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Sex Education Programs in Schools: Influence on Knowledge and Behaviors of Teenagers

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SEX EDUCATION PROGRAMS IN SCHOOLS: INFLUENCE ON KNOWLEDGE AND BEHAVIORS OF TEENAGERS

A Thesis
Presented to
the faculty of the Department of Nursing
Western Kentucky University
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In Partial Fulfillment
of the Requirements for the Degree
Master of Science in Nursing

by
Tina Suzanne Graham BSN, RN
May 1999
SEX EDUCATION PROGRAMS IN SCHOOLS: INFLUENCE ON KNOWLEDGE AND BEHAVIORS OF TEENAGERS

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SEX EDUCATION PROGRAMS IN SCHOOLS: INFLUENCE ON KNOWLEDGE AND BEHAVIORS OF TEENAGERS

Tina Suzanne Graham BSN, RN  May 1999  39 Pages
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Abstract

Due to the teenage pregnancy rates and the incidence of sexually transmitted diseases (STDs) that exist in today's society, it is very important for teenagers to be informed of the facts related to pregnancy and STDs and how to prevent them from occurring. With this knowledge, they are able to make informed decisions related to their sexual experiences. The prime opportunity for such sharing of information can be in schools. The purpose of this study is to determine if sex education in school influences the knowledge and behaviors of teenagers toward sexual behavior, pregnancy, and sexually transmitted diseases.

This research used the framework of the Health Belief model developed by Nola Pender. A pretest/posttest design was used. A questionnaire, developed by the investigator, was administered prior to an educational program and then again three months later. A convenience sample of 31 high school students in a family dynamics course was utilized after informed consent was obtained from the student and parents. The subjects ranged in age from 14 to 18 years and consisted of 25 females and 6 males.

According to the pretest data obtained from the subjects, over half of the participants obtained most of the sexual information from their friends. Only 19.4% (6) of the students reported learning about sexual matters from school. The same percentage of 19.4% reported TV/Movies as their major source of information related to sexual matters. Twenty-three (74.2%) of the subjects claimed to have already had sexual intercourse. The average age at which the sexually active participants started having sex was 14 years old, with a range of 9 to 17 years of age. Participants reported having an average of 4 different sexual partners. Of those reporting whether or not they used condoms, 14 answered “yes” and 10 answered “no.”

The 14 item questionnaire was administered again three months after the intervention to determine any change in knowledge. Four of the items showed a statistically significant increase in the knowledge of the participants when analyzed by paired sample t-tests using an alpha level < 0.05. Although only four of the items demonstrated a significant increase in knowledge from pretest to posttest, these data, coupled with the subjects' reported behaviors, indicates a great need for factual sex education in this teenage population.
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CHAPTER 1
INTRODUCTION

Problem

Today's society has a costly problem of teenage pregnancy and sexually transmitted diseases (STDs). The cause of this problem is uncertain but has many possible influencing factors such as single parent households, lack of guidance from the family and church, increased curiosity, lack of factual knowledge related to sex, more opportunities for promiscuities, and more focus from the media on sexual matters. No matter what the reasons are for this problem, society as a whole must be responsible for its outcome. This problem can be drastically influenced when nurses intervene and educate the youth of our society. The purpose of this research is to determine if school-based sexual education classes influence the knowledge and behaviors of teenagers.

Background

Despite education and other campaigns against unprotected sexual intercourse, the increasing rate of pregnancy and STDs continue to plague teens. The source, quality and effectiveness of sex education has been the focus of recent attention in the realm of sexual socialization of young persons (Tucker, 1990). From a nursing perspective factual information can be provided to clarify any misconception of the teenagers' current knowledge. Since studies show that peers are cited as a major source of sexual information, teenagers should be taught factual information.

Pregnancy and childbearing rates for teenagers remain high in the United States despite well-documented associated adverse health, social, and economic consequences
for many of these teenagers and their children (State, 1995). Pregnancy and birth rates among teenage girls in the US are the highest of any developing country, and it appears that this trend will continue (Spitz, 1996). Cases of sexually transmitted diseases among the teenage population are prevalent. Two-thirds of sexually transmitted diseases occur in adolescents and young adults under 25 years of age. According to the Centers for Disease Control (1993), approximately 67% of all Acquired Immunodeficiency Syndrome (AIDS) cases have occurred in adults between the ages of 20-39 years. Because the estimated incubation period of the virus is approximately a decade, it appears many of these individuals were infected as adolescents or young adults.

Chlamydia can be found in 8-11% of teen males and 11-14% of teenage females and gonorrhea can be found in 3% of males and 6% of females in the teenage population (Biro and Rosenthal, 1995). With the rising number of teenagers who either contract a STD or become pregnant, these teenagers are placed in a predicament leading to unwanted children, abortions, emotional disturbances, poverty, and possible sterility from STDs.

An increase in knowledge related to sexual function, procreation, and birth control has not been shown to accompany an increase in sexual activity (Smith and Maurer, 1995). Even though sexual activity among teenagers is common, the use of condoms is not. In a survey conducted by Lommel and Taylor (1992), fewer than half of the female participants reported using condoms at first intercourse. “An estimated 6 billion condoms were used in 1990, less than half the number needed to protect sexually active individuals from acquiring sexually transmitted infections... and/or to prevent unwanted pregnancies” (Joffè, 1993, p.746). Education related to preventive measures is the ultimate weapon in the fight against unprotected sexual activity among the teenage population.
The literature demonstrates that teenagers are having sex, mostly unprotected. Only a small percentage of teenagers are fully educated about the risks they take when having unprotected intercourse and/or how to protect themselves from STDs and unwanted pregnancy (Sex, 1994). Teenagers who initiate sexual activity sooner in life than their peers place themselves at a greater risk for having the largest numbers of partners and for acquiring a STD, with potentially serious or even fatal outcomes.

While still a great number of people learn about sexual matters from their peers instead of their parents or teachers, we must ensure that the information being spread among the peer group is factual. “Girls, in particular, need to appreciate that they can catch a sexually transmitted disease 365 days a year but they can only become pregnant 60 days a year” (Sex, 1994, p. 899-900). Sex education in high school has not been viewed favorably because of morals and religious beliefs. Many parents believe it is inappropriate for the school system to teach their children about sex. They feel as though it is their responsibility. With this attitude, therefore, knowledge of consequences of sexual activity is not being conveyed to teenagers today. More sex education does not mean more sex; it can mean a reduction in STDs and teenage pregnancy rates (Sex, 1994).

Education related to preventive measures is the key to reducing the numbers of teenage pregnancies and sexually transmitted infections.

School-based programs that focus on the risks of unprotected sexual intercourse and assist students in developing appropriate values, self-efficacy, and negotiation skills appear to be effective in postponing initiation of sexual activity and in decreasing rates of unprotected intercourse. Some community-based programs emphasize development of self-esteem and orientation toward the future and provide sex education and family-planning services; such programs
may be effective in decreasing rates of unprotected intercourse and potentially can reach teenagers who are not enrolled in school (State, 1995, p.680-1).

**Significance**

This research study is significant because nurses and educators need to be aware of the problems related to teen pregnancy and STDs and realize that prevention is the key. A recent study has shown that implementation of sex education for teens has reduced the rate of teen pregnancy and sexually transmitted infections (Vincent, Clearie, and Schluchter, 1987). The care of unwanted children from teenage pregnancies and the care of teenagers with STDs costs the United States millions of dollars each year (Biro and Rosenthal, 1995). An increased knowledge about sexual matters has not been shown to correlate with an increase in sexual activity (Sex, 1994). The most important result from gaining such knowledge is the awareness of the consequences of certain activities. It is important for nurses to be involved in the sexual education of teens because they have the knowledge base of biological and societal information. This awareness will allow teenagers to make informed decisions about sexual activity.

**Purpose and Objectives**

The purpose of the study was to determine if sex education in school influences the knowledge and behaviors of teenagers toward sex, pregnancy, and sexually transmitted diseases.

**Objectives**-

1. To assess the effectiveness of a school-based sex education program that included information about sexual function, contraception, sexually transmitted diseases, and teen pregnancy.
2. To demonstrate to the parents and educators that sex education is an important part of school curriculum.
3. To increase the teenagers’ knowledge base related to sexual behavior.
**Research Question**

“Will teenagers who are provided with a sex education program in school have a change in knowledge and behavior toward sex, pregnancy and sexually transmitted diseases following the educational program?”

The following operational definitions were used during this study:

**Teenager**- adolescent, 13-19 years of age

**Sexually transmitted disease**- “disease acquired as a result of sexual intercourse with an infected individual. A more inclusive term than venereal disease, this term includes conditions such as syphilis, gonorrhea, AIDS, chancroid, granuloma inguinale, chlamydiosis, pelvic inflammatory disease and other conditions such as trichomoniasis, genital candidiasis, genital herpes, genital warts, and bacterial vaginitis” (Thomas, 1993, p.1789).

**Sex education**- giving accurate and organized information about sexual function, pregnancy, STDs, contraceptives and preventive measures.

**School**- “an institution for the teaching of children” (Mish, 1990, p.1051).

**Pregnancy**- “the condition of being pregnant: gestation” (Mish, 1990, p.927).

**Behaviors**- “Behave: to act, function or react in a particular way” (Mish, 1990, p.141), actions.

**Variables**

In the research question, the independent variable is the participation in a school-based sex education program. The dependent variable is the amount of knowledge and behaviors toward sex, pregnancy and sexually transmitted diseases. Extraneous variables are identified in the limitations of the study, as discussed later.
Theoretical Framework

Health Belief Model

The theoretical framework used in this research study is the Health Belief model (HBM) [see appendix A]. The HBM is “a framework for exploring why some people who are illness-free take actions to avoid illness, while others fail to take protective actions” (Pender, 1996, 35). The HBM helps “predict those individuals who would or would not use preventive measures and to suggest interventions that might increase predisposition of resistant individuals to engage in health-protecting behaviors” (p.34). The HBM encompasses several components. They include perceived susceptibility, perceived severity, perceived barriers, and perceived benefits. Pender also explains two types of positive health behavior that exists: health protection and health promotion. Health protection is “directed toward decreasing the probability of experiencing health problems” (p.35). Health promotion is “directed toward increasing the level of well-being and self-actualization of a given individual or group” (p.35). To properly instruct teenagers about pregnancy and STDs, the four components of the Health Belief Model must be stressed. They must understand that their behavior and decisions can lead to life-shattering consequences. Prevention is a key concept in educating teens about these topics.

“Perceived susceptibility reflects individuals’ feelings of personal vulnerability to a specific health problem” (Pender, 1996, p.35). Susceptibility is the perceived vulnerability or personal risk of the person’s health (Hiltabiddle, 1996). Susceptibility is related to the decisions that the teenager makes about whether or not to engage in sexual activity. The perceived amount or degree of vulnerability aids the teen in making these decisions.

Severity is the amount of suffering the individual may potentially have to experience (Hiltabiddle, 1996). Severity cannot usually be understood by teenagers...
because of their beliefs in immortality. The teenage population has a “Superman Complex,” which is their belief system that only old people die. Included in this complex is the belief that “it won’t happen to me.” Some common attitudes of teens regarding pregnancy and STDs include “my parents can help me take care of the baby,” “I will never get a STD because I am having sex with someone who is a virgin,” and “nothing will change in my life if I get pregnant or an STD.” These idealistic attitudes influence the decisions made by teenagers to risk their life and future by committing dangerous behavior.

“Perceived benefits are beliefs about the effectiveness of recommended actions in preventing the health threat” (Pender, 1996, p.35). The benefits are the believed effectiveness of strategies to prevent the illness (Hiltabiddle, 1996). Benefits that can be stressed include reaching future goals (e.g., college, career), fertility in the future, relationships with peers and/or parents, and continuation of life. Good quality of life, self-confidence and better health are also examples of the benefits related to prevention of pregnancy and STDs. Teenagers that do not have children are less likely to be in poverty.

“Perceived barriers are perceptions concerning the potential negative aspects of taking action such as expense, danger, unpleasantness, inconvenience, and time required” (Pender, 1996, p.35). The barriers are the negative consequences to be overcome to prevent the illness (Hiltabiddle, 1996). Barriers may include delayed initiation of sexual intercourse, abstinence, fear, and embarrassment. Inconvenience with condom use, spermicides, and oral contraceptives are also barriers to protection. This model serves as a framework for providing insight into the decisions teenagers make when educated about risks and prevention.

The HBM also helped guide the researcher in the development of the sex education program. The program content was organized using the components of the
HBM. To illustrate the severity of an STD, a case study of an HIV positive patient was presented to the teens. Teenage sexually transmitted infection rates for chlamydia, herpes, and gonorrhea was presented to the sample during the educational program to show their vulnerability. A straight-forward approach to information dissemination was used when instructing the teens about pregnancy, sexually transmitted diseases, and their consequences. When using the HBM, it must be recognized that this population may attempt to fulfill their needs through sexual intimacy.

**Fear Appeal Theory**

The fear appeal theory was used in affiliation with the HBM. This theory is based on the fact that when people realize they are susceptible to a serious health threat and believe they can successfully avert it, they become motivated to protect themselves and think of strategies to control the danger or threat (Witte, 1997). When presenting information in a sex education program, a fear of getting pregnant or a STD may influence decision-making of the teenagers. This fear may come from the influence of family, friends and their church. This decision may result in abstinence or at least safer sexual practices.

**Summary**

With the large numbers of teenagers that are becoming parents at an early age or becoming infected with an STD, sex education needs to be stressed to reduce these rates. The knowledge that can be gained by the teenager will allow for informed decisions related to sexual intercourse. Teenagers will not always protect themselves, but if knowledgeable of the severity of the consequences of pregnancy and STDs as well as the benefits of such protection, they may think twice before having unprotected sexual intercourse.
CHAPTER 2

LITERATURE REVIEW

Introduction

Many studies conducted in the past, have researched topics such as sexual behavior and pregnancy among teenagers. The results have been published but society has not heeded the findings from these studies. Few studies have explored sex education in our schools. Sex education programs have not been presented and tested in high risk groups. When studying teenage pregnancy and STDs, the field is deficient in researching the effectiveness of educational programs. The researchers reported frequencies of condom use and numbers of teen pregnancy, but they did not report effectiveness of programs presented to the students.

Teenage Pregnancy

Many reports are issued every year regarding the pregnancy and birth rates of teenager girls. Carter et al. (1994) reported that birth rate in teens ages 15-19 increased from 53.6 (1988) to 62.1 (1991) per 1000 women. Outcomes included low birth weights, poor weight gain, and preterm labor. In an article appearing in JAMA, Spitz et al (1996) reported the trends of pregnancy, abortion, and births for the years 1980, 1985, and 1990 for the United States population aged 13 to 19 years. This article reported that the pregnancy and birth rates for teenagers in the United States are higher than all other industrialized countries. Pregnancy rates remained stable from 1980 to 1985, but increased 9% from 1985 to 1990. Rates of abortions for this population remained basically stable over the 10 years span. Teenage birth rates declined by 4% from 1980 to 1985, but then increased 18% between 1985 to 1990. An overview of pregnancy and birth rates for each State was reported in “Morbidity and Mortality Weekly Report” by
Ventura et al. (1993). Kentucky had an increase of 6% in pregnancy rates along with a 73% increase in abortion rates from 1980 to 1990. Tennessee was reported as having a 13% increase in birth rates and a 4% increase in pregnancy rates. Birth rates rose 18% during the last half of the decade. Ninety-five percent of these pregnancies were unplanned. In Tennessee and Kentucky the pregnancy rates in 1992 were 94.0 and 81.7, respectively (State, 1995). Grimes (1996) adds that the increase in teen pregnancies parallels the increase in sexual activity among teens. From 1985 through 1990, the public expense related to teenage pregnancy (e.g., welfare, Medicaid, food stamps, etc.) equaled $120 billion. Of this amount, an estimated $48 billion could have been saved if each birth had been postponed until the mother was at least 20 years old (Ventura et al., 1993).

**Sexually Transmitted Infections**

Two-thirds of sexually transmitted diseases occur in adolescents and young adults under 25 years of age (CDC, 1991). According to the CDC (1993), approximately 67% of all AIDS cases have occurred in adults 20-39 years of age. Because the incubation period of the virus is approximately 10 years, it appears many of those persons were infected as adolescents or young adults.

Joffe (1993) identified trends of condom use among teenagers. Approximately 47% of the females reported the use of condoms at first intercourse, but only 33% reported current use of condoms. Males, on the other hand, reported an increase in the use of condoms from 54.3% (first intercourse) to 57.5% (current use). Joffe also declared that adolescents who view condoms negatively will not use them as often as those who view condoms in a positive manner. Proper use of condoms was also stated to be directionally associated with an increase in the frequency of use.

Burke (1987) explored factors influencing adolescents’ motives to be sexually active and to use contraceptives. These factors were explored from the sociological and developmental/motivational perspectives. The sociological perspective focused on
maidenhood, which is the interval between the onset of a female’s menarche and the legitimization of childbearing (marriage). The length of maidenhood is greatly affected by cultural norms. The United States has shifted from a short period of maidenhood to a more protracted one because of educational, vocational, and economic considerations. The developmental/motivational perspectives focused on a teenager’s basic human needs. These needs include belonging, intimacy, desire for passion, competency, curiosity, dominance and submissiveness, rebelliousness, and identity. These needs all impact an adolescent’s motive to be sexually active.

Brecht and Griffin (1995) conducted a survey that examined the relationships of sexual risk taking to substance use and AIDS knowledge in pregnant adolescent young mothers. It was found that only 31% of the participants reported using condoms during last intercourse. Also, 56 subjects reported two or more partners, whereas 45 claimed four or more mates. The majority of the young women reported having tried substances such as alcohol and marijuana. Current pregnancy, race/ethnicity, and history of marijuana use were significantly related to having more than one sex partner. AIDS knowledge did not necessarily reduce the risk of having unprotected sex or multiple partners. Finally, young mothers were more likely to have multiple sex partners and less likely to have unprotected sex than were pregnant adolescents.

**Sex Education**

In “Reducing Adolescent Pregnancy Through School and Community-based Education,” Vincent, Clearie, and Schluchter (1987) found that a community-wide sex education program was successful in reducing adolescent pregnancy rates when measured 2 or 3 years after the program was implemented. Similarly, Howard and McCabe’s school-based sex education program (1990) showed significant success in decreasing the number of students from initiating sexual intercourse when measured at the end of the eighth and ninth grades. Also, Wellings et al (1995) found that of the
respondents for whom school was the main source of information about sexual matters, men were less likely, and women no more likely, to have had intercourse before the age of 16 than were those citing other main sources, such as friends and the media.

A study by Tucker (1990) of 179 black women representing 53 separate families reported that adolescent participants received less information regarding menstruation than the mothers and grandmothers surveyed. Less than six percent of the adolescents reported receiving no information related to sexuality, while 12.2% reported receiving no information about contraceptives.

The aim of sex education is solely based on prevention through the channel of knowledge. “Primary prevention of adolescent pregnancy focuses on the development of responsible sexual behaviors” and is “aimed at influencing adolescent attitudes toward childbearing including assertiveness and decision-making training” (Carter et al, 1994, p.112). Secondary prevention is associated with the promotion of contraceptive use among sexually active teens along with providing family planning services. “Tertiary prevention focuses on the prevention of morbidity in young mothers and their children through appropriate prenatal care and follow-up” (Carter et al, 1994, p.112). According to Pender (1996), “preventive services consist of strategies that include counseling [and] screening ... interventions for individuals in clinical settings” related to maternal and infant health, HIV infection, and sexually transmitted diseases (p.6).

Prior Use of the Health Belief Model and Fear Appeal Theory

Hiltabiddle (1996), using the Health Belief Model as a framework, identified teenagers’ risk factors for STDs and pregnancy, barriers to and facilitators of condom use, and suggestions for health care providers to increase condom use among adolescents. She concluded that by using the HBM, health care providers can guide the adolescent to make realistic risk assessments and identify positive ways of incorporating condoms into their sexual lives.
Another study using the Health belief model was conducted by Mahoney, Thombs, and Ford (1995). Evidence suggests that many students fail to use knowledge as a basis for guiding their own sexual behavior. “This implies that other variables such as attitudes, belief, and personality characteristics need to be accounted for in order to better understand why individuals do or do not engage in safer sex practices” (p.38). Four factors regarding the use of condoms and their “perceived barriers” emerged from this study. First, “turnoffs” and the lack of pleasure and sexual sensation are cited as barriers to condom use. Another barrier cited was the hassle or inconvenience of the use of condoms. The third barrier cited is “execution” or the proper technique of condom use. Relationship concerns was also cited, that is, “one’s concerns about the impact of condom use on a relationship” (p.38). Two factors of susceptibility are partner and self. This data suggests that “despite higher levels of perceived susceptibility to HIV/AIDS and other STDs” and the awareness of the “dangers presented by their behaviors, they continue to engage in them” (p.38).

The recently developed Extended Parallel Process Model (EPPM), outlining the fear appeal theory, has been used in research related to the prevention of teen pregnancy and sexually transmitted diseases. Witte (1997) used the fear appeal theory while studying the knowledge, attitudes and beliefs toward teen pregnancy. “Fear can be a barrier to behavior change” (p.138). These health risk messages that inflict fear in teenagers have been found to work in producing the desired actions. “When people realize they are susceptible to a serious threat and believe they can successfully avert it, they become motivated to protect themselves and think of strategies to control the danger or threat” (p.139). This protection motivation stimulates actions that reduce or diminish the threat. Overall, the results of Witte’s study revealed that participants recommended “‘telling it like it is’ and called for parents, teachers, and other authorities to be realistic and teach their children about sexual intercourse, birth control, and especially
consequences of unprotected sexual intercourse at an early age” (p. 143). By providing this information to the teens, the participants “thought teens would be more knowledgeable and aware of what to do ‘in the heat of the moment’ or if they unintentionally began to ‘go too far’” (p. 148). A recommendation from this study was the “use of a fear appeal/reality strategy in order to effectively motivate young girls to protect themselves against pregnancy, STDs, and HIV infection” (p. 151). This strategy focuses on making teenagers feel susceptible to severe consequences of sexual intercourse.

**Summary**

In summary, this chapter is a review of past research related to teen pregnancy, sexually transmitted diseases, sex education, and the use of the Health Belief Model and Fear Appeal Theory. A recent rise in teen pregnancy and birth rates was documented along with an increase in sexually transmitted infections. There is a gap in the literature relative to reporting the effectiveness of sex education programs. As previously identified, most research is descriptive. Those studies that provided a sex education program failed to report any changes in teens’ knowledge as it influences sexual behavior. This study is designed to help fill this gap in the literature. In addition, the HBM as well as the Fear Appeal Theory offer a helpful guide for conducting this research.
CHAPTER 3
METHODOLOGY

Introduction

This pretest/posttest study was conducted on a convenience sample of teenagers enrolled in a family dynamics class at a Tennessee high school. This chapter will discuss the research design, setting and methodology of this study. Ethical concerns and limitations will also be mentioned.

Research Design

A one group pretest/posttest design was utilized in this study. A questionnaire developed by the researcher was given to the students followed by a sex educational session. Three months later, the same questionnaire was administered again to determine any change in behaviors or knowledge.

Sample and Setting

A convenience sample of 31 subjects ranging in age from 14 to 18 years old was obtained from a family dynamic class at an area high school. The target population was students enrolled in the family dynamics class at a public high school in Tennessee. The setting for the sex education program was a classroom in the students’ high school where the class usually met. This setting remained the same for all educational sessions and both of the questionnaire periods. With a power level of 0.80, a medium effect size of 0.50, and an alpha level of 0.05, a minimum of 27 participants was needed for the study.

Measurement Tools

Prior to the intervention, each participant was requested to fill out a demographic data sheet containing questions about gender, age, and religion (See Appendix B). In addition to the demographic data sheet, each participant was asked several questions on current
sexual behavior and was asked to complete a fourteen-item questionnaire (Appendix C) related to his/her current knowledge of sexual matters. These items were evaluated using a Likert scale of five choices indicating strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5). Half of the items were stated in a positive manner. The other half were written in a negative form. Content validity was determined by two doctorally prepared experts, in the field of nursing, who evaluated the 14 items. Coefficient alphas for the present study ranged from .59 (pretest) to .79 (posttest).

Procedure

A sample of 31 students enrolled in a family dynamics class was utilized for this study. They were given a coded pretest questionnaire including demographic information, current sexual practices, and current knowledge about sexual matters. A sex educational session was provided to the class as part of their curriculum. Topics discussed in the session were sexually transmitted diseases, teen pregnancy, contraceptives, and abstinence. Approximately three months after the session, the researcher returned for the purpose of administering the posttest questionnaire. The same questionnaire was used for both the pretest and the posttest.

The pretest and posttest results were compared using a paired sample t-test to determine any change in the subjects’ knowledge of sexual information following the educational session. Frequency data were analyzed to determine behavior of the sample and demographic information related to the sample.

Ethical Considerations

A copy of the research proposal was presented to the vice-principal of the high school for approval to use the facility to conduct the study. Following Human Subjects Review Board approval, the teacher of the family dynamics class was then contacted regarding the study and gave her permission to use her class to conduct the study. A consent form was signed by each participant’s parent or guardian giving the subjects
permission to participate in the study. The subjects also signed an assent form stating they agreed to participate in the study. All of the members of the class returned a signed parental consent and student assent form to the teacher of the class prior to the beginning of the study. Confidentiality was maintained by assigning a code number to each questionnaire so that no individual’s information could be identified. Subjects were informed that the study was completely voluntary and that only group results would be reported. Any participant could voluntarily withdraw from the study at any time without punishment or retribution. Potential embarrassment may have occurred because of the sensitive subject matter. However, gaining knowledge was a benefit of participation in this study. There was no risk of physical harm to the subjects.

Data Analysis

Analysis of the pretest/posttest data was completed by using a one sample paired t-test. An alpha level of 0.05 was used. Descriptive statistics were performed on the demographic and behavioral data. The SPSS-PC computer program was used to analyze the data.

Methodological Limitations

One limitation to this research is the variability in developmental status of the adolescents. Second, other factors such as religion, socioeconomic status, and culture may also play a role in limiting the research. For example, teenagers raised in the Catholic faith may not heed the warning of protection against pregnancy and STDs because of their church doctrine related to contraceptives. Third, the teenagers may not feel that prevention of teen pregnancy and STD infection is important causing them not to abstain from intercourse or use contraceptives. The fourth limitation to this study is the type of class being used for investigation. The curriculum of the family dynamics class includes three sections: family dynamics, sex education, and responsibilities of parenting for a pretend child. Viewpoints of these subjects may be skewed by the multiple
influences from the class. Another limitations of this study is that the results are based solely on self-reported data. Finally, the samples’ prior knowledge of sex information may play a role in limiting the results of this study.

Communication of Findings

A copy of the study will be presented to the teacher of the family dynamics class. If any participant or parent requests a summary of the study, it will be given to the teacher of the family dynamics class for distribution to the student and/or parent. A bound copy of the thesis will be placed in the library of Western Kentucky University as well as the Department of Nursing in order to share the findings with interested readers.
CHAPTER 4
RESULTS

Introduction

In order to collect data for analysis, questionnaires were administered to the selected sample. Information obtained from the questionnaires included demographics, current sexual activity and knowledge of sexual matters. The pretest was administered to the sample group prior to the educational program. The posttest was administered to the sample approximately three months after the educational session. Data analysis was completed using the SPSS computer program.

Demographic Information

A sample of 31 teenagers ranging in age from 14-18 years old was obtained from an area high school. These students were enrolled in a family dynamics course. There were 25 females and 6 males. Approximately forty-two percent (41.9%) of the sample reported to be Baptist while 16.1 percent stated that Church of Christ was their religion.

Results of Data Analysis

The participants were asked from what source they had learned the most information about sexual matters. Friends were cited as the major source of information by the majority (58.1%) of the sample; family was cited by 38.7%. Interestingly, school and TV/movies were cited by the same percentage of the sample (19.4%). Books and magazines were cited by 9.7% of the sample.

Information related to the teen’s current sexual behavior was also gathered from the data. Questions related to oral sexual intercourse revealed 71% of the sample have participated in this activity. Of this group, 41.9% claimed having oral sex more than ten times and 45.2 percent reported not using protection such as condoms or dental dams.
Of the sample of 31 teenagers, there were only eight (25.8%) that reported being a virgin at the time of the pretest session. This percentage of the sample reported “waiting for marriage” as the major reason for not initiating sexual activity. Approximately 26% of this group reported that they plan to use protection at the time they initiate sexual intercourse. From pretest to posttest results, there was not an increase in sexual activity among the sample.

Of those that reported having sexual intercourse prior to the pretest session, the average age of initiating this activity was 14 years old, ranging from 9-17 years of age. When examining the number of sexual partners the teens have had the mean was four partners, but the range was from 1-25 partners. Those who used condoms reported they obtained them most frequently from drug stores or department stores. Of the sexually active teenagers, 45.2% reported current use of protection during sexual intercourse while 32.2% reported they were not currently using protection. When the teenagers were asked how many times they have had intercourse using protection, 12.9% reported never using protection during intercourse while another 12.9% of them reported never having intercourse without the use of protection. When asked the number of times they had had intercourse without protection, the students’ responses ranged from four times (9.7%) to ten times (6.5%). The frequency of intercourse with protection ranged from two times (12.9%) to five times (9.7%). The sample appeared to be using protection with nearly the same frequency as they were not using protection.

The teenagers were also asked if they or their partners used birth control pills or shots to prevent pregnancy. None of the males reported their partners using birth control pills or shots to prevent pregnancy. The males may or may not know if their partners were taking these products. Only 19.4% of the females reported using these products. Other protection methods such as foam, diaphragms, and/or spermicides were reportedly used 19.4% of the time.
The questionnaire also consisted of 14 statements related to sexual topics. Using a Likert scale, subjects were asked to rate their knowledge of sexual behaviors regarding pregnancy and contracting STDs. The results were analyzed using paired sample t-tests and an alpha level of 0.05. The following table illustrates the pretest and posttest t-test scores along with each item’s significance.

Table 1 - Paired Sample T-tests Comparing Knowledge Prior To/After the Intervention

<table>
<thead>
<tr>
<th>Question#</th>
<th>Pretest Mean</th>
<th>Pretest SD</th>
<th>Posttest Mean</th>
<th>Posttest SD</th>
<th>T test</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.26</td>
<td>1.39</td>
<td>1.23</td>
<td>0.8</td>
<td>3.59</td>
<td>*</td>
</tr>
<tr>
<td>2</td>
<td>1.81</td>
<td>0.95</td>
<td>1.32</td>
<td>1.01</td>
<td>2.18</td>
<td>*</td>
</tr>
<tr>
<td>3</td>
<td>1.47</td>
<td>0.63</td>
<td>1.33</td>
<td>1.06</td>
<td>0.64</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1.52</td>
<td>0.68</td>
<td>1.42</td>
<td>1.12</td>
<td>0.43</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1.65</td>
<td>0.88</td>
<td>1.45</td>
<td>1.1</td>
<td>0.88</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>1.35</td>
<td>0.71</td>
<td>1.32</td>
<td>1.01</td>
<td>0.17</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>2.61</td>
<td>1.38</td>
<td>2.81</td>
<td>1.62</td>
<td>-0.57</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>2.19</td>
<td>1.05</td>
<td>1.58</td>
<td>1.18</td>
<td>2.31</td>
<td>*</td>
</tr>
<tr>
<td>9</td>
<td>2.19</td>
<td>1.08</td>
<td>1.58</td>
<td>1.15</td>
<td>2.1</td>
<td>*</td>
</tr>
<tr>
<td>10</td>
<td>2.9</td>
<td>1.49</td>
<td>3.58</td>
<td>1.65</td>
<td>-1.67</td>
<td>*</td>
</tr>
<tr>
<td>11</td>
<td>1.67</td>
<td>0.96</td>
<td>1.33</td>
<td>1.03</td>
<td>1.41</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>3.53</td>
<td>1.14</td>
<td>3.47</td>
<td>1.66</td>
<td>0.18</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>1.84</td>
<td>1.04</td>
<td>1.74</td>
<td>1.32</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>3.39</td>
<td>1.2</td>
<td>3.71</td>
<td>1.44</td>
<td>-0.91</td>
<td></td>
</tr>
</tbody>
</table>

* p< 0.05

As illustrated by the above table, four questions showed a statistically significant change in knowledge after the educational session. With a sample size of 31 teenagers (df=30), any t-test value of 2.04 or above is considered statistically significant. Question number 1 ("STDs cannot be spread by oral sex") showed a significant increase in knowledge from pretest to posttest (p=0.001). Question number 2 also showed a statistically significant increase in knowledge (p=0.04). This question stated "If I or my partner use a condom, I am 100% protected from STDs." A third question that showed a statistically significant increase in knowledge for the subjects was question number 8 stating "If I or my partner pulls out before "coming" or ejaculating pregnancy cannot occur" (p=0.03). The final question to show a statistically significant increase in knowledge was question number 9.
stating “Douching after sexual intercourse will reduce the risk of STDs and pregnancy” (p=0.04).

**Summary**

In summary, the results of the study revealed to educators and health care professionals an awareness of the risky behaviors in which the teenagers participate. A statistically significant increase in knowledge was found with four of the fourteen items on the knowledge survey. The prior knowledge of the teens might have influenced the other ten items on the survey. A further discussion of the findings is included in Chapter 5 along with the strengths, limitations, and conclusions of this study.
CHAPTER 5
CONCLUSIONS

Discussion of Findings

Four of the 14 items showed a statistically significant positive increase in knowledge for the participants. The remaining items showed no significant change in response from pretest to posttest evaluation. This change in responses was minute and, in turn, was not shown to be statistically significant. The knowledge of the teens at the time of the pretest showed they had accurate prior knowledge of the sexual information. Therefore, the educational program provided to the participants likely reinforced their prior knowledge and reviewed familiar subjects related to sexual behavior.

Communication with parents and adults regarding sexual behaviors and previous contact with health professionals may have influenced the knowledge of the teens. Campaigns in the media related to STDs and teen pregnancy may also have been a possible influence in the sexual education of these teens. The educational intervention suggests an increase in the knowledge of the participants when evaluating four of the fourteen items. The students’ knowledge improved as it relates to the spread of STDs. The intervention does not suggest an increase in sexual behavior in the sample; however there was also no reported change in condom use among the teens. These data further reinforce the need for sex education programs for this population. However, with the major source of sexual information being obtained by teenagers from their peers, factual information needs to be provided in the classroom.

When comparing the findings of this study with the results of other studies, similar information is discovered. The results are somewhat congruent. Joffe (1993) reported unprotected sexual intercourse in 33% of the sample studied, while the results of
this study found 32.2% of the sample having unprotected sexual intercourse. There were some differences between this study and others. For example, the setting of this study was high school in a rural, small community which differs greatly from a large metropolitan area such as Baltimore, MD, which was the setting for the study conducted by Joffe (1993). This study, unlike many in the past, reports the effectiveness of a sexual education program in increasing the knowledge of the teenage sample.

Limitations

Limitations to this study are as follows: 1) the method of coding the questionnaires, 2) time period of study, and 3) self reporting by the participants. The research did not consider the method of coding the questionnaires prior to their administration. Because of the lack of matching each subjects’ responses from pretest to posttest, the researcher was unable to analyze the change in behavior and knowledge of each individual participant. Only group data were analyzed which may skew the results of the study. Using only three months for follow up may be a drawback because the participants may not have had ample time to assimilate the information presented to them and change their behavior related to sexuality. This study did not assess long term change in these teens. Using a self report method of data collection is also a limitation of the study. The researcher must assume the teens responded honestly; however exaggerated responses may have skewed the results of the study.

Strengths

This study had many strengths including the number in the sample, 100% response rate in the questionnaires, and educational merit. Thirty-one students participated in the study. A minimum of 27 participants was needed for a power level of 0.80, a medium effect size at 0.50, and alpha level of 0.05. Both the pretest and posttest sessions had 100% voluntary participation from the participants. Another strength of this study was that it provided sexual education to the teens in the class. The fact that it was
an intervention study is also a strength. Internal reliabilities (Cronbach's alpha) of the measurement tool ranged from .59 (pretest) to .79 (posttest). Content validity was determined through review of the instrument by nursing experts. An increase in knowledge and awareness of sexual information for the sample was a strength of this study. One-on-one contact with the participants after the educational intervention was an added strength of this study. Finally, awareness of educators and health care professionals revealed to the current sexual behaviors of the teenage population is also a major strength of this study.

Implications for Future Research

Further research should attempt to minimize the limitations of this study. Multiple groups might be used to determine if the educational session did in fact make a difference in the teenager's knowledge and behavior. Appropriate coding of the questionnaires should be utilized to determine change in the individual subject's knowledge so that individual as well as group results can be reported. The educational session could be expanded to include other forms of instruction such as videos, role playing, and small focus groups. A search of web sites could also be an educational tool used with the teens to teach information related to sexually transmitted diseases. Replication of this study is also a viable option. Longitudinal studies would allow a researcher to examine changes in behavior and outcomes over time. An intervention study can also be used to target younger populations such as elementary and junior high students.

Conclusions

Teenagers deserve the opportunity to make informed decisions related to sexual experiences. The knowledge gained during such school-based sex education programs can provide the teenagers awareness of the risks of early sexual experiences. Unprotected intercourse is only one of the risks teenagers take. They definitely do not need the
responsibility of a newborn or the embarrassment and suffering from an STD. School-based sex education can help keep students in school and prevent them from making risky decisions about sex. Because friends were most frequently cited as the main source of sexual information for the sample, it is crucial that peers be able to advise each other with factual information related to sex. For each student learning about sex at school, there is another student learning most of their sexual information from television and movies. Based on this data reported by the sample, it is evident that there is a great need for school-based sex education programs throughout the country. The portrayal of sexual experience in movies and on television is not always a form of reality.

After careful examination of the data, there was no evidence of an increase in sexual activity among the sample nor an increase in unprotected sexual behavior after the intervention. When the knowledge of the sample was examined after the educational session, only four items on the Likert questionnaire had a significant change. However, this modest change in knowledge as well as the reported behaviors of the sample indicate that a program such as this can help to increase knowledge and hopefully decrease risky sexual behavior in teenagers.
Appendix A

Health Belief Model
Modified from Nola Pender’s work

Modifying Factors

- Demographic variables
- Sociopsychologic variables
- Structural variables
- Perceived benefits of preventive action minus Perceived barriers to preventive action

Perceived susceptibility to disease X
Perceived seriousness [severity] of disease X

External influences

Perceived threat of disease X

Likelihood of taking preventive action
Appendix B

Student Code ________________

Questionnaire—
Please fill in the blanks or circle the most appropriate answer or answers for each of the following questions.

A. From what source did you learn the most information about sexual matters?
   Friends ______
   Family ______
   School ______
   TV/Movies ______
   Books/Magazines ______

B. Have you ever participated in any oral to genital affection (Oral sex)?
   YES _____  NO _____
   If YES, how often? ______________________
   Did you use protection? YES _____  NO _____

C. Are you currently a virgin (never had sexual intercourse)?
   YES _____  NO _____
   *If you answered YES to question C, then answer the questions in Part 1
   *If you answered NO to question C, then go to Part 2 and answer the questions

PART 1
Why have you not had sexual intercourse? (mark all that apply)

   Religious beliefs ______
   I have not found the right person ______
   Waiting for marriage ______
   Fear ______
   I do not want to have sex ______
   Not sure ______
   Other (be specific) __________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

   When do you plan on having sex for the first time? _________________

   Do you plan on using a form of birth control such as a condom when you have sex for the first time?
   YES _____  NO _____
PART 2

1. At what age was your first sexual experience? ______

2. How many times have you had sexual intercourse? ______

3. How many times have you had sexual intercourse without using protection (condoms, foam, diaphragm, spermicide, etc.)? ______

4. How many times have you had sexual intercourse with the use of protection (condom, foam, diaphragm, spermicide, etc.)? ______

5. How many times have you had intercourse without using protection in the last week? ______
   month? ______

6. How many times have you had intercourse with the use of protection in the last week? ______
   month? ______

7. With how many people have you had sex? _________________

E. Do you use condoms as a form of birth control and/or a method to prevent contracting an STD? YES ____ NO ____

   If YES, where do you get the condoms?

   Drug store or department store ______
   Friends ______
   Parents ______
   Other family member ______
   Other source (be specific) ____________________________

F. If female, are you currently taking birth control pills or a shot (Depo-Provera) to prevent pregnancy?

   If so, for how long have you been taking them?

   ____________________________

   Do you take them as prescribed and on schedule?
   YES ____ NO _____

   Do you use any other protection such as condoms, foam, diaphragm, spermicide, etc. in addition to the pills or shot?
   YES ____ NO _____

G. If male, does your partner use birth control pills or shots to prevent pregnancy?
   YES ____ NO _____
Do you use another form of protection such as condoms, foam, diaphragm, spermicide, etc.? YES _____  NO _____

Demographic Data-

Age-___________

Gender- MALE or FEMALE

Grade- __________

Religion-________________ (optional)
Appendix C
Current Knowledge Survey—

Please circle the appropriate number that most appropriately reflects your response to the questions.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. STDs cannot be spread by oral sex.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. If I or my partner use a condom, I am 100% protected from STDs</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. If I or my partner are on the pill or shots to prevent pregnancy, I cannot get a STD.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. If I or my partner use a condom, I am 100% protected from pregnancy.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. STDs cannot be spread by anal sex.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. Females cannot get pregnant during their first sexual experience.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. I can get an STD from a the toilet seat.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. If I or my partner pulls out before &quot;coming&quot; or ejaculating pregnancy can not occur.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. Douching after sexual intercourse will reduce the risk of STDs and pregnancy.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. I can get a STD from kissing.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11. All STDs are curable.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12. If I get an STD, I can become sterile and not be able to have children.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13. I or my partner cannot get pregnant if menstruation is occurring.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14. I or my partner can get pregnant if intercourse occurs about 14 days after menstruation.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
References


