase an adolescent's chances of contracting STIs and the risk is higher in female adolescents because their cervical anatomic development is incomplete and particularly susceptible to infection by certain sexually transmitted pathogens.

Teen Pregnancy

The CDC reported that in 2010, a total of 367,752 infants were born to women aged 15–19 years. A live birth rate of 34.3 per 1,000 women in this age group was recorded. This is a record low for U.S. teens in this age group, and a drop of 9% from 2009. Birth rates fell 12% for women aged 15–17 years, and 9%

for women aged 18–19 years. In addition, teen birth rates declined for all races and for Hispanics in 2010. While reasons for the declines are not clear, teens appear to be less sexually active, and more of those who are sexually active appear to be using contraception than in previous years (CDC, 2011). Despite these declines, significant differences persist in teen birth rates. Teen pregnancy and childbearing continue to carry significant social and economic costs. The U.S. teen pregnancy, birth, STI and abortion rates are substantially higher than those of other western industrialized nations (CDC, 2010).

The Stage of Adolescence

Kotchick, Shaffer, Forehand, and Miller (2001) study reveals that in recent years, professional and public attention has been focused on various health risks of unsafe sexual behavior. Adolescents in particular have been found to be at risk for many negative health consequences related to sexual risk-taking behavior. This includes several sexually transmitted infections and the occurrence of unintended pregnancy. In the Esere (2006) Ilorin Nigeria study, the stage of adolescence was defined as a stage in which physiological and anatomical changes take place which results in reproductive maturity in the individual. During this stage of development, some adolescents handle these changes effectively while others experience major stress and find themselves getting involved in inappropriate behaviors such as sexual experimentation, exploration, and promiscuity. Adolescent's atypical display of sexual behavior and their evolving characteristics may put them at risk for STI which may

eventually affect their general well-being (Esere, 2006).

Cognitively, many adolescents are less likely than adults to consider the long-term or possible adverse consequences of their actions. In addition, adolescents often believe themselves to be invincible, are subject to peer pressure, and have real or perceived barriers to health care. Barriers to STI screening and prevention in adolescents include lack of awareness of STI symptoms, lack of health insurance, especially for homeless and runaway teens, embarrassment at having a pelvic examination, fear of confidentiality breaches, fear that an STI will compromise a relationship with a partner, fear of others' discovery of their sexual activity or sexual abuse, lack of transportation to medical facilities, and fear of negative attitudes and reception by medical staff (Panchaud, Singh, Feivelson, & Darroch, 2000).

Adolescents tend to indulge in reckless and unguarded sexual experimentation and they are less likely than adults to consistently use condoms or other methods of protection that could reduce their chances of infection. Some adolescents lack suitable communication and confidence skills to talk about safer sex to their partners while some are unable to refuse unwanted sex or feel compelled to exchange sex for money (Samkange-Zeeb, Spallek, & Zeeb, 2011). Since young people experiment sexually, there is need to deliver sex education programs that are directed towards knowledge of STIs, unwanted pregnancies, and reduction of adolescent's likelihood of exposure to risky sexual behaviors.

Sex Education

Sex education is an instruction on topics relating to human sexuality, which includes human sexual anatomy, sexual reproduction, sexual intercourse, reproductive health, emotional relations, reproductive rights and responsibilities, abstinence, birth control, and other aspects of human sexual behavior. Providers of sex education to adolescents are parents or caregivers, formal school programs, and public health campaigns. Sex education assists in reducing adolescents' risk of possible negative outcomes from harmful sexual behavior such as unwanted or unplanned pregnancies and infection with sexually transmitted diseases. Esere (2006) reported that providing sex education in schools will help to address the biological, sociocultural, psychological and spiritual dimensions of sexuality from the cognitive domain, the affective domain, and the behavioral domain, including the skills to communicate effectively and make responsible decisions. Esere also state that sex education is about developing young people's skills so that they are able to make informed choices about their behavior, and feel confident and competent about acting on these choices.

One of the most effective ways to improve sexual health in the long-term is an obligation to make sure that adolescents and young adults are appropriately educated so they can make healthy choices about their sexual lives. The World Health Organization (WHO, 2010) confirms that association between education level and sexual health outcomes has been well documented. Therefore, sex

education is appropriate and conducive to learning and comprehension of middle and high school students. Precise, evidence-based, appropriate sexual health information and counseling should be available to adolescents and young adults. It should be free of discrimination, gender bias and shame or disgrace. Such education can be provided through schools, workplaces, health providers and community and religious leaders. (WHO, 2010).

Healthy People 2020 Objectives

The objectives of Healthy People 2020 concerning adolescent STIs are to reduce the proportion of adolescents and young adults with Chlamydia trachomatis infections by 10% (from 7.4 percent to 6.7 percent). Increase the proportion of sexually active females aged 24 years and under enrolled in Medicaid plans who are screened for genital chlamydia infections during the measurement year by 10% (from 52.7percent to 74.4 percent), increase the proportion of sexually active females aged 24 years and under enrolled in commercial health insurance plans who are screened for genital Chlamydia infections during the measurement year by 10% improvement (from 59.4 percent to 80 percent), reduce gonorrhea rates in males and females, reduce sustained domestic transmission of primary and secondary syphilis in males and females, reduce the proportion of females aged 15 to 44 years who have ever required treatment for pelvic inflammatory disease (PID) by 10% improvement (from 3.99 percent to 3.59 percent), reduce the proportion of females with human papillomavirus (HPV) infection and reduce the proportion of young adults with

Genital herpes infection due to herpes simplex type 2 by 10% (from 10.5 percent of young adults tested positive for herpes simplex virus type 2 in 2005-08 to 9.5 percent). (Healthy People 2020 (2011)).

The goal of Healthy People 2020 concerning teen pregnancy is to reduce pregnancies among adolescent females. The Healthy People 2020 objectives are: (1) reduce pregnancies among adolescent females aged 15 to 17 years by 10 percent. The improvement will be from 40.2 pregnancies per 1,000 females aged 15 to 17 years to 36.2 pregnancies per 1,000 females. (2) Reduce pregnancies among adolescent females aged 18 to 19 years by 10 percent. The improvement will be from 117.7 pregnancies per 1,000 females aged 18 to 19 years to 105.9 pregnancies per 1,000 females.

The World Health Organization (WHO, 2012) stated that Chlamydia trachomatis (*C. trachomatis*) is the infecting pathogen most commonly responsible for an STI. The WHO (2012) also estimates that the disease burden for treating patients infected with Chlamydia averages \$10 billion per year in the US and adolescent females in the urban setting have a prevalence rate as high as 30%. In addition, the CDC reports that Chlamydia has surpassed rates of gonorrhea three-fold, and has accounted for the largest percentage of reportable STIs nationally since 1994. Adolescents are at risk of exposure to unhealthy sexual behavior due to external factors such as: lack of STIs knowledge, inquisitiveness, invulnerability, hormones, alcohol and drug use, lack of positive role model, lack of sex education, and age, partner/peer /media pressure.

Sexual health intervention and prevention programs

In order to reduce at-risk sexual behavior in adolescents, Esere (2006) suggests that sexual health intervention and prevention programs should be included in the curriculum of secondary school education. Based on the result of the Ilorin Nigeria study, Esere (2006) recommends that sex education should be introduced into the curriculum of schools in Nigeria. Samkange-Zeeb, Spallek, and Zeeb conclude that awareness and knowledge of school-going boys and girls in Europe concerning STIs, with focus on infections such as chlamydia, gonorrhea, and syphilis, will assist in pointing out areas where STI risk communication needs to be improved. The study observed and investigated the effect of participation in a sex education program on knowledge, awareness of STIs and teen pregnancy prevention, and the likelihood of middle school students engaging in risky sexual behaviors.

Factors that shape young people's sexual behavior

Marston and King, (2006) reported on the seven factors that shape young people's sexual behavior: (1) young people evaluate would-be sexual partners as "clean" or "unclean," (2) sexual partners have an important influence on young people's behavior in general, (3) condoms are stigmatized and associated with lack of trust, (4) gender stereotypes are crucial in determining social expectations and, in turn, behavior, (5) there are penalties and rewards for sex from society, (6) reputations and social displays of sexual activity or inactivity are important, (7) social expectations hamper communication about sex. They state that themes

were not exclusive to any particular country or cultural background, and in all the countries assessed, all themes were present in varying degrees. Findings of the study also help to understand why many HIV programs have not been effective. The researchers recognized reasons why young people do not like to use a condom outside of the most obvious which is “ignorance.” Marston and King (2006) concluded that any intervention program that simply provides information and condoms without addressing the critical seven key themes identified are only confronting part of the problem. (Marston & King, 2006).

Pedlow & Carey (2004) reported that girls begin menarche when they are 12–13 years old and the average age at first intercourse is 17. Girls who start having sex at an early age are likely to have older partners and less equal relationships. Higher age differences between adolescent partners have been linked with less frequent condom use. Postponing sex until later in adolescent years reduces risk substantially. The researchers concluded that students who initiate sex later are more likely to use condoms and that interventions designed for sexually-inexperienced youth, or young teens that are newly sexually active, can encourage risk reduction before patterns of sexual risk behaviors are established.

Pregnancy Center Agency

The Maury County sex education program is provided to middle and high school students by the Pregnancy Center of Middle Tennessee. This agency

provides abstinence-centered sex education program by using curriculums developed by the “Choosing the Best “organization.

The Pregnancy Center of Middle Tennessee, sometimes referred to as a pregnancy resource center (PRC), is a non-profit organization established to counsel pregnant women against having an abortion. This organization generally provides peer counseling related to abortion, pregnancy, and childbirth, and may also offer additional non-medical services such as financial assistance, child-rearing resources, and adoption referrals. Pregnancy Centers that qualify as medical clinics may also provide pregnancy testing, sonograms, and other services. The vast majorities are not licensed and provide no medical services. These pregnancy resource centers are typically run by pro-life Christians according to a conservative Christian philosophy and they often operate in affiliation with one of three non-profit organizations: Care Net, Heartbeat International, and Birthright International. There are over 4,000 Pregnancy Centers in the United States.

Program Evaluation

Alford and Advocates for Youth (2009) reviewed existing research in order to create a list of programs that have been proven effective through evaluation concerning reducing adolescent sexual risk-taking, Alford et al identified 26 programs that met its criteria for effectiveness. The programs provide young people with precise information concerning abstinence as well as contraception. Program evaluation is a systematic method for collecting, analyzing, and using

information to answer questions about projects, policies and programs particularly finding out about their effectiveness and efficiency. Evaluating the sex education program provided by the Pregnancy Center will deliver results that can be used to make decisions concerning development or modification of future instructional programs thereby assisting in increasing the effectiveness and reliability of the program.

In conclusion, Thato, Jenkins, and Dusitsin (2008) evaluated the effect of culturally-sensitive comprehensive sex education program (CSCSEP) on condom use and intention to use condoms among Thai secondary school students, The CSCSEP did not increase consistent condom use among sexually active students but it did increase their intention to use condoms the next time they are having sex among both sexually experienced and inexperienced students.

Research Questions

When controlling for sex and age, what effect does sex education program provided by the Pregnancy Center of Middle Tennessee have on middle school student's knowledge of STIs, prevention of unwanted pregnancies, and likelihood of engaging in risky sexual behavior?

Hypothesis

Middle school students who participate in a sex education program provided by the agency have more knowledge about STIs, prevention of

unwanted pregnancies, and exposure to risky sexual behaviors than students who do not participate in the program.

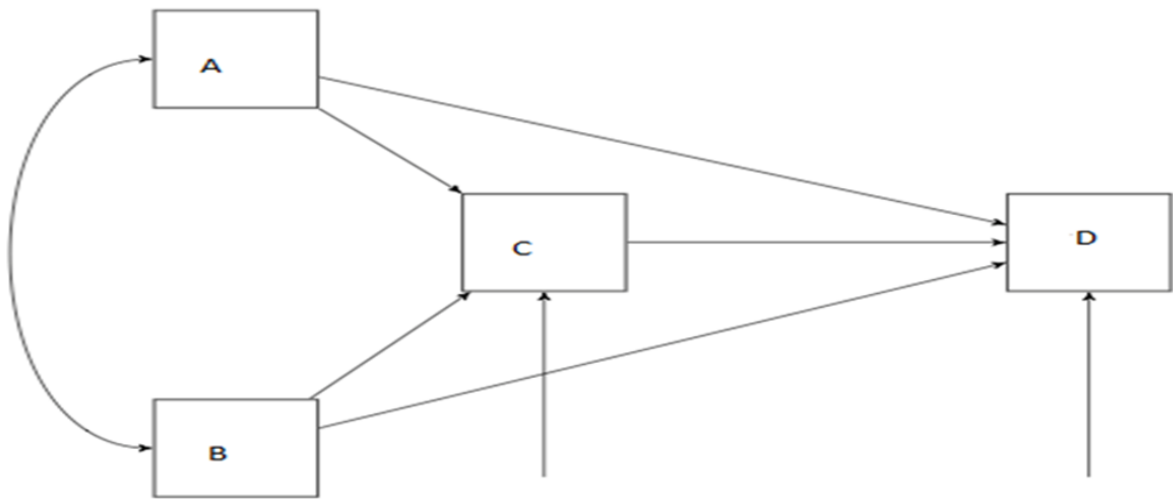


Figure 1 Path diagram

Typical Main Effects Model path diagram demonstrates how control variables affect the independent and dependent variables respectively: A= Sex (Boys and Girls), B= Age (12-14yrs), C= Sex Education Participation/Non Participation, D= Knowledge and Awareness of STIs/unwanted pregnancies, and exposure to risky sexual behavior. This figure predicts student's willingness to engage in sex before marriage. The variables on the left begin the time sequence. (Bruin, 2006).

CHAPTER III

METHODOLOGY

The research question investigated in the current study was: When controlling for sex and age, what effect does sex education program provided by the Pregnancy Center of Middle Tennessee have on middle school student's knowledge of STIs, prevention of unwanted pregnancies, and likelihood of engaging in risky sexual behavior?

The purpose was to see whether these adolescents were getting the knowledge and information that is needed to keep them safe from STIs and unwanted pregnancies. This quantitative method study took place in the spring of 2013 and evaluated the effect of participation in a sex education program provided by the Pregnancy Center of Middle Tennessee in Maury County middle schools. Students' knowledge of STIs, prevention of unwanted pregnancies, and the likelihood of engaging in risky sexual behavior were assessed. The agency's questionnaire instrument was used in collecting data from both of the experimental and control groups. Choosing the Best Path curriculum for 7th grade was utilized in the sex education program.

Participants

Middle Tennessee State University and institutional review board (IRB) approval was obtained prior to analysis. The study was carried out at three Maury County middle schools. The Pregnancy Center of Middle Tennessee sex

education program was evaluated. Access to the Pregnancy Center of Middle Tennessee was obtained through the agency's sex education program coordinator. A permission letter was obtained from the agency's program coordinator. Informed consent that provides information about what the study involves, an explanation of the purposes of the research, the expected duration of the subject's participation, a description of the procedures to be followed, and identification of all procedures which are experimental was provided to the agency. Participants through the Pregnancy Center of Middle Tennessee sex education program include adolescents ages 12-14 years and exclude adolescents that are hospitalized, institutionalized, are not in Maury County Schools, or that refuse to participate in the program. Pretest and posttest data that are linked by arbitrary identifiers were used in this study. No fields that could identify specific respondents (personal identifiers) were included in the data.

Sample

Over a period of 6 weeks, the researcher observed and evaluated the Pregnancy Center's sex education and abstinence-centered program. The "Choosing The Best Path" for 7grade program was evaluated. Sample size of total of 120 students (n=120) consist of boys (n=87) and girls (n=33). Participant ages vary from 12 years or younger to 14 years. The programs was carried out in three Maury County middle schools.

Initially, the sampling strategy was to recruit experimental and control groups from individual participating Maury County middle schools. The agency's

sex education coordinator was able to get both the experimental and control groups (n=60) from only one of the schools but not from others due to the fact that parents did not return consent forms sent to them by the school authorities early enough and also due to time constraint. In the second participating middle school, the agency's health educator was able to get participants in the treatment group only (n=30) but not in the control group. The second control group was formed from the school that was already scheduled to receive the sex education program at a future date but who had not done so during the period of data collection (N=30).

Participants took the pretest prior to undergoing the intervention and immediately after the program. The instruments included questions about age, gender, grade, ethnicity, and race. This information can be found under results in Table 1.

Research Design

An evaluation of the effectiveness of the sex education program provided by the Pregnancy Center was conducted using a quasi-experimental pretest-posttest design. A formative evaluation study of the efficacy of the Choosing the Best Path curriculum program was necessary to determine if the curriculum was effective as claimed. In this design, groups were selected from the sample of schools and classrooms by the Pregnancy Center health educators. Classrooms of students were randomly assigned to experimental and control groups by the agency. Both groups were given a pretest as well as a posttest. No personal

identifiers were collected; the pretest and posttest were linked by arbitrary identification numbers.

The major purpose of this type of design was to determine the amount of change in knowledge of STIs and teen pregnancy produced by the intervention in the experimental group compared to the control. The investigator wanted to find out whether students in the experimental groups were able to achieve significantly higher scores on the evaluation instrument than those in the control group.

Statistical analysis was used to control for demographic characteristics that may indicate selection bias. Preceding the intervention, both groups participated in the pre-test using the pregnancy center instrument, The post-test was administered immediately following the study. The experimental group participated in a sex education program (Choosing the Best Path for 7th grade) The control group participated only in a regular nonsexual health education program. Effects of sex and age were statistically controlled in this study. Data collection was carried out prior to the intervention at baseline (pretest) and following the intervention (posttest).

The Choose the Best Path sex education program was offered during regular school activity. Consent forms were sent home by the school authorities to parents. Some parents gave permission for their students to participate in the program while some did not. The investigator observed and recorded a total of 40 to 55 minutes sessions of teaching and completion of questionnaires. A total

of 3 classes consisting of 120 students from three different middle schools participated in this study. The agency's health educator was able to carry out both pretest and posttest in the first middle school. Principal of the second school did not allow the control group to participate in the pretest and posttest due to time constraint, therefore, the health educator was able to collect data only from the experimental group. In the third middle school, students that were already scheduled to take part in the program on a future date were given the pretest and posttest to represent the control group.

Program evaluation was carried out between February 2013 and March 2013. The Pregnancy Center's pretest and posttest data was used to evaluate the effectiveness of the sex education program. Data collection was carried out by the pregnancy center's educators, and data was collected from all students in the selected classrooms who agree to participate .

According to Thomas, Nelson, and Silverman (2010), quasi-experimental designs are used when randomization is unrealistic and/or unethical, they are normally easier to set up than true experimental designs, which require random assignment of subjects. Furthermore, utilizing quasi-experimental designs diminishes threats to external validity as natural environments do not suffer the same problems of artificiality as compared to a well-controlled laboratory setting. Since quasi-experiments are natural experiments, findings in one may be applied to other subjects and settings, allowing for some generalizations to be made about population.

Thomas et al (2010) reported that the advantages of this design is that it permits statistical control for possible extraneous variables thereby helping the researcher decide whether there is a change in behavior and outcomes in the population after an intervention, chances of confounding due to other factors are also reduced. Using this design type assist in determining the effect of participation in a sex education program on the likelihood of middle school students engaging in risky sexual behaviors.

For the purpose of authenticity, the principal investigator used Pretest - Posttest Control Group Design to determine the amount of change produced by the treatment, the question asked was: does the experimental group change more than the control group? This design threatens the internal validity through testing but the threat is controlled because the comparison of pretest O_2 to posttest O_2 in the control group as well as the comparison of pretest O_1 to posttest O_1 in the experimental group includes the testing effect. Although the testing effect cannot be evaluated in this design, it is controlled. In order to avoid selection bias, sample drawn was representative of the Maury County Middle school population. In other to avoid bias, participants were randomized to both the control and treatment groups.

Questionnaire

Since the relevant information necessary for this study was to identify the student's knowledge of STIs and their complications, problems of unwanted pregnancies, and student's exposure to risky sexual behaviors, data was

obtained by administering the Pregnancy Center's pretest and posttest instrument to each participant.

To assess the effectiveness of the Choosing the Best Path curriculum, participants were asked to complete the pretest–posttest questionnaire and were assigned a score based on the number of items answered correctly out of 10 multiple choice. The questions were designed to sample the level of understanding of major concepts included in the content of the course. The format also included responses such as: True, False, and Don't Know. These items reflected information taught in the curriculum or information that could be easily deduced based on the curriculum, reflecting participants' knowledge of STIs, sexual behavior and teenage pregnancy (i.e. what are two main risks of being sexually active outside of marriage?). For example, a perfect score reflect a high degree of knowledge about sexual behavior and pregnancy would be 10 (100%), whereas a student who answered half of the questions correctly would receive a score of 5 (50%). The conciseness of the instrument helped guarantee that the participants would not become fatigued while completing the task and thus introduce measurement error.

At this time, the psychometric property of the instrument is not known. However, the questionnaire was developed by the Pregnancy Center of Middle Tennessee (Appendix C). The instrument is the most up–to-date tool that has been used by the agency for data collection in Maury County schools.

Data Entry

Data was entered into EpiData (A. K. Owusu, personal communication, March 12, 2011) and converted to SPSS for analysis. To assist in the data entry process, computerized data entry screens were created that simulate the hard-copy data forms. The screens were developed using a Windows-based data entry program such as EpiData version 3.2. Data entry programs identify and prohibit entry of data that are inconsistent with related responses or are out of the acceptable response range. Some participant chose to omit answering questions on the questionnaire therefore despite being outside the acceptable range, a -9 was entered to all missing values so that all missing values are accounted for. To minimize error due to missing data, data entry programs took into account skipped patterns within the instruments and automatically recorded missing data for items that were skipped. Data entry logs tracked instruments. These logs allowed tracking of the step in the data collection, data cleaning, or data entry process that each instrument is in at any point in time. After data entry, quality control, a program was run to check for internal consistency of related variables. Once the data were relatively clean, they were exported to SPSS for analysis. (N. L. Weatherby, personal communication, November 12, 2011)

Theoretical Framework

Risky sexual behaviors can lead to negative health consequences and can continue to prove problematic among adolescents. The Health Belief Model was one of the first theories of health behavior, and remains one of the most

widely recognized in the field. It was developed in the 1950s by a group of United States public health service social psychologists who wanted to explain why few people were participating in programs to prevent and detect disease. To find an answer, social psychologists examined the reasons why people are sometimes encouraged or discouraged concerning participation in health behavior programs. They theorized that people's beliefs about whether or not they were susceptible to disease and their perceptions of the benefits of trying to avoid it, influenced their willingness to act (Glanz, Rimer, & Viswanath, 2008).

Knowledge and awareness of dangers of STIs and prevention of teen pregnancy are important among adolescents and young adult. Safer sex behaviors such as abstinence, correct and consistent condom use, and a one-to-one relationship are also important for protection against sexually transmitted diseases (STIs). According to Bandura (1994 pp. 25-59), "Equipping people with the cognitive and behavioral coping resources to exercise personal control over risky behaviors enables them to protect themselves from exposure to the most deadly of viruses." In this study, Bandura's, (1997) Social Cognitive Theory (SCT) construct explains self-regulation, self-efficacy, observational learning. Glanz, Rimer, & Viswanath, (2008). The Health Belief Model (HBM) was also used as theoretical framework to analyze the effect of students' participation in the sex education provided by the Pregnancy Center in Maury County schools.

Bandura explains that mastery experience, social modeling, improving physical and emotional states, and verbal persuasion are the four methods of increasing one's self-efficacy (Bandura, 1997). He emphasizes the role of observational learning and social experience in the development of personality. According to Bandura's theory, people with high self-efficacy, those who believe they can perform well, are more likely to view difficult tasks as something to be mastered rather than something to be avoided. Choosing the Best Path curriculum was created in such a way that most of the participants in the treatment group were able to verbalize their interest in abstaining from sex at the end of the program to the agency's health educator. Providing efficacy in Maury County middle schools empowers students in their task to be successful in their attempts to be free of risky sexual behaviors. Bandura's mastery experience also enables adolescents to succeed in achievable but challenging performances of desired behaviors such as learning to "say no" when their partners demand that they have sex before marriage. Social modeling chapter of the curriculum influences participants to learn that if others like themselves can abstain from sex, they also can do the same.

Glanz, et al (2008) further discussed that in subsequent years, researchers expanded upon the theory of health belief Model and concluded that six main constructs influence people's decisions concerning whether to take action to prevent, screen for, in other to control illness. They maintained that people are ready to act if they: (1) believe they are susceptible to the condition

(perceived susceptibility), (2) believe the condition has serious consequences (perceived severity), (3) believe taking action will reduce their susceptibility to the condition or its severity (perceived benefits), (4) believe costs of taking action (perceived barriers) are outweighed by the benefits, (5) if they are exposed to factors that prompt action (e.g., a television advertisement or a reminder from one's health professional to use condom during sexual intercourse) (cue to action), and (6) if they are confident in their ability to successfully perform an action (self-efficacy).

In this study, the Pregnancy Center health educator used HBM (in the form of pretest/posttest questionnaire) to address middle school student's perception of threat posed by STI's. Bandura (1997).brought up the benefits of avoiding threat of contracting or transmitting STI, he also discussed factors that influence adolescent's decision to act and provide useful framework for designing both short-term and long-term behavior change strategies. Detailed demonstration of small steps taken in attainment of a complex objective, such as ways of avoiding risky and early sexual intercourse was observed. Effort to reduce stress and depression while building positive emotions was adopted in the program. Verbal persuasion that convinces adolescents that they are capable of accomplishing their goals was incorporated in the Choosing the Best curriculum. McAlister, Perry, and Parcel (2008) stated that one's self-confidence can be enhanced by solid reinforcement; this will inspire an individual's first efforts toward behavior change. Adolescents in this program were exposed to

strong reinforcement; this assisted in enhancing their self-confidence efforts toward behavioral change.

Data Analysis

Statistical analysis that was used in this study is the repeated- measures Analysis of covariance (ANCOVA) and data were analyzed with SPSS 17.0. This statistical analysis is used to determine whether there are any significant differences between the adjusted population means of three or more independent (unrelated) groups. This method also combines one-way or two-way analysis of variance with linear regression. ANCOVA is described by the Laerd statistics website (<https://statistics.laerd.com/premium/account.php>) to be an extension of a one-way ANOVA, it incorporates a covariate variable, which is pre-score in this study. The covariate is expected to be related to dependent variables used in an experiment. According to Laerd statistics website, addition of a covariate to an analysis can reduce the error associated with a one-way ANOVA.

Thomas, Nelson, and Silverman (2010) state that ANCOVA technique was utilized in their study to adjust the dependent variable for distractor variables, distractor variables are variables that could affect the treatments. ANCOVA technique was used in this study to compare differences in post-scores of three groups namely: experimental only, control only and experimental-control groups. This was chosen due to the fact that it provides the researcher the opportunity to control for the pretest score as a covariate.

Research Hypotheses

Middle school students who participate in a sex education program provided by the agency have more knowledge about STIs, prevention of unwanted pregnancies, and exposure to risky sexual behaviors than students who do not participate in the program.

CHAPTER IV

RESULTS

Table I shows demographic and participant characteristics of the project. Girls represented 27.50% and boys represented 72.50% of the total sample. The age of participants ranged from 12 to 14 years. Participants includes middle school students in 7th grade and excludes adolescents that are hospitalized, institutionalized, are not in Maury County Schools, or that refuse to participate in the program.

Table 1**Descriptive Statistics of Participants**

Variable	n	%
Group		
Control	60	50.00
Experimental	60	50.00
Gender		
Boys	87	72.50
Girls	33	27.50
Age		
≤12 years old	60	50.00
13-14 years old	56	46.67
≥15 years old	4	3.33

Intervention results

There were 60 participants in the control group and 60 participants in the experimental group. The researcher identified a number of factors, including baseline characteristics and the clustering effect among schools, which could potentially confound the association between the independent and dependent variables of the study. Baseline demographic variables such as age and gender were controlled for in the analysis. Dummy codes were used for each of the three

schools to assess differential effects across the schools. None of these school effects were found to be significant ($p > 0.05$).

Scores of students in the Choosing the Best Path program (experimental groups) and those in the control groups were compared with pretest as the baseline. Only those who completed both the pretest and posttest were used in this analysis. There was a significant interaction term for pre-score and group, meaning that the group's effect on the posttest depended on the student's pretest scores. ANOVA with pre-test scores, gender, age, ethnicity, and knowledge of STIs as covariates was used to analyze post-test differences between treatment and control conditions.

An ANCOVA was run to determine the effect of sex education on two different experimental groups two control groups on posttest scores after controlling for pretest scores. There was a linear relationship between pre- and post-intervention scores for each intervention type. There were no outliers in the data, as assessed by no cases with standardized residuals greater than ± 3 standard deviations. After adjustment for prescores, there was a statistically significant difference in post-scores between the interventions. <40 Pretest $F(1, 72) = 3,306, p = .073$, >40 Posttest $F(1, 72) = 237.543, p < .001$. One significant predictor of posttest scores was the pretest scores. Results showed that for students who had a pretest score ≤ 40 , the average increase from pretest to posttest was 39.95 ($SE = 2.68, p < .001$) when adjusting for the pretest score.

For students with a pretest score >40 , the average increase from pretest to posttest was 15.54 ($SE = 2.70$, $p < .001$) when adjusting for the pretest score.

Table 2 Interaction Model

Source	Type III Sum of Squares	Mean Square	F	P	Partial Eta Squared
Pretest	3773.78	3773.78	35.31	<.001	0.233
Group	17400.41	7400.41	162.80	<.001	0.584
Group Pretest	5880.96	5880.96	55.02	<.001	0.322

$R^2 = .709$

Table 3 is a comparison of pretest/posttest scores between students that receives the intervention (experimental group) and students that were not in the sex education program (control Group). Some participant chose to omit answering the question on the questionnaire therefore a -9 was entered. Table 3 shows that fewer participants (n-16) decided to wait until marriage before engaging in sexual intercourse in the experimental pretest result compared to posttest result that shows an increase in number of participants (n-39) who made

the decision to abstain from sex until marriage (mean: 28). In the control group pretest result, 23 participants chose to abstain from sexual intercourse until marriage while 27 decided to abstain from sex in the posttest result (mean: 25).

After going through the intervention, 23 more participants decided to abstain from sex until marriage related to the positive impact the sex education program had on them. There were only 4 more participants in the control group who decided to abstain from risky sexual behavior; this significant difference in decision making of participants confirms the effectiveness of the program. After adjustment for pretest scores, there was a statistically significant difference in post-scores between the interventions. For students with ≤ 40 on the pretest, results were $F(1, 72) = 3.306, p = .073$, and on the posttest, $F(1, 72) = 237.543, p < .001$. One significant predictor of posttest scores was the pretest scores. Results showed that for students who had a pretest score ≤ 40 , the average increase from pretest to posttest was $39.95 (SE = 2.68, p < .001)$ when adjusting for the pretest score. For students with a pretest score > 40 , the average increase from pretest to posttest was $15.54 (SE = 2.70, p < .001)$ when adjusting for the pretest score. See Table 3 for pretest and posttest result.

Table 2 shows the parsimonious model for the analysis. The model explained 70.9% of the variation in posttest scores when the pretest scores, group assignment, and the interaction of group and pretest were included ($F(3, 116) = 94.305, p < .001$). Analysis was divided into students with lower pretests

and students with higher pretests scores because of the significant interaction between group and pretest score $F(1, 116) = 55.023, p < .001$.

Table 3 Pretest and Posttest Result

	Pretest Score		Posttest Score	
	M	SD	M	SD
Pretest Scores ≤ 40				
Control only	32.14	8.76	36.07	11.00
Experimental only	27.39	12.01	76.3	10.82
Pretest Score > 40				
Control only	59.38	8.78	61.88	7.80
Experimental only	54.29	5.14	74.29	12.23

Note: ≤ 40 Pretest $F(1, 72) = 3,306, p = .073$
 Posttest $F(1, 72) = 237.543, p < .001$

Program Effect

Existing studies such as Bay-Cheng (2003) and Mturi and Hennink (2005) studies indicate that participants of adolescent sex education programs tend to

refer more frequently to the use of safe methods for preventing STIs and unwanted pregnancies. This program was evaluated and observed by the investigator in participating schools, observation and results of data analysis of the program revealed that Choosing the Best Path curriculum for 7th grade Increased knowledge of STIs, teen pregnancy, ability to avoid risky sexual behavior and decision to abstain from sexual intercourse until marriage.

In the pretest questionnaire, participants in both groups were able to express their decision concerning avoidance of risky sexual behaviors and abstinence from sexual intercourse until marriage. Therefore, pretest score was used as a baseline for both groups. The posttest scores revealed that the participants in the experimental group compared to the control group had better knowledge of STIs and teen pregnancy.

Table 4 Participants Future Decisions

	Experimental Group		Control Group	
	Pretest Score%	Posttest Score %	Pretest Score%	Posttest Score%
Continue to be sexually active	15.00	5.00	0.00	0.00
Undecided about having sex	18.33	12.50	21.67	20.00
Will wait until marriage	13.33	32.50	19.17	22.50
No answer (-9)	3.33	0.00	9.17	7.50

Decision of students concerning future exposure to risky sexual behavior and abstinence from sex until marriage.

CHAPTER V

DISCUSSION

Hypothesis

Middle school students who participate in a sex education program provided by the agency have more knowledge about STIs, prevention of unwanted pregnancies, and exposure to risky sexual behaviors than students who do not participate in the program.

There is sufficient evidence to show that participation in a sex education program may help to reduce middle school student's exposure to risky sexual behaviors

Result of the study provided guidance, supports, and efficacy considering the adoption of adolescent pregnancy prevention programs in Maury County school system. This evaluation also provided valuable support and proficiency to the Choosing the Best organization and to the Pregnancy Center. In the Rijdsdijk, Bos, Ruiters, Leerlooijer, de Haas, & Schaalma, (2011) study, it was concluded that programs of this type are not intended or created as a one-time quick fix for the complicated issue of teen pregnancy, knowledge of STIs and risky sexual behaviors in adolescent . Having a grade by grade reminder of basic concepts and ideas learned in the program each year will be of utmost benefit to students.

Rijdsdijk et al concluded in their study that broad-based community support and parental participation are important to the execution and success of adolescent pregnancy prevention efforts. Despite impressive outcomes of the

sex education program through observation and data analysis, different responses by participants to program presentations made by the agency's health educators confirmed the importance of increased community education. Benefits of teaching adolescents-centered sex education should constantly be conveyed to students at home and within communities.

Study Limitations

This study utilized 7th grade students in Maury County school setting and thus was not representative of all 7th graders nationwide. Although this study required certain demographics, it would have been better to have a larger, random sample in order to be more representative and it is possible that this would have produced different results.

Student's honesty in the pretest and posttest survey is never guaranteed and some of the participants tend not to take it seriously due to their age and immaturity. The researchers surveyed 7th grade students between the ages of 12 and 15 years from 3 different middle schools however, the oldest participants age was 15 (mean age 13.5). A more age-diverse sample may have generated different results.

Choosing the Best Path program was designed to be a 55 minutes class section. The health educator from the agency did not have enough time to teach the program as well as administer the questionnaire to participants. Since some of the participating schools were unable to give a full 55 minutes required for the curriculum to be taught to the health educator, participants therefore had little or

no time to fill out the questionnaire. Having not enough time for participants to appropriately fill out the questionnaires could have affected the outcome measures of this study.

Getting participants for this study was difficult and the schools were unable to get back all consent forms sent out to parents. The agency's health educator had to work only with students whose parents returned the forms. In the state of Tennessee, parents have the right not to allow their students participate in the program.

Implication

This was an evaluation of a sex education program that delivered knowledge of STIs and its complications, awareness of educational, economic and financial burden of unwanted pregnancies and ways to avoid risky sexual behaviors in adolescents.

Future Research

More research is needed on the effect of this type of sex education program on 8th grade and high school students in Maury County schools.

Conclusion

The sex education program was successful in raising students' knowledge of STIs and awareness of the implication of engaging in risky sexual behaviors, especially among students that had relatively low knowledge of STIs and teen pregnancy before the program began. This information is important for sex health

educators to understand their students' baseline level of knowledge prior to an intervention. Students with varying levels of knowledge may benefit additionally with interventions that are more targeted to their familiarity with STIs and sexual behaviors.

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APPENDICES

APPENDIX A: Institutional Review Board Approval Letter

February 11, 2013

Hilda Aderoba, Dr. Norman Weatherby
Department of Health and Human Performance
haa2n@mtmail.mtsu.edu, norman.weatherby@mtsu.edu

Protocol Title: "EVALUATION OF ADOLESCENT SEX EDUCATION PROGRAM PROVIDED BY THE PREGNANCY CENTER IN MAURY COUNTY, TENNESSEE"

Protocol Number: 13-199

Dear Investigator(s),

The exemption is pursuant to 45 CFR 46.101(b) (4). This is because the research being conducted involves the collection or study of existing data whereas the information is recorded by the investigator in such a manner that subjects cannot be identified.

You will need to submit an end-of-project report to the Compliance Office upon completion of your research. Complete research means that you have finished collecting data and you are ready to submit your thesis and/or publish your findings. Should you not finish your research within the three (3) year period, you must submit a Progress Report and request a continuation prior to the expiration date. Please allow time for review and requested revisions. Your study expires on **February 11, 2016**.

Any change to the protocol must be submitted to the IRB before implementing this change. According to MTSU Policy, a researcher is defined as anyone who works with data or has contact with participants. Anyone meeting this definition needs to be listed on the protocol and needs to provide a certificate of training to the Office of Compliance. **If you add researchers to an approved project, please forward an updated list of researchers and their certificates of training to the Office of Compliance before they begin to work on the project.** **Once your research is completed, please send us a copy of the final report questionnaire to the Office of Compliance.** This form can be located at www.mtsu.edu/irb on the forms page.

Also, all research materials must be retained by the PI or **faculty advisor (if the PI is a student)** for at least three (3) years after study completion. Should you have any questions or need additional information, please do not hesitate to contact me.

Sincerely,
[Andrew W. Jones](#)
Compliance Office
615-494-8918
Compliance@mtsu.edu

APPENDIX B: Permission letter from Pregnancy Center of Middle Tennessee

February 11, 2013

To Research Compliance Office

Good afternoon,

My name is Kristian Stewart. I am the abstinence coordinator through The Pregnancy Center of Middle Tennessee. I am responsible for the abstinence education in the Maury County School District. I am writing to inform you that Hilda A. Aderoba has permission to collect data through our program for the purpose of her thesis. She will be using data that will be collected through the students that are participating in our abstinence program using the Choosing the Best PATH curriculum. Thank you for your time.

Sincerely,

Kristian Stewart
Abstinence Coordinator
Pregnancy Center of Middle Tennessee

APPENDIX C: Pregnancy Center survey Instrument (EpiData data entry)

ID Identification Number <IDNUM>

code School Code #####

date What is today's date? <mm/dd/yyyy>
enter 12/12/1200 if participant did not provide an answer

type What type of test is this ##
1. Treatment Pretest
2. Treatment Posttest
3. Control Pretest
4. Control Posttest
enter -9 if participant did not provide an answer

age How old are you? ##
1. 12 years old or younger
2. 13 years old
3. 14 years old
4. 15 years old or older
enter -9 if participant did not provide an answer

sex What is your gender? ##
1. Female
2. Male
enter -9 if participant did not provide an answer

grade what is your current grade? ##
1. 6th grade
2. 7th grade
3. 8th grade
enter -9 if participant did not provide an answer

ethnicity Are you Hispanic or Latino? ##
1. Yes
2. No
enter -9 if participant did not provide an answer

race What is your race? ##
1. American Indian or Alaska Native
2. Asian
3. Black or African American
4. Native Hawaiian or Other Pacific Islander

5. White

enter -9 if participant did not provide an answer

abstinence and sex Have your parents ever talked to you about sex and abstinence? ##

1. Yes
2. No
3. Don't remember

enter -9 if participant did not provide an answer

infections Do you know what sexually transmitted infections(STIs)are? ##

1. Yes
2. No

enter -9 if participant did not provide an answer

significant STIs There are over how many significant STIs? ##

1. 5
2. 25
3. 15
4. 35

enter -9 if participant did not provide an answer

sexactive What are two main risks of being sexually active outside of marriage? ##

1. STIs and Pregnancy
2. Love and Joy
3. All of the above
4. None of the above

enter -9 if participant did not provide an answer

teenage pregnancy How many teenage girls become pregnant each day? ##

1. 100
2. 600
3. 1000
4. 3000
5. Don't know

enter -9 if participant did not provide an answer

teen alcohol use Teens 12 and older who drink alcohol may also have sex ##

1. True
2. False
3. Don't know

enter -9 if participant did not provide an answer

identify STI's Which of these are STI's ##

1. Diabetes
2. Flu
3. Chlamydia
4. Headaches
5. Don't know

enter -9 if participant did not provide an answer

unborn child and STI Can STI's affect the unborn child? ##

1. Yes
2. No
3. Don't know

enter -9 if participant did not provide an answer

skin contact and STI Can you get an STI from skin to skin contact? ##

1. Yes
2. No
3. Don't know

enter -9 if participant did not provide an answer

sti You will always know if you have an STI ##

1. True
2. False
3. Don't know

enter -9 if participant did not provide an answer

protection What provides the only 100% protection against contracting an STI ##

1. Abstinence
2. respect
3. The pill
4. Don't know

enter -9 if participant did not provide an answer

statement which statement will best describe your attitude about having sex? ##

1. I will continue to be sexually active.
2. I feel undecided about having sex before marriage.
3. I have chosen to wait until marriage.

enter -9 if participant did not provide an answer

Scoring for the Pregnancy Center Questionnaire:

Score 10 for each correct response.

-9 is entered if participant did not provide an answer

Total scores range from 0—100 points.