

2005

The effects of an education/behavioral intervention on knowledge, perceived risk and self-efficacy in women

Versie Johnson-Mallard
University of South Florida

Follow this and additional works at: <http://scholarcommons.usf.edu/etd>

 Part of the [American Studies Commons](#)

Scholar Commons Citation

Johnson-Mallard, Versie, "The effects of an education/behavioral intervention on knowledge, perceived risk and self-efficacy in women" (2005). *Graduate Theses and Dissertations*.
<http://scholarcommons.usf.edu/etd/2944>

This Dissertation is brought to you for free and open access by the Graduate School at Scholar Commons. It has been accepted for inclusion in Graduate Theses and Dissertations by an authorized administrator of Scholar Commons. For more information, please contact scholarcommons@usf.edu.

The Effects of an Education/Behavioral Intervention on Knowledge, Perceived Risk and
Self-Efficacy for Sexually Transmitted Infections in Women.

by

Versie Johnson-Mallard

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
College of Nursing
University of South Florida

Major Professor: Cecile A. Lengacher, R.N., Ph.D.
Jeffrey Kromrey, Ph.D.
Doris Campbell, ARNP, Ph.D., FAAN
Cecilia Jevitt, CNM, Ph.D.
Ellen M. Daley, Ph.D.

Date of Approval:
July 5, 2005

Keywords: women's health, childbearing, intervention study, reliability testing, condom
use

© Copyright 2005, Versie Johnson-Mallard

Acknowledgements

The writing of this dissertation has been demanding, all encompassing, and very exciting. I thank my advisor, Dr. Cecile Lengacher, for her valued confidence and treasured encouragement. She posed questions that constantly challenged me to express my thoughts and ideas clearly. Patiently, she guided me through the dissertation process while always demanding my best effort. Also, I am very grateful to everyone who has read any part of the manuscript. I especially thank Dr. Doris Campbell, the editing authority. Special thanks to Dr Jeffrey Kromrey for his sharp statistical guidance and gentle demeanor. I also offer great thanks to Drs. Cecilia Jevitt and Ellen Daley who filled me with insightful commentary and often reminded me that my research is useful and purposeful for the health of women. I am very grateful to Dr. Karla Schmitt for her acceptance and support of this idea from its inception.

In addition to my committee members, I offer much thanks to Dr. Kim Vaz, Tricia Holtje, and Vince Cesario for their continued support and precious time expenditures on behalf. I am truly fortunate to have had the opportunity to work with such dynamic people.

A heartfelt thank you goes to my husband (Leonard) and son (Corey). Without the support of the two most important men in my life the writing of this dissertation would not have been possible.

Table of Contents

List of Tables	iii
List of Figures	v
Abstract	vii
Chapter One Introduction	1
Statement of the Problem.....	10
Purpose of the Study	11
Research Hypotheses	11
Definition of Terms.....	12
Delimitations.....	13
Limitations	13
Significance of the Study	14
Chapter Two Literature Review.....	16
Introduction.....	16
Theoretical Framework.....	16
Hypothesized Logic Model.....	17
Review of Empirical Literature	24
Knowledge and Sexually Transmitted Infections	24
Perceived Risk and Sexually Transmitted Infections	35
Self-Efficacy and Sexually Transmitted Infections	42
Sexually Transmitted Infection and Intervention Studies.....	49
Preliminary Study	54
Chapter Three Methods.....	57
Introduction.....	57
Design	57
Setting and Subjects.....	57
Inclusion Criteria	58
Exclusion Criteria	60
Gender, Minority, Children Inclusion.....	60
Instrumentations.....	61
Sexually Transmitted Infection Knowledge Survey	61
Perceived Risk of Sexually Transmitted Infection Survey	62
Self-Efficacy Survey of Protective Sexual Behaviors	63
Demographic Data Form.....	65
Procedures.....	66
Approvals.....	66
Data Collection Procedures.....	67
Subject Retention and Follow-up Procedures.....	68

The Education/Behavioral Intervention	69
Data Analysis	73
Data Management	74
Chapter Four Results.....	76
Sample.....	76
Research Hypothesis Number One	92
Research Hypothesis Number Two	94
Research Hypothesis Number Three	97
Chapter Five Discussion, Conclusion, and Recommendations	110
Introduction.....	110
Summary of Study	110
Discussion and Conclusions	112
Implications for Nursing.....	119
Recommendations for Further Study	121
References.....	123
Appendices.....	138
Appendix A: Demographic Data Form.....	139
Appendix B: Sexually Transmitted Infection Knowledge Survey	141
Appendix C: Perceived Risk of Sexually Transmitted Infection Survey	144
Appendix D: Self-Efficacy Survey of Protective Sexual Behavior	145
Appendix E: Consent to Use Instrument	146
Appendix F: Research Site Consents.....	147
Appendix G: Institutional Review Board Approval	151
Appendix H: Informed Consent/Assent Form	153
Appendix I: An STI Knowledge/Behavioral Intervention for Women	164
Appendix J: Information Brochure	176
About the Author	End Page

List of Tables

Table 1	U.S. Census Percent by Race/Ethnicity in Targeted Counties of Study	59
Table 2	Health Department Censuses by Race/Ethnicity	59
Table 3	Instruments/Reliability Used To Measure Knowledge, Self-Efficacy, and Perceived Risk Of STIs	65
Table 4	Demographic Characteristics (Frequency and Percentage) by Age and Ethnicity Per Intervention and Control Group	78
Table 5	Frequency and Percentage of Women by Level of Education per Group Status.....	79
Table 6	Frequency and Percentage of Women by Level of Household Income per Group Status	80
Table 7	Frequency and Percentage of Number of Children per Intervention and Control Group	81
Table 8	Frequency and Percentage of Work Status and Medical Insurance.....	82
Table 9	Frequency and Percentage Data of Marital Status	83
Table 10	Frequency and Percent of Times Pregnant per Intervention and Control Group	84
Table 11	Frequency and Percentage Data of Sexually Activity during Pregnancy.....	84
Table 12	Age of First Sexual Encounter (Frequency and Percentage) by Group.....	85
Table 13	Frequency and Percentage of Sex Partners Within the Last Year	86
Table 14	Frequency and Percentage of Sexual Partner Behaviors	87
Table 15	Frequency and Percentage of Women with an STI While Pregnant	88
Table 16	Self-Reported Sexual Intercourse and STIs Frequency and Percentage per Group.....	89

Table 17	Frequency and Percentage of Women by Birth Control per Group.....	90
Table 18	Frequency and Percentage of Women by Birth Control per Group.....	91
Table 19	Means and Standard Deviations for Knowledge of STI at Pre- and Posttest	92
Table 20	Test of Between- and Within-Subject Effect for Dependent Variable, Knowledge of STIs	94
Table 21	Means and Standard Deviations for Perceived Risk of STI at Pre- and Posttest	94
Table 22	Post test of Intervention Effect on Perceived Risk for Between and Within Subjects.....	95
Table 23	Means and Standard Deviations for the Subscale Refusing Sexual Intercourse at Pretest and Posttest.....	97
Table 24	Means and Standard Deviations for Questioning Potential Sex Partners at Pre- and Posttest.....	98
Table 25	Means and Standard Deviations for Condom Use at Pre- and Posttest	99
Table 26	Between- and Within-Subject Effect on Refusing Sexual Intercourse	100
Table 27	Between- and Within-Subject Effect on Questioning Potential Sex Partner	101
Table 28	Between- and Within-Subject Effect on Condom Use During Sexual Intercourse.....	102
Table 29	Ranking of Items for the Self-Efficacy Subscale “Ability to Refuse Sexual Intercourse” Experimental Group Pretest Score	103
Table 30	Ranking of Items for the Self-Efficacy Subscale “Ability to Refuse Sexual Intercourse” Experimental Group Posttest Score.....	104
Table 31	Ranking of Items for the Self-Efficacy Subscale “Ability to Question Potential Sex Partners” Experimental Group Pretest.....	105
Table 32	Ranking of Items for the Self-Efficacy Subscale “Ability to Question Potential Sex Partners” Experimental Group Posttest	106

Table 33	Ranking of Items for the Self-Efficacy Subscale “Ability to Question Condom Use” Experimental Group Pretest	107
Table 34	Ranking of Items for the Self-Efficacy Subscale “Ability to Question Condom Use” Experimental Group Posttest.....	108

List of Figures

Figure 1. Logic Model: Hypothesized Logic Model: Sexually Transmitted Infection Education/Behavioral Intervention for Women	18
--	----

The Effects of an Education/Behavioral Intervention on Knowledge, Perceived Risk and Self-efficacy for Sexually Transmitted Infections in Women

Versie Johnson-Mallard

ABSTRACT

The purpose of this research study was to test the effects of an education/behavioral intervention on knowledge, perceived risk, and self-efficacy for sexually transmitted infections (STIs) prevention in women. Additionally, the instruments that measured knowledge of sexually transmitted infections and perceived risk were tested for reliability. Instruments used to test the effects of the intervention at pretest and following the intervention included the Sexually Transmitted Infection Knowledge Survey (Johnson-Mallard, 2002); the Perceived Risk for Sexually Transmitted Infection Survey (Johnson-Mallard, 2002); and the Sexual Self-Efficacy Survey (Heather & Pinkerton, 1998). Participants included 89-women seeking family planning services, sexually transmitted infection services or prenatal care at three county health units. Participants were randomly assigned to a treatment (n = 47) or control (n = 42) group. The treatment group received the theory based STI education/behavioral intervention. A logic model and Bandura's Social Cognitive Theory were used to test the effects of an education/behavioral intervention on decreasing individual exposure to sexually transmitted infections by increasing individual knowledge, perceived risk, and self-efficacy. Data were analyzed using Analysis of Variance. Significant differences from pretest to posttest was obtained between the experimental and control group on knowledge of STIs $F(1, 87) = 73.66, p < .001$. Test results for the effect of the

education/behavioral intervention on sexual self-efficacy resulted in significance difference between groups at posttest on refusing sexual intercourse $F(1, 87) = 50.18, p < .001$; questioning potential sex partners $F(1, 87) = 15.48, p < .001$; and condom use $F(1, 87) = 19.60, p < .001$; indicating the brief (30-minute) education/behavioral intervention had an effect on the experimental group. However, posttest on STI perceived risk for women receiving the education/behavioral intervention did not approach significance $F(1, 87) = .02, p < .901$ indicating the education/behavioral intervention did not have a statistically significant effect on the experimental group.

The findings of the study indicate the importance of healthcare providers reinforcing STI information during clinical encounters with women. Women need to understand that STIs contribute greatly to morbidity associated with reproductive health.

Chapter One

Introduction

Sexually transmitted infections represent a serious public health problem that needs to be, and can be, brought under control. The incidence rates for sexually transmitted infections (STIs) such as syphilis, herpes simplex virus, gonorrhea, and chlamydia have increased dramatically (Hutchinson, 1999; Sexton, Garnett, & Rottingen, 2005). Paz-Bailey et al. (2005) reported an estimated 18.9 million new cases of STIs occur annually. More specifically, Van Devanter et al. (2002) reported that two-thirds of the estimated 12 million cases of STIs in the United States occur in women, and in fact, after only a single exposure, women are twice as likely as men to become infected with the pathogens causing gonorrhea, chancroid, hepatitis B, and chlamydia infection (King et al., 2001; Lambert, 2001; Robinson, 2002; Shain, 1999). In particular, chlamydia is reported as a leading cause of reproductive morbidity in women (Asbill et al., 2000; Duncan et al., 2001; Gray et al., 2001), and the prevalence of *chlamydia trachomatis* is highest among female adolescents, women under 24 years, and African-American and Hispanic women (Asbill et al., 2000; Jemmott et al., 2005; King et al., 2000; Mahon et al., 2002; Ramus, 2001). As many as 54% of girls younger than 15 years develop a second infection with *chlamydia trachomatis* one to six years after initial chlamydia infection (Lauby et al., 2000; Orr, 2001; Shrier, et al., 2001; Tobin, 2002). Women (and children) have the most severe symptoms and sequelae to sexually transmitted infections

(Shain, 1999). Sexually transmitted infections cause considerable morbidity and mortality among nonpregnant and pregnant women (D'Souza, 1999; Wilson, Minkoff, McCalla, Pettekin, & Jaccard, 1996). Indeed, most of the women accounting for 46% of the five million incidences of sexually transmitted infections in adults during 1999 were women of childbearing age (Niccolai, Ethier, Kershaw, Lewis, & Ickovics 2003). Premature delivery is the chief problem in obstetrics today, accounting for 70 percent of perinatal mortality and nearly half of long-term neurological morbidity (Andrews Health & Goldenberg, 2000), but many premature deliveries might be avoided by prevention and treatment of STIs.

Chlamydia trachomatis, and *Neisseria gonorrhoea* are the leading etiology of pelvic inflammatory disease and may lead to ectopic pregnancy, infertility, and chronic pelvic pain. First, it is estimated that more than 200,000 new hepatitis B surface antigen (HBsAg) infections occur annually in the United States (Corrarino, Walsh, & Anselmo, 1999; Gilbert et al., 2005), and each year an estimated 20,000 infants are born to women who test positive for HBsAg. Without vaccination against HBsAg, a woman can transmit the disease to the fetus during the perinatal period (Corrarino, Walsh, & Anselmo, 1999; Gilbert et al., 2005).

Even more important, *Chlamydia trachomatis* and *Neisseria gonorrhoeae* are highly prevalent in young adults (Asbill et al., 2000; King et al., 2001; Weitz, 2001). Chlamydia is also a leading cause of reproductive morbidity in women (Duncan, Hart, Scoular, & Brigrigg, 2001; Wong et al., 2005), and gonorrhoea has been shown to ascend in the female genital tract attached to motile spermatozoa. Weitz (2001) reported that chlamydia and gonorrhoea are associated with premature rupture of fetal amniotic

membranes. In addition, fetal death secondary to premature delivery, pneumonia, and sepsis can occur.

Next, conflicting information exists as to whether *Bacterial vaginosis* (BV) should be classified as an STI. *Bacterial vaginosis* is most frequently described as a change in vaginal PH leading to altered vaginal fluid. However, little conflict exists over the possible serious obstetrical complications that can occur with BV. *Bacterial vaginosis* has been linked to high risk of spontaneous abortions, preterm birth, preterm premature rupture of membranes, postpartum endometritis, and post-cesarean wound infections (Carey et al., 2001). Most significantly, Stevens et al. (2004) reported that women with *bacterial vaginosis* have a doubled risk of spontaneous preterm delivery—again, the chief problem in obstetrics today.

Likewise, syphilis is an important cause of morbidity particularly among women and their newborn infants and if untreated has many serious sequelae (Todd et al., 2001). Untreated syphilis during pregnancy can lead to infant disorders such as deafness, neurologic impairment, and bone deformities, or worse, stillbirth or neonatal death (Mehment, Ledger, & William, 2000; MMWR, 2001; Osman, et al., 2001; Salkind, 2001; Temmerman, et al., 2000).

Herpes simplex virus (HSV) neonatal infections most often occur because of first-episode maternal infections during late pregnancy when delivery occurs before the development of protective maternal antibodies (Corey & Flynn, 2000; Mullick, Beksinksa & Msomi, 2005; Rouse & Stringer, 2000). *Human papillomavirus* (HPV) is the most common sexually transmitted infection in American, and women can be infected at any time, certainly including pregnancy (Ebrahim, McKenna, & Marks, 2005;

Lambert, 2001). Sexually transmitted infections also increase the likelihood of HIV transmission. An estimated 2.4 million HIV-infected women give birth annually, and 1600 infants acquire HIV infection every day (Timmermens et al., 2005).

In summary, exposure to sexually transmitted infections during pregnancy (other than *human immunodeficiency virus*) such as *Chlamydia trachomatis* and/or *Neisseria gonorrhoeae*, syphilis, *herpes simplex virus* (HSV) and *bacterial vaginosis* (BV) has been associated with adverse pregnancy outcomes (Asbill et al., 2000; Weitz, 2001; King et al., 2001; Weisbord, 2000).

Another aspect of the problem is that pregnant women go unnoticed in STI preventive education because most prenatal care providers do not embrace this time to educate concerning sexually transmitted infections (Wilson et al., 1996; Weisbord et al., 2001). Traditionally women's health care providers counsel women about sexual activity during pregnancy in reference to preterm labor, premature rupture of membranes, or strategies to increase comfort as the abdomen protrudes. However, since prenatal care is likely to be pregnant women's only contact with the health system (Wilson et al., 1996), prenatal care should include information about STIs. In these times of significantly higher prevalence of sexually transmitted infections among women of childbearing age, the focus for pregnant women should include behavior intervention that empowers them with increased knowledge and increased perception of risk.

After all, a woman's sexual self-concept or need for intimacy and sexual expression is a basic drive that does not disappear when she becomes pregnant and in actuality may increase because she does not fear *becoming* pregnant. Of the millions of women giving birth each year in the United States, virtually all engage in unprotected

intercourse (Wilson et al., 1996). Pregnant adolescents may be at high risk for STIs because of their sexual risk history, likely reductions in use of condoms no longer needed for birth control, and the fact that pregnancy results in additional physiologic vulnerabilities to STIs (Wilson et al., 1996). Niccolai et al. (2003) found that pregnant adolescents have high levels of STIs during pregnancy, but most interestingly Niccolai reported that if adolescents were routinely screened and treated in the first trimester of pregnancy, and those infections detected during the third trimester were acquired recently, then the women's perceptions about being in monogamous partnerships are likely to be incorrect.

In addition, women lack adequate knowledge concerning risk factors associated with sexually transmitted infections during pregnancy and may not know the associated risk for their unborn fetus (Asbill et al., 2000; Shrier et al., 2001; Weitz, 2001). The Dixon-Wood et al. (2001) study results suggested that women's lack of knowledge about STIs played a significant part in seeking sexual health services. For example, many women who test positive for hepatitis B surface antigen during the perinatal period lack basic knowledge regarding the hepatitis B virus; this makes it essential that nurses teach important information to this population (Corrarino, Walsh, & Anselmo, 1999). Risk association such as premature rupture of membranes in the presence of chlamydia and gonorrhea infections may go unidentified without intervention that focuses on client education among sexually active women (Weitz, 2001). Thus, adequate knowledge about sexually transmitted infections is necessary to reduce behavior that may place women at risk of transmission (Swanson, Dibble, & Chapman, 1999).

This problem is not limited to the United States alone. Although several studies provide evidence that African-American women do not receive timely, routine, and adequate preventive health care services, the literature also shows that the United Kingdom has the highest rate of STIs in Western Europe and knowledge about STIs is generally poor (Jolley, 2001). In fact, Jolley (2001) reported that even many health care workers do not have adequate knowledge of STIs and therefore cannot advise clients properly. Further, Colvin's study (2000) demonstrated a high prevalence of STIs and HIV infections in the Lesotho highlands characterized by low levels of knowledge about STIs and HIV. With the increase in HIV infection among women of childbearing age in Hong Kong, a study was aimed at exploring pregnant women's knowledge about HIV/AIDS. Women's perception of risk, risk behavior and management, and their attitudes toward HIV screening were explored (Ho & Loke, 2003). The participants in the study were 17 to 40 years old, with a mean age of 29.6. More than half (62.8%) were primiparas. The vast majority were married (97.4%) and had received secondary education or above (96.9%). The majority knew that AIDS is an infectious disease (91.6%), recognized that "the appearance of HIV carries no difference from that of the normal population" (84.4%). The women disagreed with the statement that "women with only one sexual partner will not get AIDS" (79.1%), knew that "using condoms can reduce the chance of getting AIDS" (89.0%), and realized that "there is no medication to cure AIDS" (78.5%). However, nearly half (43.5%) of the women thought that mosquitoes are carriers of HIV. Clearly, prenatal care worldwide must educate women to modify their behaviors in order to prevent the infections discussed above.

Preventive education during prenatal care can identify behaviors and knowledge gaps that increase the likelihood of adverse health outcomes and provide information that could lead to health promoting behavior (Peterson, Connelly, Martin, & Kupper, 2001; Wilson et al., 1996; Weisbord et al., 2001). Lambert's (2001) study found significant improvement in knowledge after a brief information-only intervention about STIs specifically HPV. Positive behavior changes can occur with creative nursing practice, such as interventions to enhance self-efficacy and perceived risk and to increase knowledge of sexually active pregnant women.

Another essential component to prevention of acquiring a sexually transmitted infection (STIs) is to gain an understanding as to why women at risk for STIs and pregnant do not use condoms for disease prevention. Knowledge of partners' past sexual history, the importance of limiting number of sex partners, and knowledge of how to avoid the exchange of body fluids during sexual intercourse must be emphasized and disseminated in order to effectively develop the disease prevention message. However, this study's literature review found little research that dealt with women's knowledge of symptoms, prevention, treatment, and transmission of sexually transmitted infections during the course of pregnancy. Many of the infectious diseases contracted sexually during pregnancy can be easily diagnosed and treated (Weisbord et al., 2001), but even better, the message that condoms are effective, when used consistently and correctly, against HIV and other STIs must continue throughout prenatal care.

Pregnancy should be a time of sexual harmony, a time to enjoy sexual intercourse. The only concerns the mother should have are whether the baby is a girl or boy, how much the baby weighs, and who the baby will look like. This is not a time to wonder

whether the baby will be HIV positive or born with syphilis. No woman should have such worry, but if she does, how can health care professionals relieve her of some of the concern relating to potential infections? If sexual monogamy is at question during pregnancy, then safe sex should be practiced and continued throughout pregnancy.

But how can prenatal health care professionals help to relieve the concerns of sexually active pregnant women? One model used often to predict protective behaviors, including self-perception of risk for STIs, is the perceived risk model or threat recognition, perceived susceptibility model (Hutchinson, 1999). A woman must recognize that she is at risk for sexually transmitted infections before she will take action to prevent them. Weisbord, Koumans, Toomey, Grayson, and Markowitz (2001) reported women's perceived risk necessitates assessment by the health care provider to establish its impact on intention to engage in health-related preventive behaviors. Data from Lauby, Smith, Stark, Person, and Adams (2000) indicated that many women at risk for sexually transmitted infections such as HIV did not perceive their risk, particularly with their main partners. This situation confirms the necessity for relevant, effective prevention behavior-modification intervention that targets women. The issue of main partner is important because perceived risk is a complex variable that may incorporate each subject's perceived risk, and the subject's perceptions about the risk exposure as a result of the sexual perceived risk of their spouses or other partners (Todd et al., 2001). Hutchinson (1999) reported the effectiveness of programs that assisted women to examine their perceptions of their partner's risk. Further, Weisbord, Koumans, Toomey, Grayson, and Markowitz (2001) conducted a provider-of-prenatal-care survey acknowledging that the rate of screening for STIs depends on the woman's perception of

her risk. If she has poor perception of personal risk, she may go untreated or uninformed. Women not perceiving sexually transmitted infections as personally relevant may be functioning according to stereotypical beliefs about who is “at risk” of sexually transmitted infections (Duncan, Hart, Scoular, & Bigrigg [check spelling], 2001).

Numerous other research studies have been conducted to review self-efficacy. Siegel, Aten, and Enaharo (2001) evaluated self-efficacy and knowledge following an educational-behavioral intervention. The intervention was successful in increasing knowledge and self-efficacy to behave in sexually safer ways. Berarducci and Lengacher (1998) expressed that an individual’s confidence in the ability to perform a certain behavior is a necessary bridge between knowing what to do and actually performing the behavior. In addition to knowing what to do, a person must know how to perform the behavior and must possess a need or want to do so. Key strategies, addressed in this study, advocated for lowering personal risk of sexual exposure to STI/HIV include having fewer partners, avoiding risky partners, and education against such behaviors.

In summary, this study included information to increase knowledge of and responsiveness to the consequences of unsafe sexual behavior. The intervention sought to increase self-regulatory skill development toward behavioral change directly relating to translating knowledge into preventive action. The education/behavioral intervention offered an opportunity for guided practice by women’s health care providers and sought to introduce corrective feedback by introducing ways to apply the new skills directed at increasing knowledge, perceived risk, and self-efficacy relating to sexually transmitted infections.

Statement of the Problem

Research has identified sexually transmittable infections as a public health concern in women (Dilorio, Dudley, Soet, Watkins, & Maibach, 2000). However, limited research addresses pregnant women's knowledge of sexually transmitted infections during the course of their pregnancy (Weisbord et al., 2001; Wilson et al., 1996). A small number of facts have been established in assessment of consistent condom use while pregnant. Cases of STIs have been reported in the pregnant population, and pregnant women may be at greater than the predicted risk of contracting sexually transmitted infections to the extent that they engage in risk-taking behaviors (Wilson et al., 1996). Based on the review of available research regarding the most prevalent age groups for contracting STIs, the traditional childbearing years are in the midst of the age group at high risk for contracting and transmitting sexually transmitted infections such as HIV (Morrison-Beedy et al., 2002). Literature that exists on knowledge about STIs, perceived risk, and STI prevention among pregnant and nonpregnant women is quite limited. Little evidence exists regarding the extent to which pregnant women perceive a risk. Research is needed to assess the degree of knowledge and perceived risk that women have about STIs and pregnancy. After identifying data needs, the next logical step is to select a method to measure chosen variables, in this specific case knowledge and perceived risk of sexually active women, and develop strategies to modify behavior.

Purpose of Study

The purpose of this study was to test the effects of an educational intervention on knowledge, self-efficacy, and perceived risk of sexually transmitted infections in women. This study also tested the validity and feasibility of the instruments with women of

childbearing age and tested knowledge retention. Additionally, the instruments that measure knowledge of sexually transmitted infections and perceived risk were tested for reliability.

Research Hypotheses

The effects of the intervention were assessed by testing the following aims and hypotheses:

Aim 1: Differentiate the effectiveness of an educational intervention from the control group by assessing changes in knowledge of sexually transmitted infections.

Hypothesis 1: There will be significant increases in knowledge of sexually transmitted infections in the educational intervention group compared to the control group.

Aim 2: Differentiate the effectiveness of an educational intervention from the control group by assessing changes in perceived risk of sexually transmitted infections.

Hypothesis 2: There will be significant increases in perceived risk of sexually transmitted infections in the educational intervention group compared to the control group.

Aim 3: Differentiate the effectiveness of an educational intervention from the control group by assessing changes in self-efficacy of protective sexual behavior from sexually transmitted infections.

Hypothesis 3: There will be significant increases in self-efficacy of protective sexual behavior from sexually transmitted infections in the educational intervention group compared to the control group.

Aim 4: Test the reliability of the instruments developed to measure knowledge and perceived risk of sexually transmitted infections in women.

Definition of Terms

For the purpose of this study, the following definitions were used.

1. Knowledge: Awareness of sexually transmitted infections during pregnancy as a serious health problem for self, fetus, and newborn; an understanding of how symptoms present and available measures to prevent, treat, and avoid infection transmission (Johnson-Mallard, 2002).
2. Beliefs: Opinions that pregnant woman embrace as factual about STIs, risk factors, and prenatal screening for these infections (Asbill et al., 2000).
3. Reproductive sexual risk behavior: Operationally defined as women's plans and efforts to seek necessary information about STIs throughout their childbearing years and to practice preventive behavior during sexual intercourse (Wilson et al., 1996).
4. Safer sex: Sexual intercourse with condom use as a normal practice (Hatcher, 2004).
5. Sexually transmitted diseases/infections: Contagious maladies contracted through unprotected sexual intercourse (Hatcher, 2004).
6. Self-efficacy: Individual's belief that she has the competence to perform a necessary behavior to attain a particular goal or desired outcome in order to promote physical, psychological, or social well-being; a mediator between knowledge and action (Berarducci & Lengacher, 1998, p. 58).
7. STI perceived risk: The belief that one has about contracting a sexually transmitted infection while pregnant and the belief that certain behavior change will eliminate or

reduce the susceptibility to contracting a sexually transmitted infection (Perceived Risk Scale, 2002).

Delimitations

The sample included women of childbearing age and included the following parameters, that participants were

1. Between 15 and 45 years of age;
2. Currently seeking prenatal care, family care, or primary-care services within the rural areas of Northwest Florida; and
3. Able to read, write, and speak English

Limitations

The study provided the primary steps toward the expansion of a sexually transmitted infection preventive education/behavioral intervention and the identification of predictors of STI preventive behavioral intentions of childbearing age women.

Limitations of the study include those generally experienced with intervention research and are as follows:

1. This study used a homogenous group of women; generalizations to other age groups, socioeconomic groups, and men are limited.
2. The study participants were concentrated inside several rural geographic areas that may have unique influential characteristics, thereby limiting generalization of findings to other geographic locations.
3. The use of (paper-and-pencil) questionnaires may enhance measurement error.
4. The surveys may bring into play anxiety that may influence participants' answers.

5. Study participants may reply in a socially desirable manner.
6. The surveys are written for low literacy; the reading level of participants were not controlled.
7. Dissemination of treatment may occur between experimental and control group participants seeking care at the same county health unit.
8. Subjects in the intervention group are exposed to the intervention; those in the control group may attempt to compensate by looking for information in an attempt to outperform the intervention group.

Significance of the Study

Women's health care providers and women are challenged to recognize critical points in at-risk situations, such as exposure to sexually transmitted infections, which precipitate preterm labor, and if not successfully treated, lead to preterm delivery. This study tested a nursing intervention with a theoretical base that has the intent of disease prevention, specifically STI prevention among women of childbearing age. This study potentially impacts women's health by eliminating knowledge gaps and contributing to the development of evidence-based practice. Generally, following exposure to sexually transmitted infection, women are not aware of risks to themselves or their unborn fetuses. Teaching safer-sex messages alone does not change risky sexual behaviors. In conjunction with safer-sex messages, women's health care providers specializing in obstetrics and gynecology can stimulate investigation, which affects prevalence rates and encourages behavior change with simple yet effective behavior modification interventions.

Individual knowledge of STI-related issues does not necessarily reduce risk-taking behaviors. Women must perceive personal risks and have the knowledge to implement behavior modifications. Nurse directed creative interventions could empower women with knowledge to perceive risks and to take personal action and circumvent high-risk behaviors.

Chapter Two

Literature Review

Introduction

This chapter presents the theoretical framework and logic model that provide direction for review of empirical literature. The literature review relates to knowledge of sexually transmitted infections, perceived risk, and self-efficacy of sexually transmitted infections as well as interventions related to sexually transmitted infections. Finally a summary of preliminary research and a summary of the literature review are presented.

Theoretical Framework

This study is guided by a logic model integrating constructs of the Social Cognitive Theory. The logic model and Social Cognitive Theory were used to test the effects of an education/behavioral intervention on decreasing individual exposure to sexually transmitted infections by increasing individual knowledge, perceived risk, and self-efficacy. The following exploratory and theoretical logic model postulates the effects of an education/behavioral intervention on decreasing individual exposure to sexually transmitted infections by increasing individual self-efficacy and knowledge.

Hypothesized Logic Model

Although the effects of the proposed education/behavioral intervention were unknown, Figure 1 below depicts a logic model identifying variables related to the proposed tested intervention and tested outcomes. This logic model, developed by Evans (1992), is based upon the Psychosocial Nursing Research Model as a heuristic device for research. It should be emphasized that although this model is exploratory in nature, additional outcomes not depicted in the model may be plausible. These logic models along with constructs from the Social Cognitive Theory were used to guide this intervention designed to impact the prevention of sexually transmitted infections.

Based upon the literature and prior research, it was hypothesized that knowledge, perceived risk, and self-efficacy of sexually transmitted infections would increase with an educational intervention. Limited evidence was available to support these hypotheses, and the development and testing of the effects of preventive educational intervention were further evaluated through this study. Data collection provided for these effects to be tested. The distal outcomes depicted in the model were not measured through this research but were hypothesized to occur if the specific path leading to the proximal outcomes was indeed accurate. It was hypothesized that the education/behavioral intervention would increase women's knowledge and self-efficacy related to safer sex decision making and would have a positive impact on outcomes related to change behaviors and retained knowledge, thus leading to decreased rates of diagnosed sexually transmitted infection. The education/behavioral intervention was delivered through ("modeling" or observational learning) by the primary investigator.

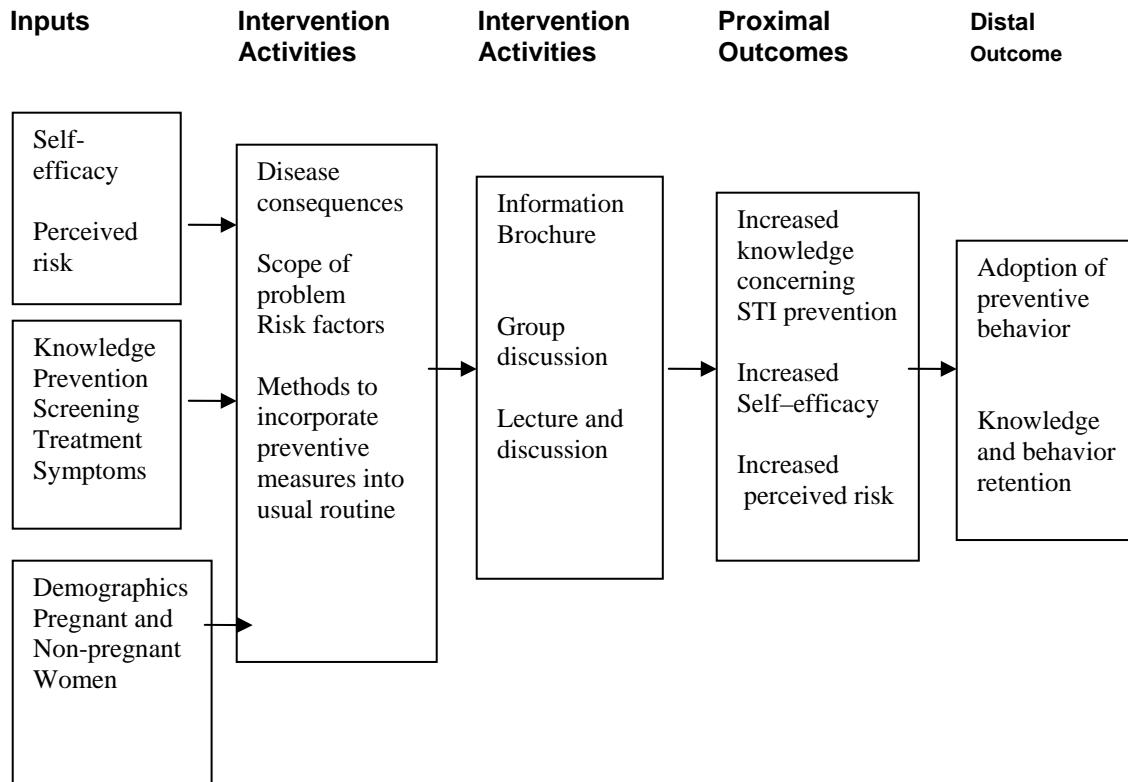


Figure 1. Logic Model: Hypothesized Logic Model: Sexually Transmitted Infection Education/Behavioral Intervention for Women

The logic model extended from the theoretical constructs in Social Cognitive Theory (Bandura 1997; Dilorio et al., 2000; Whitehead, 2001). Bandura (1995) suggests that whether individuals adopt valued health behaviors or renounce detrimental behaviors may depend on three expectations of consciousness: 1) the expectancy that one is at risk; 2) the expectancy that behavioral changes will reduce the threat; and 3) the expectancy that one is sufficiently capable of exercising control over risky behaviors. It is hypothesized that behavior is dependent on one's efficacy beliefs, which determine the behaviors one chooses to perform, the degree of perseverance, and the quality of the performance (Bandura, 1986, 1997). Intentions to change risky behaviors, amount of effort expended to attain these goals, and persistence to continue in spite of barriers and

setbacks that may undermine motivation are conclusions that Bandura (1995) believes vitally affects self-efficacy (confidence in one's ability to perform a desired behavior). Bandura (2001) reports perceived self-efficacy occupies a pivotal role in the causal structure of Social Cognitive Theory because efficacy beliefs affect adaptation and change not only in their own right, but also through their impact on other determinants. According to Shrier et al. (2001), Social Cognitive Theory postulates that a person's behavior is uniquely determined by reciprocal interaction among environmentally influenced behavior and personal factors, including self-efficacy.

Therefore related to STIs, the influence of the construct of self-efficacy has been established to explain condom use behaviors (DiClemente et al., 2001; Dilior et al., 2000; Stewart et al., 1999; Von Sadosky, 2002). These studies also demonstrated support for a condom-use model based on Social Cognitive Theory and provided implications for STI interventions. DiClemente et al. (2001) examined perceived self-efficacy to negotiate safer sex as an association between parent-adolescent communications. The findings of Von Sadoszky (2002) indicated a misunderstanding of perceived risky behaviors and the primary motive behind adolescents' and young adults' perceived safer behavior appeared to be prevention of unwanted pregnancy. Stewart et al. (1999) reported that many interventions, especially school-based and community-based interventions, have incorporated the primary components of the Social Cognitive Theory into programs, suggesting the relative strength of this model for preventive interventions. The Social Cognitive Theory was also used as an approach to educate nurses in an adolescent HIV intervention conducted by Stewart et al. (1999). The continued development of a social cognitive model for nursing will prove necessary for facilitating a move away from the

situation of health education being conducted on the basis of chance, to tailored health education being conducted on preventive needs (Whitehead, 2001).

Social learning theory according to (Bandura, 1997) emphasized the importance of observing and modeling the behaviors, attitudes, and emotional reactions of others. Bandura (1997, p. 22) explains, "Learning would be exceedingly laborious, not to mention hazardous, if people had to rely solely on the effects of their own actions to inform them of what to do. Fortunately, most human behavior is learned observationally through modeling: from observing others one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action."

In addition to self-efficacy, behavior is also influenced by another important Social Cognitive Theory construct, outcome expectations. Outcome expectations are defined as the expected results that will occur with performance of the behavior. Outcome-expectancy theories (i.e., expectancy-valence theories) further consider the impact of the value of the expected outcome on an individual's behavior. Bandura (1986) defined outcome expectancy as the individual's belief that performing a behavior will yield specific consequence. Self-efficacy expectation beliefs are formed from cognitive processing of sources of efficacy information conveyed enactively, vicariously, socially, and physiologically (Bandura, 1986). Enactive mastery experiences are an individuals' most significant source of information with regard to their capabilities and limits. Although successes contribute to build firm beliefs in one's personal efficacy, failures will sap it, especially if they occur before one has established a strong sense of efficacy (Bandura 1997). Vicarious experiences offer the individual a reference point to judge their capacities to master a given situation. Bandura (1997, p. 79) explains, "Such

experiences allow transmission of competencies and comparison with the attainments of others by observation and modeling.” Self-efficacy beliefs can be reinforced through verbal persuasion. Bandura (1997) comments that maintaining self-efficacy beliefs is easier for individuals when they receive reinforced verbal persuasion. When one is not able to apply self-efficacy to a physiological state of well being such as protecting self from a STI, this behavior can be interpreted as a sign of inefficacy.

In Social Cognitive Theory one's belief in a behavior's positive consequence is more important than whether the behavior has caused a positive consequence in the past (Bandura, 1986). This study investigated sexual self-efficacy and outcome expectations for individuals' confidence in their ability to refuse sexual intercourse, confidence in questioning potential sex partners about previous sexual and drug history, and the ability to obtain and use condoms in various situations after exposure to an education intervention.

The constructs of self-efficacy explain why people with the same skill set may perform the same task poorly, well, or extraordinarily well. Knowledge and self-efficacy are enhanced by specific learning strategies, especially observational learning and modeling (Ngo & Murphy, 2005). This education/behavioral intervention used visual presentation in addition to verbal instructions such as demonstration of the techniques of donning a male or female condom and how to shield the vulva with plastic wrap or dental dam. The ultimate choices that individuals make about performance of specific behaviors are strongly influenced by beliefs about their ability to perform the behavior (self-efficacy) and by beliefs about the likely consequences of performing the behavior (outcome expectation) (Bandura, 1986). The proximal outcome expectancy for this study

is retention of knowledge and increased self-efficacy toward positive protective sexual behaviors.

Social Cognitive Theory also emphasized one's perceived difficulty of performing a behavior (Bandura, 1997, 1995). Perceived barriers may be one component of the interpreted environment that influences decisions about behavior. If a woman with moderate self-efficacy expectations to use a condom during sexual intercourse perceives a situation filled with barriers, she may decide not to attempt to use the condom. For example, if it is perceived that she was expecting to have sex or prepared to have sex, she may not be comfortable with initiating the use of a condom.

Self-efficacy is the mediator between knowledge and action, and it influences the selection of behavior, the environment in which the behavior occurs, and the amount of effort performance of a specific behavior (Berarducci & Lengacher, 1998). Social Cognitive Theory postulates that a person's behavior is uniquely determined by reciprocal interaction among environmental influence behavior, and personal factors, including self-efficacy (Shrier et al., 2001). For example, women who believe they have control over sexual decision making would tend to be more motivated in playing a role in informed decision making and performing behaviors reflective of increased self-efficacy. Women who have a high sense of self-efficacy would persist in behaving and believing that they possess the knowledge and capability to make and perform safer-sex decisions.

Intervention studies based on self-efficacy have been found to decrease HIV risk behavior in Latina women. Peragallo et al. (2005) conducted a study to evaluate a randomized culturally tailored intervention to prevent high-HIV-risk sexual behaviors for Latina women residing in urban areas. The sample consisted of Mexican and Puerto

Rican women (18-44 years of age; $N = 657$) who were sexually active during the previous three months. These women were recruited and randomized into an intervention and control group. The intervention consisted of culturally tailored sessions on understanding HIV/AIDS, STIs, condoms (myths and use), negotiating safer-sex practices, violence prevention, and partner communication. The content of the intervention drew from the Social Cognitive Theory of behavior change. Peragallo's study used the Social Cognitive Theory to provide an opportunity to develop social and self-regulatory skills and the self-beliefs that are needed to practice safer behaviors

Furthermore, DiClemente et al. (2004) used the social cognitive model to evaluate the efficacy of an HIV prevention intervention in reducing risky sexual behaviors and sexually transmitted infections and enhancing skills and mediators of HIV-preventive behaviors among sexually experienced African-American adolescent girls residing in the southern United States. Participants were randomly assigned to either the HIV intervention or a general health promotion control group. DiClemente et al. concluded that interventions for African-American adolescent girls that are gender-tailored and culturally congruent can enhance HIV preventive behaviors, skills, and mediators and may reduce pregnancy and chlamydia infection.

D'Souza (1999) suggested that when using a behavior change theory to explain relationships between an individual's belief and willingness to change, the benefits must outweigh the risks. To perform a behavior, the adolescent must possess the skills and intention to perform the behavior and believe the behavior will produce a positive emotional response. That positive emotional response may not be projected when a sex

partner is asked to wear a condom. However, if the woman is instructed on how to make this task an exciting part of foreplay it may be better received.

In summary, strong perceptions of one's ability to prevent the transmission of STIs and increased expectations of use of condoms with positive outcomes can contribute to their use. Self-efficacy has been found to be associated with research investigating health behavior such as sexual risk taking behavior. Therefore, the continued study of Bandura's Social Cognitive Theory is important to further explain women's health concerns that are linked to decreasing exposure to sexually transmitted infections and increasing knowledge and self-efficacy.

Review of Empirical Literature

The succeeding section is a review of empirical literature on knowledge, self-efficacy, and perceived risk in STI preventive behaviors. In the conclusion of this section, a summary of a preliminary study results and a summary of the empirical literature cited are discussed.

Knowledge and sexually transmitted infections. Women's knowledge of symptoms, prevention, treatment, and transmission of sexually transmitted infections (STIs) has not been widely investigated in relationship to the course of pregnancy. Wilson, Minkoff, McCalla, Petterkin, and Jaccard (1996) studied the differences in risk of acquiring sexually transmitted infections between pregnant and nonpregnant women. A convenience sample of 1465 (332 pregnant and 1069 nonpregnant) sexually active women between 15 and 45 years of age receiving reproductive health care were included in the study. All patients had cervical and vaginal cultures obtained for *Chlamydia trachomatis* and *Trichomonas vaginalis*, which served as biologic markers of risk. A

self-report questionnaire format was used to measure several variables. Respondents were asked to report the consistency of condom use during the previous 30 days. This measure involved a five-point scale assessment. An independent *t test* was conducted comparing pregnant and nonpregnant women. The difference between these means was statistically significant, $t(501.88, \text{corrected}) = 11.43, p < 0.01$, indicating that pregnant respondents reported they used condoms less consistently than those who were not pregnant. A second index of sexual behavior involved the self-reported frequency of sexual intercourse. On average, those who reported that they were not pregnant reported a higher frequency of sexual activity than pregnant women. This difference was statistically significant, $t(1362) = 2.56, p < 0.05$. A third behavioral measure involved a self-report of the number of men with whom they had engaged in sexual intercourse within the past 30 days. A significant mean difference was found in the total number of sexual partners reported, $t(885.26, \text{corrected}) = 7.99, p < 0.01$, such that those who were pregnant at the baseline interview reported fewer sexual partners. In the pregnant sample, 17.2% had a positive result for chlamydia. In the nonpregnant sample, 10.9% had a positive result. A chi square analysis was applied to the relationship between the presence of chlamydia and pregnancy status, which was statistically significant, chi square (degree of freedom = 1, $n = 1315$) 746.83, $p < 0.01$). A chi square analysis also revealed that the difference between trichomonas and pregnancy was statistically significant, chi square (degree of freedom = 1, $n = 1390$) 529.61, $p < 0.01$. This study suggested that women are not drastically changing their behaviors during pregnancy, except for decreasing the consistency with which they use condoms and increasing risk of STI.

Niccolai et al. (2005) conducted a study investigating the knowledge of sex partner treatment for past bacterial STI and risk of current STIs. The study included women aged 14-19 years, multiracial. A total of 411 adolescent females were enrolled in the study; half of the participants were pregnant. One hundred and four reported a past diagnosis of chlamydia or gonorrhea. More than half (66%) reported knowing their partner was treated for a past STI. Those who knew their partner was treated were less likely to have a current infection, compared to those who did not know (11%).

Asbill et al. (2000) conducted a study to determine whether a gram stain of cervical mucus can accurately rule out colonization of gonorrhea and chlamydia on the gravid cervix. The sample consisted of 519 pregnant women. The lack of consistent barrier contraceptive use and a previous history of a sexually transmitted disease were both commonly reported. Analysis of patients with a *C trachomatis* infection identified by DNA probe revealed that age greater than 20 years ($p = .0001$) and unmarried status ($p = .005$) were both predictors of the presence of disease. For *N gonorrhoeae* infection, age <20 years ($p = .031$) and African-American race ($p = .048$) were both significant predictors of the presence of disease.

Narouz, Wade, and Wagstaff (2003) conducted a study for the purpose of assessing patients' knowledge and attitude towards genital herpes infection and its serotesting, before and after counseling. Two hundred and twenty three (107 males and 116 females) completed a self administered questionnaire after verbal consent. Patients were counseled (pretest counseling) for five to ten minutes about genital herpes and its serotesting and were asked to complete another copy of the same questionnaire. When the results were given a week later, patients were counseled again (posttest counseling).

Posttest counseling (three to five minutes) discussed the results of serotesting and any other points brought up by the patients and answered their questions. Overall, 85% of participants showed improvement scores in knowledge and attitude towards genital herpes after counseling compared with scores before counseling. Counseling appears to be necessary to provide patients with knowledge about infections, to combat misconception, to assess need for testing, and, above all, to help in preventing transmission.

The greatest risk to the neonate of contracting herpes occurs when the mother acquires genital herpes during pregnancy, particularly if this occurs toward or at the end of the third trimester (Mindel et al., 2000). Mindel conducted a study to establish HSV seroprevalence and the rate of HSV. Women were asked to complete a questionnaire covering risk factors for the acquisition of genital herpes. Serum samples were also obtained for syphilis and rubella. Participants numbered 3706. A total of 326 (12.5%) were HSV-2 seropositive. Of the women who were negative, three seroconverted during pregnancy. The risk of HSV-2 acquisition during pregnancy may be dependent on several factors including sexual behavior during pregnancy.

A study by Williams, Norris, and Bedor (2003) investigated sexual relationship, condom use, and concerns about pregnancy, HIV/AIDS, and other sexually transmitted diseases. Study participants were psychology students (n= 31), predominately Caucasian (88%) and female (73%). The mean age was 21.76 years (range 18-43) years. A questionnaire containing both closed-ended and open-ended questions was used. Less than half of the participants (47%) reported using a condom during their last episode of vaginal intercourse. Most participants had engaged in vaginal intercourse with a primary

partner (77%), compared with a causal (22%) or unknown (2%) partner. Concern about pregnancy, HIV/AIDS, and STIs other than HIV/AIDS were reported to be low. Concern about pregnancy was slightly greater than concern about HIV/AIDS or STI other than HIV/AIDS ($p < .02$). Findings such as these challenge providers of women's health care to generate innovative strategies to promote condom use in all types of relationships.

A study by Temmerman (2000) assessed the impact of a syphilis control program on pregnancy outcome in Kenya. The objectives of the assessment were to measure risk factors for syphilis at delivery, assess the effects of syphilis on pregnancy outcomes. A structured questionnaire including socio-demographic, medical, and obstetric data was administered, and pre-HIV test counseling and medical examination were performed. Blood samples for syphilis and HIV were taken. Serology testing was done in 12,414 women at delivery. Syphilis-seropositive women suffered significantly more adverse obstetric outcome than did syphilis-seronegative women (22.5% vs. 6.6%; odds ratio (OR) 4.1). Women who were syphilis-seropositive and untreated were four times more likely to have adverse pregnancy outcomes. The impact of maternal syphilis infection was slightly higher on the incidence of low birth weight (OR 4.0) than of the incidence of stillbirths (OR 3.3). Women who received treatment during pregnancy and were found syphilis-negative at delivery had similar pregnancy outcomes to syphilis-seronegative women (8.0% vs. 6.2%). Multivariate analysis of risk factors for maternal syphilis infection at delivery confirmed the predictable fact that syphilis-positive women more often showed risky sexual behavior. These women could benefit from a behavior modification intervention that increases knowledge and perception of syphilis infections.

Lambert (2001) conducted a study to evaluate the effectiveness of a brief Human Papillomavirus (HPV) focused education intervention on college students' knowledge of HPV. Sixty students were surveyed initially, 33 psychology students and 27 physician's assistant students. Students attended a private college in upstate New York.

Questionnaires were distributed to students in their classroom and immediately returned. The knowledge of HPV was evaluated using an information-only education intervention between two groups of college students. The cohorts' knowledge about HPV was reevaluated three months after the intervention. The goal was to determine how well this high-risk population retained HPV knowledge. At pre-intervention physician's assistant students had significantly better knowledge scores than the psychology students for the HPV and non-HPV items. There was no significant difference in scores for HPV items between the men and the women. The women, however, performed significantly better than the men on the non-HPV items. Three months after the educational intervention, both cohorts showed a statistically significant improvement in knowledge scores for HPV-specific questions.

Kellock and Rogstad (1999) studied Genitourinary Medicine (GUM) clinic attendees to determine their knowledge level of sexually acquired infections (gonorrhea, syphilis, chlamydia, trichomonas, thrush, bacterial vaginosis, HIV/AIDS, warts, herpes, hepatitis B and C. Four hundred and eighty two questionnaires were analyzed (57% female). The most common infections previously experienced by females (n = 259) were thrush (72.2%), genital warts (30.1%), and chlamydia (22.4%). The three least heard of infections were trichomonas (13.7%), *bacterial vaginosis* (20.1) and chlamydia (60.0%). Of the 460 respondents who answered the chlamydia knowledge questions, 54 (26.3%)

males and 130 (51.05) females achieved a mean knowledge score of over 0.5; none attained a perfect score. The overall mean knowledge score was 0.38 (SD 0.28, range 0.0-0.91) with significantly higher scores achieved by females 0.45 (SD 0.27) vs. males 0.29 (SD 0.26).

Devonshire, Hillman, Capewell, and Clark (1999) conducted a study in the United Kingdom to evaluate knowledge of *Chlamydia trachomatis* infections, with a comparison of knowledge of *Neisseria gonorrhoea* infections. The sample consisted of 200 subjects, of which 163 (82%) completed a short anonymous questionnaire; 90 participants were male (55%), and 73 were female (45%). Sixty-nine of 90 (77%) males had heard of gonorrhoea and only 44 of 73 (60%) of the females had heard of gonorrhoea. The majority (68-82%) did not know that untreated gonorrhoea caused complications. A misconception existed that gonorrhoea did not cause eye infections. No significant difference was reported between the sexes in their knowledge of gonorrhoea. Forty-six of 90 (51%) males and 44 of 73 (60%) females had heard of chlamydia ($p = 0.24$). For all questions related to chlamydia knowledge, most subjects (65-82%) did not know that chlamydia caused complications, such as eye infections or chest infections in babies. There was no significant difference between the sexes in overall chlamydia knowledge score. However, females were more aware that chlamydia caused infertility ($p=0.04$), lower abdominal pains ($p = 0.01$), and genital discharge ($p = 0.01$). Overall, males showed a significantly higher level of knowledge about gonorrhoea than about chlamydia ($p = 0.008$); females did not ($p = 0.53$). Equal numbers of participants reported reading leaflets always/often as their source of patient information. Significantly ($p = 0.03$) more females read leaflets always/often (females 42/72, males 35/86) whereas males tended to

read them rarely/never (females 30/77, males 51/86). The median total knowledge score of those 77 participants who read leaflets always/often was 50 (IQR 2.0-7.0), significantly higher than the median of 3.0 (IQR 1.5- 5.5) for the 81 subjects who rarely/never read leaflets ($p= 0.04$). The most commonly reported source of information was health information leaflets, followed by friends, women's magazine, and television. Still, the medical profession was by far the preferred source for health information.

Weisbord et al. (2001) conducted a prenatal-care-provider survey to determine sexually transmitted infection screening, diagnosis, and treatment practices. Questionnaires ($n = 3,082$) were mailed to licensed Georgia obstetrician/gynecologists, family practitioners, and nurse-midwives. Of the 565 responding prenatal-care providers 75% were European-American, 12% were African-American, 6% were Asian-American, 4% were Hispanic-American, and 18% identified their race as "Other." The most common setting among the respondents was private practice 256 (45%). Only 55 (10%) of the clinicians reported testing asymptomatic pregnant women for herpes. Five hundred and four (89%) routinely tested women symptomatic for trichomonas, and 477 (84%) routinely tested women symptomatic for bacterial vaginosis. A small percentage reported treating gonorrhea, 4% (23), chlamydia 1% (5), and syphilis 4% (23) with regimens that are inappropriate or contraindicated for use during pregnancy. Providers whose office had a written policy on screening were significantly more likely to screen women at high risk for bacterial vaginosis (64% vs. 8%; adjusted = unadjusted OR 20; 95% CI, 12-32), women symptomatic for trichomonas (96% vs. 8%; adjusted OR = 4.2; 95% CI, 6-7.5), and all women for HIV infection (88% vs. 64%; adjusted OR = 4.2; 95% CI, 3-7) than those providers whose practice setting did not have such a policy. Practice

settings that had no Medicaid patients were less likely to have a written office policy for trichomonas screening (adjusted OR = 0.6; 95% CI, 0.4-0.9) and HIV infection (adjusted OR = 0.5; 95% CI, 0.2-0.8). The most commonly cited barrier to screening for sexually transmitted infections during pregnancy was the inability to bill or lack of insurance coverage for the diagnostic test.

As reported in Chapter One, the United Kingdom has the highest rate of teenage pregnancies and STIs in Western Europe (Jolley, 2001). In order to investigate this problem, Jolley designed a study to investigate the teenage sexual health services provided by gynecology nurses. A cross sectional questionnaire survey of nursing staff on the gynecology wards and in the gynecology clinic was conducted. In addition, a small random sample of nursing staff who responded to the questionnaire survey was selected for semi-structured interviews. There was a 100% response rate (n = 46) for both parts of the study with all 46 nurses filling in the questionnaire and 10 agreeing to be interviewed. The majority of staff (65%, n = 30) had worked on the unit for more than five years. No relationship was found between length of service and stated STI knowledge (P = 0.3, Fisher's Exact Test). A third of the nurses (33%, n = 15) claimed to take a thorough sexual history. Factors affecting how well nurses take sexual history include time, privacy, embarrassment, and available documentation. Nurses felt strongly that they should all be taking a sexual history in the same way and that some guidelines or a protocol, proper training, and specific documentation would help. The main health promotion method mentioned was a leaflet (41%, n = 19), and this education leaflet was not generally backed up by any verbal explanation. When asked to identify training needs, nearly half (48%, n = 22) indicated that they needed more information on STIs.

Hellerstedt, Smith, Shew, and Resnick (2000) reported a similar study on adolescent health. A self-reported, discipline-specific survey was mailed to assess perceived knowledge and interest in training about adolescent pregnancy prevention for each of four disciplines (800 psychologists, 800 social workers, 1000 nurses, and 400 pediatricians). The overall response rate was 51%. Respondents were asked to indicate their level of knowledge (i.e., low, moderate, or high) and their interest in training (i.e., low, moderate, or high). With the exception of the pediatricians, less than half of the respondents from each discipline reported high knowledge in areas related to adolescent pregnancy prevention. Respondents from psychology reported the lowest percentage, followed by social work. More than half of the respondents from nursing, pediatrics, and social work reported moderate to high interest in training in the content areas. Perceived knowledge was not associated with interest in training for nursing or pediatrics. There were modest positive correlations between perceived knowledge and interest in training for social work ($r = 0.18$, $p = .004$) and for psychology ($r = 0.29$, $p = .001$).

Knowledge about the morbidity caused by *chlamydia trachomatis* in Eastern Europe is insufficient according Domeika et al. (2001). The Goberis et al. study aimed to investigate the prevalence of *C trachomatis* infection in Lithuanian women. Enrolled were women ($n = 1008$) attending four gynecological outpatient clinics and two antenatal clinics between November 1999 and December 2000. The study participants were given a standardized questionnaire concerning social status, sexual behavior, and contraceptive habits, medical and sexual history, and presence of genitourinary symptoms. The median age of the population tested was 25 (mean age 26.1) years. The highest prevalence of *C trachomatis* was observed in women under 19 years of age (17.4%). The prevalence for

women 20-40 years was (6.1-7.9%). Approximately one-fourth of the women could not answer a question about their sexual partners' genital symptoms: if they were tested for any sexually transmitted infections or if they had ever had any sexually transmitted infections. *Chlamydia trachomatis*-positive women had significantly more concomitant infections with *T vaginalis* (7.1% vs. 2.5%, OR 2.9, 95% CI 1.1-7.1, $p = 0.02$) and *N gonorrhoea* (2.4% vs. 0.3%, OR 7.3, 95% CI 1.0-45.1, $p = 0.02$), as well as bacterial vaginosis (21.2% vs. 13.5%, OR 1.7, 95% CI 1.0-2.9, $p = 0.05$) and cervicitis (52.9% vs. 10.5%, OR 9.6, 95% CI 6.0-15.5, $p = 0.00$).

A study by Tideman et al. (2001) examined risk factors for the presence of HSV-1 and HSV-2 infections in pregnant women. A prospective sample of 306 women completed a self-administered questionnaire to establish risk factors for the presence of HSV-1 and HSV-2. The study concluded that the presence of antibodies to HSV-1 and HSV-2 was related to a number of sexual and demographic factors. Lower education level, partner with genital herpes, early age of first sexual intercourse, more than one lifetime sexual partner, and previous chlamydia infection were independently associated with HSV-2 seropositivity.

A study in Uganda was conducted with the purpose of assessing presumptive STIs on pregnancy outcomes and HIV transmission (Gray et al., 2001). A randomized trial of 2070 pregnant women who received presumptive STI treatment one time during pregnancy at varying gestations, and 1963 control mothers received iron/folate and referral for syphilis. STIs were reduced: *Trichomonas vaginalis* (rate ratio, 0.28; 95% CI, 0.18%-0.49%), BV (rate ratio, 0.78; 95% CI, 0.69-0.87), *Neisseria gonorrhoea* *Chlamydia trachomatis* (rate ratio, 0.43; 95% CI, 0.27-0.68 and infant ophthalmia (rate ratio, 0.37;

95% CI, 0.20-0.70). There were reduced rates of neonatal death (rate ratio, 0.83; 95% CI, 0.71-0.97), low birth weight (rate ratio, 0.68; 95% CI, 0.53-0.86), and preterm delivery (rate ratio, 0.77; 86% CI, 0.56-1.05); but there was no effect on maternal HIV acquisition or perinatal HIV transmission. This study concluded that reduction of maternal STI improved pregnancy outcomes.

In summary, the knowledge about sexually transmitted infections and the effects on reproductive health is limited among women and health care providers. Women are not able to identify the relationship between untreated, undiagnosed sexually transmitted infections and future fertility and reproductive health. It also appears that when patient information is presented without verbal explanation, individual knowledge is not increased.

Perceived Risk and sexually transmitted infections. One frequently used model for predicting sexual risk taking and protective behaviors includes *self-perception of risk* for sexually transmitted infections. This conceptualization has also been referred to as *threat recognition, perceived risk, and perceived susceptibility*. *Perceived risk* is a multifaceted variable that may incorporate both the subjects' own risk behavior and their perceptions about the risk they are exposed to as a result of the sexual behavior of their spouses or other partners.

Duncan, Hart, Scoular, and Bigrigg (2001) explored the psychosocial impact for women with a diagnosis of *Chlamydia trachomatis*. *Chlamydia trachomatis* is a leading cause of reproductive morbidity in women, including pelvic inflammatory disease and infertility. Duncan et al. (2001) recruited women with a current or recent diagnosis of chlamydia who were attending either a genitourinary-medicine clinic or a family-

planning clinic for the study. The sample was comprised of 17 women: 10 from the genitourinary-medicine clinic and seven from the family-planning clinic (response rate 62%). Semi-structured interviews were conducted in a clinic setting or in the women's homes. Most participants reportedly perceived themselves as relatively invulnerable to infections. Participants supposedly distanced themselves from the "type" of persons likely to contract a sexually transmitted infection. This thinking led them to believe that chlamydia and other sexually transmitted infections were not personally relevant. Six women reported some knowledge of chlamydia before diagnosis; only two acknowledged any sense of personal vulnerability to infection. All attendees of genitourinary-medicine clinics reported receiving information and advice from health advisors, a service not available to women attending the family-planning clinic. Participants' sexual relationships were mainly serially monogamous, with some women having sex with casual partners between relationships. Therefore, diagnosis of a sexually transmitted infection introduced the possibility of a current partner's infidelity.

Rosengard, Millstein, Gurvey and Ellen (2004) investigated the psychosocial factor (or, perceived risk). They examined the amount of time adolescents waited to have intercourse. Adolescents waited less time to have intercourse with most recent casual than with most recent main partners ($\chi^2 = 31.97, p < 0.0001$). The amount of time waited with past partners was shorter than intended time to wait in future relationships: medians of 1 month vs. 2 months (main) ($t = 3.47, p < 0.0010$; medians of 2 weeks vs. 1 month (casual) ($t = 6.14, p < 0.0001$). Factors influencing intentions to delay intercourse with future main partners differed by sex; males were negatively influenced by importance of

sex in relationships, while females were positively influenced by importance of intimacy in relationships, perceived risk of STDs, and health values.

Kershaw et al. (2004) recognized that adolescent females are at significant risk for sexually transmitted infections (STIs) and may not accurately incorporate indicators of risk into their perceptions of susceptibility. The investigators examined the relation between perceived susceptibility and indicators of risk, and they also investigated the relationship between perceived susceptibility and actual STI diagnosis. Most participants perceived little or no chance that they would be diagnosed with an STI in the following year. There was no relationship between almost all STI indicators and perceptions of susceptibility. Among those receiving a positive chlamydia or gonorrhea test ($n = 49$) at baseline or in the year following, 81.3% had perceived themselves to be at little or no risk.

Todd et al. (2002) formulated a study to investigate the effectiveness of an intervention for prevention and treatment of syphilis in an African population. A structured questionnaire was administered to ascertain social demographic characteristics and detailed information on sexual behavior and perception of risk. Sexual partners were classified as spouses (marital partners), regular partners, or casual partners. A total of 857 men (14%) and 1070 women (16%) were syphilis positive. Of these, 456 men (7.7%) and 605 women (9.1%) had active syphilis, while 344 men (5.8%) and 427 women (6.4%) had high titers for active syphilis. Of those initially syphilis-negative, 148 men (4.1%) and 118 women (3.1%) seroconverted during two years of follow-up, equivalent to an annual incident of 1.8%. Results showed that the perceived risk of acquiring an STI was not associated with the prevalence of active syphilis but was

strongly associated with incidental syphilis. The reported age of sexual debut and perceived risk of an STI were significantly associated with the prevalence of active syphilis in women. The prevalence of active syphilis was considerably higher among young women, and this fact is of special concern as a high proportion of women become pregnant and commences childbearing before reaching 20 years of age.

To assess the level of HIV-related risk behavior among the general U.S. adult population, Holtzman, Bland, Lansky, and Mack (2001) analyzed data from a sexual behavior questionnaire available for states to use with the Behavioral Risk Factor Surveillance System. The correlation between actual and perceived HIV risk was determined. The Behavior Risk Factor Surveillance System was a state based surveillance system initiated in 1984 and used in all 50 states. The system gathered information on health behaviors related to the leading causes of death from chronic diseases. HIV-related sexual behavior questions were added to the systems survey. Also included in the analysis were measures for perceived risk of HIV infection; these ranged from high risk to no risk, whether the respondent had been tested voluntarily for HIV, and sociodemographic characteristics. A total of 35,484 respondents provided usable data across participating states. The median response rate was 61.7 % (range = 44.2 %- 88.9 %). Seventy-seven of the respondents reported one partner, and 13.7% reported no partners. Only 2.1% reported four or more sexual partners. Of those who reported one or more sexual partners, 26% reported that they used a condom at last intercourse. Of these adults, 54.9 indicated that the condom was used to prevent both pregnancy and disease; however only 8.7% reported that they used a condom solely to prevent disease. To determine whether those who reported that they were at high risk for HIV as a result of

engaging in certain behaviors (actual risk for HIV) were similar to those who perceived themselves to be at risk for HIV, the authors examined a correlation between the two measures (actual vs. perceived) and found a statistically significant positive correlation. Among those who reported that they were at increased risk for HIV because of their behavior, the proportion that perceived themselves to be at risk for HIV increased steadily from none (3.1%) to high (11.9%).

In a study by et al. (2000), the effects of multisite community-level HIV prevention intervention on women's condom-use behaviors was examined. Sexually active women of childbearing age were targeted for this study. The intervention consisted of role model stories, brochures, posters, and newspapers. Interviewed in each intervention and comparison community were 225 to 240 women, aged 15 through 34 years, who had been sexually active in the past 30 days. A standardized interview instrument was used at all study sites. The mean age of the women was 25 years. Most were African-American (73%). Of the participants, 68% did not intend to use a condom pre-baseline, 13% had consistently used condoms with their main partners for one month or more. Women used condoms more frequently with other partners: 33% had no intention of using condoms, but 30% had used condoms consistently. Attempting to get a partner to use a condom increased 11% more for women in the intervention group than for those in the comparison communities ($P = .01$). Never talking with main partner about condoms decreased 13 percentage points more ($p = .03$) and never using condoms decreased 9 percentage points more ($p = .054$) for women in intervention communities than for those in comparison communities.

Hutchinson (1999) examined sexual risk communication between young women and their main sexual partners. This research was based on the premise that in order to take action to reduce risk for infection, a person must first recognize that she is at risk for acquiring the infection. The study sample included 93 unmarried, sexually active heterosexual women, ages 17 to 26 years. Subjects were asked about their number of past sexual partners and their estimates of the partners' number of past partners. They were asked to rate their own risk for having or becoming infected with an STI and to estimate their partners' risks. Nearly all of the women in the study rated themselves to be at no risk or low risk for STIs. No risk was reported by 32.3% of the women, and low risk by 62.6%. Only 5.1% reported they were at moderate risk. Estimates of their sexual partners' risks were nearly identical: no risk, 28%; low risk, 65.6%; and moderate risk, 6%. Furthermore, perceptions of self-risk were highly correlated with estimates of the partner's risk ($r = .63$, $df = 90$, $p < .0001$). Men's perception of self risks and estimates of their partners' risks were nearly identical to those of the women. Men reported a somewhat greater number of sexual partners than did women, with means of 7.4 and 3.5, respectively. The differences were statistically significant according to a test for dependent sample means ($t = 2.32$, $df = 173$, $p < .05$). Women's estimates of their male partners' number of past partners were significantly lower than reports from the males partners themselves ($t = 4.77$, $df = 160$, $p .001$).

The role of perceived risk, anticipated negative consequence, and relationship quality in patient-initiated sex partner notification following treatment for STIs was investigated by Fortenberry (2002). The sample consisted of 241 thirteen- to twenty-year-old subjects (83% women; 83% African-American) diagnosed with gonorrhea,

Chlamydia trichomonas, or nongonococcal urethritis. Partner notification was increased among persons with higher levels of self-efficacy and in relationships with stronger affinitive and emotional ties.

A study conducted by Hutchinson (1999) identified the individual, dyad, and family variables that influence young women's perceptions of risk for sexually transmitted infection. A convenience sample of 66 women, ages 20-26 years, was recruited from a statewide sample of young adults participating in a longitudinal study comparing young adults' relationships with their married or divorced parents. A second group of 27 women, ages 17-22 years, was recruited from a mid-Atlantic university and the surrounding community. A total of 93 sexually active heterosexual women completed telephone interviews. Respondents answered forced-choice questions in the areas of frequency of condom use, having been tested for HIV, perception of the partner's sexual risk disclosure, and perception of partner's sexual risk. Two dyad variables perceiving the partner as "no risk" and relationship satisfaction were significant predictors of women's perception of "no risk" at the $p < .05$ level. Women who reported consistent condom use were more than eight times more likely to report that they were at no risk for HIV/AIDS. Women who were less satisfied with their relationships were 50% less likely to report they were at no risk.

Bettinger (2004) investigated whether risk perceptions, condom use, and STD prevalence differs within sexual networks. Perceived Risk Scales measured the perception of STD risk in the previous six months with a main partner, who was defined as "someone that you have sex with and you consider to be the person that you are serious about." Casual partners were all other types of sexual partners. Risk perceptions

for HIV/AIDS and two discharge-associated STDs (gonorrhea and chlamydia) in two separate scales consisting of five questions each were measured. The participant's perception of her risk for each disease if she had unprotected sex with her main sex partner was assessed. The respondents were 303 females participating in the study of adolescent STD risk perceptions and condom use. Those participants with high-risk perceptions were more likely to use condoms at last sex than were those participants with low-risk perceptions: odds ratio [OR], 3.93; 95% confidence interval [CI], 2.21–6.98; high HIV risk perceptions: OR, 2.03; 95% CI, 1.19–3.46).

In summary, women's actual and perceived risk for sexually transmitted infections differs. Women are engaging in unprotected sexual intercourse with their casual partners. Education is needed to enlighten women that their estimation of their male partners' sexual history is lower than reported numbers of past partners reported by the male partners themselves.

Self-Efficacy and sexually transmitted infections. Wilson et al. (2004) investigated potential predictors of consistent condom use (CCU). This study reinforced the need for CCU for all sexually active individuals who are not sure of being in a mutually monogamous relationship with a partner who has been tested and is free of HIV or other STIs. Factors considered in this study included perceived HIV risk and sense of self-efficacy regarding condom use. The sample (n = 214) had a mean age of 27.9 years and 14.1 years of education. The majority of participants were African-American. More than three-fourths were single, divorced, or widowed and not cohabiting with their current sexual partner. The mean number of lifetime STIs was 2.5. The sample averaged 1.4 sexual partners in the preceding three months and 11.9 lifetime partners. Consistent

condom use was significantly associated with younger age, African-American ethnicity, having casual partners, recent HIV testing, condom use, and self-efficacy about partner relationship.

Siegel, Aten, and Enaharo (2001) evaluated self-efficacy and knowledge following an education/behavior intervention. The subjects (n = 4001) were recruited from ten urban schools in a medium-sized northeastern U.S. city with a population of approximately 250,000. The ethnicity of the sample was diverse: 50% were African-American; 16%, Hispanic-American; 20%, European-American, non-Hispanic; and 14%, "Other" (Native American, Asian-American, biracial). Seventy percent of the families had incomes less than the federal poverty level. Students completed a confidential survey at pre-intervention, immediately post-intervention, and at long-term follow-up. The study instruments measured constructs such as self-efficacy and knowledge regarding sexual matters and behavior intentions. The means for self-efficacy at post test were higher for the intervention groups compared as with the control groups. Ethnic differences were noted in that Hispanic-American youth generally reported less self-efficacy than did other groups. There were no differences for self-efficacy in relationship to whether there was a history of sexual intercourse. The long-term knowledge means were consistently greater for the intervention groups compared with the controls. European-American non-Hispanics generally had higher knowledge scores, followed by African Americans and Hispanic Americans. Long-term [eta] values ranged from 0.11 to 0.15 for self-efficacy and 0.17 to 0.29 for knowledge. The proportion of variance explained by the models (R^2) ranged from 0.12 to 0.35 for self-efficacy and 0.11 to 0.27 for knowledge.

The relationship between self-efficacy and condom use was investigated by Dilorio, Dudley, Soet, Watkins, and Maibach (2000). The intent of the study was to examine the role of self-efficacy, outcome expectancy, anxiety, and substance use in explaining condom use for a sample of college students. The constructs were tested through the use of structural equation modeling techniques. Analysis was limited to participants who were 18 to 25 years of age, single, and who reported initiation of sexual intercourse. The mean age for the sample of 1,380 participants was 20.6 years (SD = 1.76). Of the participants, 63% were female, 42.5% were Black, 50.0% were White, 3.9% were Asian-Americans, 2.9% were Hispanic, and 0.7% selected "other." Most participants, 95.8%, reported having had vaginal intercourse, 86.5% oral sex, and 16.0% anal sex. The mean age at first intercourse was 16.6 years for vaginal sex, 17.2 years for oral sex, and 18.4 years for anal sex. The median number for lifetime sexual partners was three, and the median number for the previous month was two. Only 27.5% of participants noted that they used a condom every time they had sexual intercourse. Self-efficacy for condom use was assessed using a four-item scale that measured confidence in one's ability to use a condom in a variety of situations. These four items are part of a 21-item scale measuring self-efficacy for safer-sex practices. The longer scale consists of four subscales (1) self-efficacy for refusal to have sex, (2) self-efficacy for condom use, (3) self-efficacy to say no to sex when under the influence of drug/alcohol, and (4) self-efficacy for discussion with partners about sex. Total possible scores for the condom self-efficacy subscale range from 4 to 40, with higher scores indicating higher self-efficacy for condom use. Cronbach's alpha for the four-item condom-use subscale was

.89. Condom-use behaviors were measured by four items for the Safer Sex Behavior Questionnaire. The four items were rated on a four-point scale from “never” to “always,” with higher scores corresponding to more frequent condom use. Cronbach’s alpha was 0.79. The model was based on a polyserial correlation matrix. Items on a ten-point scale were treated as continuous, and polyserial correlations were computed using PRELIS 2.12. Findings indicated that self-efficacy was related directly to condom-use behaviors and indirectly through its effect on outcome expectancies. As predicted, self-efficacy was related to anxiety, but anxiety was not related to condom use. Substance use during sexual encounters was related to outcome expectancies but not to condom use, as predicted by the authors.

Ludwig and Pittman (1999) conducted a study examining the relationships of self-efficacy and prosocial values to three types of adolescent problem behaviors, delinquency, risky sex, and drug use. The study explored moderating effects of age, gender, and race on the relationship between self-efficacy, values, and the three problem behaviors. A total of 2,146 adolescents attending nine secondary schools in rural communities of a southeastern state were surveyed. Of the sample 60% were African-American and 40% were Caucasian. The sample was 49% male and 51% female. Surveys were completed in a given high school in one class period on one day. Homeroom teachers distributed questionnaires, and instructions were self-contained. Two questions evaluated involvement in risky sexual behavior. A score of 0 indicated no sexual involvement, a score of 1 indicated consistent use of condoms by the male and some form of birth control either by the male or the female, but not both; a score of 3 indicated inconsistent use of birth control (mean = 1.44, SD = 1.35). Higher scores

corresponded with greater risk of pregnancy and sexually transmitted infections. Three measures of self-efficacy were used. Self-mastery was operationalized using the Self-Efficacy/Self-Mastery Scale, a seven-item self-report measure answered with a four-point Likert type scale. Higher scores indicated a higher level of self-mastery. Two additional self-efficacy measures were based on a factor analysis of the Self-Esteem /Self-Efficacy Scale—a twelve-item semantic differential, where each adjective pair was scored on a five-point scale. Higher scores indicated self-esteem/efficacy. The results showed that all seven of the predictor variables are related to risky sexual behavior and drug use. Race was significant in the prediction of both risky sex and drug use. African Americans were more likely than Caucasians to report involvement in risky sexual behavior. More prosocial values, greater self-mastery, and feelings of trustworthiness were associated with lower levels of delinquent behavior, risky sex, and drug use. Of the measures of values and efficacy, self-perception of trustworthiness had the strongest unique effect in the prediction of delinquency and risky sex. Having more prosocial values was a preventive mechanism to engaging in risky sex for adolescents. Race moderated the relation between the self-perception of trustworthiness and risky sexual behavior. Feeling trustworthy was negatively related to risky sex for African Americans. Gender was a significant moderator of the effects of both prosocial values and self-mastery. For females, having stronger prosocial values was associated with less risky sexual behavior. Tests for moderating effects of prosocial values on the relation between the three efficacy measures and risky sexual behavior revealed one significant result. Given weak prosocial values, the relationship between self-mastery and risky sex was significant and negative.

With strong prosocial values, there was no relationship between self-efficacy and risky sex.

Numerous research studies have shown the importance of self-efficacy and its influence on potential behaviors (Cecil & Pinkerton, 1998; Crosby et al., 2002; Von Sadosky, 2002). Within the realm of sexual behavior, self-efficacy has been found to be a predictor of intentions to use condoms (Crosby et al., 2002; Von Sadosky, 2002). As an example, the woman may have enough self-efficacy to buy a condom; however, she may not have a higher magnitude of self-efficacy to perform the more difficult task of using the condom with a new sexual partner. Van Devanter (2002) examined women's use of the female condom to protect them from acquiring STIs. Self-efficacy for refusing unsafe sexual intercourse was found not significant between users and nonusers of female condoms. However, the women who received an education intervention did report significantly more positive attitudes toward the female condom.

Social Cognitive Theory provided the conceptual framework for a randomized controlled trial of a safer-sex intervention for female adolescents who have had an STI (DiClemente et al., 2001; Shrier et al., 2001). DiClemente et al. (2001) examined adolescents' perceived self-efficacy to negotiate safer sex. These studies concluded that adolescents who communicated less frequently about sex-related issues with their parents were more likely to have lower self-efficacy to negotiate condom use or otherwise refuse sex.

An international study assessing perceived self-efficacy for Hong Kong Chinese reported low self-efficacy as a reason for not using condoms (Abdullah, 2002). Studies have also evaluated the feasibility and impact of health education interventions

promoting self-efficacy as a predictor of the ability to notify a partner of possible sexually transmitted infections (Dilorio et al., 2000; Hilton, 2001; Mathews, 2002). The intervention studies reported improvements on the measure of self-efficacy about notifying casual sex partners of the importance of seeking STI treatment.

Intervention studies have applied the Social Cognitive Theory to provide information to increase awareness and knowledge of the consequences of behavior, to increase social and self-regulative skill development, and to translate knowledge into preventive action (Berarducci & Lengacher, 1998; Mathews, 2002; Siegel, Aten, & Enaharo, 2001). These studies evaluated the effects of self-efficacy and knowledge on individuals' confidence in their ability to perform a certain behavior and reported a positive correlation. Intervention studies have proven successful at increasing knowledge and self-efficacy to behave in sexually safer ways for college students, adolescents, and sex workers (Abdullah, 2002; Diclemente et al., 2001; Dilorio et al. 2000; Mathews, 2002; Shrier et al., 2001; Siegel, Aten, & Enaharo 2001). Although studies have examined self-efficacy with STIs, no study has been found that examined knowledge, self-efficacy and perceived risk in African-American women. Given the strong theoretical and empirical support for the relationship between self-efficacy and behavior, this study hypothesized a significant increase in self-efficacy of sexually transmitted infections in the women receiving the educational/behavior intervention compared to the control group.

Wong (2005) used self-efficacy, risk assessment, modes of STI transmission and prevention, and HIV/AIDS as key issues that counselors emphasized during one-on-one counseling provided to each study participant. Wong's study evaluated patterns of long-

term use of male condoms among partners of Cameroonian women who received intensive monthly counseling sessions about condoms and sexually transmitted infection testing and treatment. Consistent condom use decreased while women were still receiving monthly counseling, with every month in the trial associated with an odds ratio of 0.96 (95% confidence interval [CI], 0.94–0.99) of consistent condom use, and use dropped substantively after the trial with a 0.39 (95% CI, 0.26–0.59) odds ratio in a logistic regression analysis. The incidence of unprotected coital acts as each month passed increased by 3% (95% CI, 1–4%) with no statistically significant change during the condom-use follow-up survey as indicated in a zero-inflated Poisson regression model for unprotected coital acts. Condom use in a coital act was 0.84 (95% CI, 0.78–0.92) less likely during the follow-up survey than during the trial.

In summary, it is important to recognize individual factors that promote or obstruct a woman’s perception of personal risk for acquiring a sexually transmitted infection. It is also important to increase women’s sexual risk perception to raise the likelihood that she will take action to prevent sexually transmitted infections. From the review of relevant studies, women do not perceive themselves or their sex partners as the “type” to contract sexually transmitted infections. Discrepancies seem to exist between perceived and actual risk, with actual risk being higher. Empirical data from a variety of researchers supports the premise that increased individual perceived risk is necessary to narrow the gap between actual and perceived risk for contracting sexually transmitted infections among women.

Sexually transmitted infections and intervention studies. The ability of women to negotiate the use of condoms to prevent pregnancy and STIs has been studied many times

(Crosby et al., 2003; Durant & Carey, 2000; Dilorio et al., 2000; Fishbein & Pequegnat, 1999; Weir, et al., 1998). Wilson et al. (1996) attempted to determine whether risks of acquiring sexually transmitted infections differ between pregnant and nonpregnant women. A convenience sample of women receiving reproductive health care were interviewed and tested for STIs. All measures of behavior relied on self-report questionnaire format. A χ^2 analysis revealed that the difference between the rates of the disease and pregnancy status was statistically significant, χ^2 (df = 1, n = 1390) = 529.61, $p < 0.01$. The Wilson study also reported that pregnant women used condoms less consistently than those who were not pregnant.

Questionnaires were developed by Weisbord et al. (2001) and mailed to family practitioners, obstetricians/gynecologists, and nurse midwives asking about their screening, diagnosis, and treatment practices for syphilis, gonorrhea, chlamydia, BV, trichomonas, HIV, hepatitis B, GBS, and rubella. A small percentage of the providers reported treating gonorrhea (4%), chlamydia (1%), and syphilis (4%) with regimens inappropriate or contraindicated for use during pregnancy. The majority of providers surveyed reported using appropriate treatment regimens for STI among their pregnant patients.

Dilorios et al. (2000) investigated the use of a social cognitive-based model for condom use among college students and reported that interventions focused on self-efficacy are more likely to reduce anxiety and increase positive perception about condoms as well as increase the likelihood of adopting condom use as normal behavior. The Dilorios et al. intervention study used the following tools to elucidate aspects (self-efficacy, outcome expectancy, anxiety, and substance abuse) for consistent condom use:

1. Self-efficacy for condom use was assessed using a four-item scale (Cronbach's alpha .89) that measured confidence in one's ability to use condoms in a variety of situations,
2. Outcome expectancy was measured using a twelve-item Likert scale (Cronbach's alpha .86) to measure beliefs about physical outcomes associated with using condoms.
3. Anxiety about condom use was measured by use of four items from the condom interaction subscale of the AIDS Social Assertiveness Scale, a thirty-three-item Likert scale developed by Ross, Caudle, and Taylor (1998).
4. Condom-use behaviors were measured by four items from the Safer Sex Behavior Questionnaire (Cronbach's alpha .94) developed by Dilorio et al. (2000) to measure frequency of use of safer-sex behaviors.

Shrier et al. (2001) conducted a randomized controlled trial utilizing a self-report questionnaire, an education video, and individualized intervention sessions. This study reported increased sexual risk knowledge and a more positive attitude toward condom usage among the intervention group.

Duran and Carey (2000) compared self-administered questionnaires to face-to-face interviews as methods of assessing sexual behaviors in young women. They concluded that both modes of assessment were reliable. That is, consistency did not differ as a function of face-to-face interviewing vs. questionnaires use as a mode of assessment.

Swanson (1999) assessed effects of psycho-educational interventions on sexual health risk and psychosocial adaptation in young adults with genital herpes. Psycho-educational intervention is a psychological and educational intervention used for

increasing coping skills, acceptance of the illness, and cooperation with treatment and rehabilitation (Swanson, 1999). Instrumentation included a demographic questionnaire, the Herpes Knowledge Scale (HKS), a true/false self report test; Sexual Health Risk (SHR), a self administered questionnaire; the Protection from Sexually Transmitted Disease (PSTD), a questionnaire to measure self-efficacy regarding prevention of STIs; the profile of Mood States (POMS), an adjective checklist measuring feelings or moods; and the Beck Depression Inventory (BDI), a Likert scale to measure distress. The study results implied that psycho-educational interventions can be used by nurses in the community with population at risk for highly stigmatized, chronic sexually transmitted diseases.

D'Souza (1999) suggested intervention programs based on behavior-change theories that emphasized self-efficacy and motivational enhancement to change risk-behavior patterns among adolescents. Siegel, Aten, & Enharo (2001) conducted intervention studies examining effects of school-based HIV and STI interventions on knowledge, self-efficacy, and behavior intention to address student knowledge on risk behavior.

Stewart (1999) designed a study to increase nurses' awareness of HIV risk to adolescents and to increase nurses' comfort with and intent to implement risk assessment and preventive education with adolescents. Pretest, posttest and follow-up tests were to measure knowledge of HIV/AIDS; attitudes towards HIV; comfort with preventive behaviors such as sexual history taking, HIV risk counseling and recommendation of HIV testing; and intent to utilize these behaviors in a time-limited office visit. The

researchers found improved knowledge and attitude about HIV and increased comfort with an intent to implement risk assessments and HIV risk counseling.

This author believes that the counseling of pregnant women about safer-sex practices must be personalized and individualized. HIV/STI counselors generally provide the public with tests and a simple prevention message; then they move on to the next individual. To address self-report condom use and new diagnosis of STIs, Kamb (1998) compared the effects of interactive HIV/STI counseling interventions tailored to each individual's risk, with the typical or current prevention message. Kamb concluded that short counseling intervention using personalized risk reduction plans increase condom use and prevent new STIs.

Rouse and Stringer (2000) appraised the screening methods for maternal type-specific herpes simplex virus antibodies and suggested counseling such as abstinence, regular condom use, avoidance of oral genital contact, and limitation of the number of sexual partners as a means of lowering the risk of maternal HSV acquisition. Yet, Rouse and Stringer did not directly evaluate the effectiveness of counseling on their study group. Indirectly, they reviewed randomized trials of behavior intervention to estimate how counseling might have been effective. Their review concluded that counseling could be effective in decreasing the spread of STIs, but the counselor must be effective in determining the effect of an individualized safer-sex intervention on condom use among female adolescents (excluding pregnant adolescents) diagnosed with a sexually transmitted disease.

A research synthesis was conducted on interventions to reduce sexual risk for HIV in adolescents (Johnson, Carey, Marsh, Levin & Scott-Sheldon, 2003). Reports

were gathered by accessing computerized databases, by contacting individual researchers, by searching conference proceedings and relevant journals, and by reviewing reference sections of articles. The sample consisted of adolescents 11-18 years of age. Data from 44 studies and 56 interventions (N = 35282 participants) were included. Findings were that intensive behavioral interventions reduced sexual HIV risk, especially because they increased skill acquisition, sexual communications, and condom use: they decreased the onset of sexual intercourse or the number of sexual partners.

Wang et al. (2000), in a study of school based programs used to reduce unprotected sexual intercourse, found reduced HIV infection and other STIs, and unintended pregnancy among US adolescents. Evaluations of these school-based programs have shown that such programs indeed reduce incidence of unprotected sexual intercourse and substantially increase use of condoms and other forms of contraception among sexually active students. The Wang study also evaluated the cost effectiveness and cost benefit of school-based education programs designed to prevent HIV and other STIs. Results suggest these interventions can be justified from an economic perspective because they are cost effective and cost saving.

In summary, many studies have shown that health education interventions do promote behavior that lowers the chances of contracting sexually transmitted infections. Intervention studies have proven successful at increasing knowledge and self-efficacy behavior towards safer ways for women to engage consistently in safer sexual intercourse.

Preliminary Study

For the current study, a pilot was conducted using a pretest/posttest experimental design to examine whether participation in a sexually transmitted infection (STI) educational/behavioral intervention has a positive effect on knowledge and perceived risk of STIs in female college students (Johnson-Mallard et al.2003). Study participants were 112 women of childbearing age (18-48) attending two state universities in Florida. Those who agreed to participate were required to sign an informed consent document. Participants were randomized to either a control or an experimental group. At pretest both groups completed a demographic data form, the Sexually Transmitted Infection Knowledge Survey (STIKS), and the Perceived Risk for Sexually Transmitted Infection Survey. Participants randomized to the experimental group participated in an educational/STI knowledge/behavior intervention. Four weeks following the intervention, subjects from both the control and experimental group again completed the demographic data form, the STIKS, and the Perceived Risk for Sexually Transmitted Infection Survey.

Results of the pilot study showed the mean age of the participants was 21 years; 51% were African American, 31 % were Caucasian-American, 14% were Hispanic-American, and 4% marked "Other." Two-way ANOVA results showed increased knowledge and perceived risk in the experimental group. Significant differences were found between the experimental and control group in knowledge of STIs ($F = 109$, $p = .0001$) and perceived risk ($F = 117$, and $p = .0001$). Results indicate that the educational/behavioral intervention made a difference between the experimental and control group. The alpha coefficient for the STIKS was .76, and for the perceived risk survey .71.

In summary, it is significant to recognize individual factors that promote or obstruct a woman's perception of personal risk for acquiring a sexually transmitted infection. It is also important to increase women's sexual risk perceptions to increase the likelihood that they will act to prevent sexually transmitted infections. According to the relevant studies, women do not perceive themselves or their sex partners as the "type" to contract sexually transmitted infections. A discrepancy exists between perceived and actual risk, with actual risk being higher. Empirical data from a variety of researchers supports the premise that increased individual perceived risk is necessary to close the gap between women's actual and perceived risk for contracting sexually transmitted infections.

Chapter Three

Methods

Introduction

Chapter three outlines the research methods and procedures for this study. The research design is discussed first. This is followed by the methods, setting and sample, inclusion/exclusion, instrumentation, recruitment and data analysis procedures.

Design

An experimental, exploratory, two group randomized control pretest; post test research design was used to test the hypotheses of this study. This study was designed to determine if participation in an educational program has a positive effect on knowledge and perceived risk of sexually transmitted infections. Subjects were randomly assigned to either an experimental or control group. The experimental group participated in an educational program.

Setting and Subjects. Pregnant and non-pregnant women were recruited from three Florida Departments of Health clinics in northwest Florida (Leon, Gadsden, and Wakulla counties). The first eight weeks of the study occurred in Leon County, followed by eight weeks in Gadsden County, and lastly by eight weeks in Wakulla County. These counties were selected because of the high incidence of reported STIs (Tallahassee Bureau of STI). A sample of 107 participants were recruited during a prenatal care visit, a primary care visit or during a family planning clinic visit. The

participants were randomized to either the experimental group or the control group. The experimental group received the educational/behavioral intervention. The control group was offered the intervention after they complete the post tests.

The number of subjects was determined by statistical power analysis. Preliminary conservative pilot estimates were based on analysis of variance (ANOVA) procedures using tables for the F test on means in the ANOVA (Cohen, 1988). Based upon power analysis using means from the pilot data, a sample size of 30 per group was needed to achieve a power of .80 at the .05 level of significance when expecting a .50 effect. However, 40 per group were recruited to cover possible attrition and to add robustness to the study.

Inclusion/Exclusion criteria. According to the 2000 federal census, the northwest Florida (Leon, Wakulla and Gadsden) counties involved in the study have a high percentage of African Americans varying from 11.5% to 57.1% with half being women (Table 1). It was expected that the number of subjects would reflect the racial/ethnic diversity of the area and the population served by the clinics (Table 2).

Table 1

U.S. Census Percent by Race/Ethnicity in Targeted Counties of Study

Source	Total County population	African American/Non Hispanic	Hispanic	Female persons
Leon	239,376	29.1%	3.5%	52.3%
Gadsden	45,321	57.1%	6.2%	52.4%
Wakulla	24,761	11.5%	1.9%	48.2%

Table 2

Health Department Censuses by Race/Ethnicity

Source	Total Health Department	White	Hispanic	African American Non Hispanic
Leon	14,884	6,050	723	8,111
Gadsden	5,887	2,203	127	3,557
Wakulla	2,362	1,966	66	330

Inclusion criteria included: (1) women aged 15-48 years; (2) pregnant and non-pregnant women; and (3) ability to give informed consent or assent if a minor. The National Institutes of Health (NIH) guidelines to include women and minorities were met by this study. Persons of all culturally diverse groups were offered the opportunity to participate in the study (e.g., English speaking Hispanic women). According to Manover (2002) the traditional age of childbearing in the United States is 15-48 years of age.

Inclusion of women younger than 15 years of age may skew data analysis due to emotional and developmental issues.

Exclusion criteria included: (1) women who are not of traditional childbearing age (under 15 or over 48); (2) men (the three surveys have not yet been tested for reliability and validity in males); and (3) non-English speaking persons were excluded because survey instruments are in English only and the student investigator does not speak or read Spanish. Data from the health departments indicate that less than 2% of the populations seen were non-English speaking. Therefore, few subjects were lost as a result of inability to communicate in English.

Gender, Minority, Children Inclusion

Caucasian, African American and Hispanic women of childbearing age (15-48) were the participants included in this study. Research has indicated that women have one of the highest rates of STIs (Jemmott, Jemmott, Braverman & Fong, 2005). Children age 15 and above were included in this study, since this is an age group reported to have higher incidences of STIs (Biddlecom, 2004). If children were living at home, consent was obtained from the parent and assent was obtained from the child prior to enrollment. Federal guidelines indicate whenever possible, studies should include children. Men and children below 15 years were excluded because the investigation focuses on women, a population currently at greatest risk for contracting STIs. At a future date, it is the goal of the researcher to test the reliability and validity of a revised version of the three surveys in males and among Spanish speaking men and women.

Instrumentation

The following instruments were used: Demographic Data Form (Appendix A), Sexually Transmitted Infections Knowledge Survey (STIKS) (Appendix B), the Perceived Risk of Sexually Transmitted Infection Survey (Appendix C) and a Self-Efficacy of Protective Sexual Behavior Survey (Appendix D).

Sexually Transmitted Infection Knowledge Survey (STIKS). The knowledge survey is a researcher-developed questionnaire. A 29-item multiple-choice survey was developed and used to investigate women's knowledge of contracting sexually transmitted infections. Multiple-choice items were used because of their ability to measure knowledge, understanding, and application (Gronlund, 1990; Norwood, 2000). Each item was scored "1" for correct responses and "0" for incorrect responses. Scores range from zero (0) to twenty-nine (29) with highest scores indicative of greater sexually transmitted infection knowledge.

Content Validity of STIKS. A panel of experts with theoretical grounding in the areas of women's health, pregnancy, and STIs used content interrater agreement to quantify the extent of relevance of each content area (prevention, symptoms, transmission, treatment) to the behaviors of contracting or preventing the contractions of sexually transmitted infections. Content areas were determined from review of the literature on sexually transmitted infections. The panel of experts' consisted of five doctoral prepared nurses. Two of the five are experts in the areas of women's health and midwifery, one is an expert in child and adolescent health and the other is an expert in public health nursing with a concentration in sexually transmitted infection. Content agreement was established by using the following quantitative procedure. Each member

of the expert panel was asked to assess the relevancy of each item for the construct of knowledge as related to STI by indicating (1) if not relevant, (2) if somewhat relevant, (3) quite relevant (4) very relevant. Dividing the number of items rated one or two plus the number of items rated three or four and dividing by the total number of items calculated interrater agreement (Munro, 2001). Interrater agreement for item relevancy was found to be .93.

The investigator-developed STIKS survey (Appendix B) is a representative sample of subject-matter content areas with eight (28%) questions addressing prevention of sexually transmitted infections, (consistency, and timing of condom use, partner choice, safe sex practice, knowledge of susceptibility, therapeutic measures, and value of prenatal care). Four (14%) questions addressed symptoms, (female and newborn presentation, and effects on pregnancy). Ten (34%) questions addressed transmission, (mother to baby, unprotected sexual intercourse, and possible sequelae). Seven (24%) questions addressed treatment (partner notification, medication, and medical compliance). These questions were forwarded to the panel of experts who were asked to comment on the representativeness and relevance of each question in the survey.

Reliability of STIKS. Cronbach's Alpha reliability was used to estimate internal consistency reliability of the STIKS. Cronbach's alpha reliability estimates for the entire survey was 0.76. Cronbach's alpha is one common way of computing correlation values among survey questions (Polit, & Hungler, 1999)

Perceived Risk of Sexually Transmitted Infection Survey. Questions regarding perceived risk were developed by modifying a previously validated approach to studying perceived risk about breast cancer. The formats for these items are based on McCaul,

Schroeder, and Reid's (1996) study of the relationship of breast cancer worry and self-protective behaviors. Perceived risk was evaluated by asking five questions. The first question asked, "How often do you worry about getting a sexually transmitted infection?" The response was rated using the following Likert scale (Never to always)". The second question asked, "How would you rate how worried you are about getting a sexually transmitted infection?" The response was rated using the following Likert scale (not at all to extremely). The third question asked, "Thinking about getting a sexually transmitted infection makes me feel upset and frightened." The response was rated (strongly disagree to strongly agree). The fourth question asked, "What do you think are the chances of a woman getting a sexually transmitted infection?" The response were rated using the following Likert scale (very likely to very unlikely). The fifth question asked, "What do you think your chances are of getting a sexually transmitted infection?" The response was ranked (very unlikely to very likely). Higher range on the Likert scale indicates a lower perceived risk for contracting a STI.

Reliability of Perceived Risk Sexually for Transmitted Infection Survey was determined by Pearson Product Moment Correlation. Reliability estimates for the entire survey was 0.71.

Self- Efficacy Survey of Protective Sexual Behaviors. Heather and Pinkerton (1998) developed the Self-efficacy Survey for Protective Sexual Behavior. The self-efficacy survey covering three domains of protective sexual behavior were used to measure the self-efficacy construct. Nine items were used to assess the individual's confidence in her ability to refuse sexual intercourse. Five items assessed the individual's confidence in questioning potential sex partners about their previous sexual

and drug histories. Eight items measured the individual's ability to obtain and use condoms in various situations. For each item, respondents indicated how sure they were of their ability to perform (or refuse to perform) the specified activity on a 5 point Likert scale ranging from 1 (not at all sure) to 5 (very sure). Increasing total scores indicate increasing levels of self-efficacy.

Reliability of Self-Efficacy Survey of Protective Sexual Behavior. Previous Cronbach's alpha reliability estimates for the entire survey was 0.80. Subscale scores using Cronbach's alpha reliability estimates based on previous studies were 0.85 for refusing sexual intercourse; 0.80 for questioning potential sexual partners; and 0.81 for condom use. Higher range on the Likert scale indicated intention to engage in protective sexual behaviors. See Table 3 for pretest and post test reliability study results. The post test results indicated stability of the STIKS and Self-efficacy surveys

Table 3

Instruments/Reliability Used To Measure Knowledge, Self-Efficacy, And Perceived Risk Of STIs

VARIABLES	INSTRUMENTS	PRE	POST
Knowledge of STIs	Sexually Transmitted Infection	0.695	0.860
	Knowledge Survey (STIKS)		
Perceived Risk of STIs	Perceived Risk of Sexually	0.780	0.605
	Transmitted Infection Behavior Survey		
Self-Efficacy	The Self-Efficacy of Protective Sexual	0.883	0.919
	Behaviors		
Subscales	Refusing Sexual Intercourse	0.898	0.957
	Questioning Potential Partners	0.913	0.896
	Condom Use	0.843	0.905

Demographic Data Form

A 25-item researcher developed demographic form was used to investigate personal variables of the target study group. The data was used to describe demographic attributes such as-age, work status, marital status, ethnicity, medical coverage, educational level, annual household income, number of children, number of times pregnant, and birth control methods. In addition, participants were asked questions relating to condom use and frequency, number of sex partners, history of STI and

abnormal Pap test, gestation of pregnancy if applicable. The recruitment process consisted of the primary investigator explaining the study purpose and intent to present an education program on STI prevention strategies for women of childbearing age. Potential participants were informed that participation was voluntary. It was explained that participation in this study was voluntary and they could withdraw from the study at any time. It was also explained that all data collected would be kept confidential. The process of randomization was explained to potential participants. All subjects that agreed to participate in the study were asked to provide informed consent and given a copy of the signed consent for their own record. These data were statistically analyzed to examine associations between subject characteristics and other variables of significance in the study.

Procedures

Approvals

Approvals for this study by the Institutional Review Boards of the Florida Department of Health and the University of South Florida were granted (Appendix G). Potential participants were approached by the principal investigator and asked to take part in the study. Only those individuals who met the inclusion criteria were invited to participate in the study. Those who agreed to participate were asked to sign an informed consent/assent form (Appendix H = Adult Informed Consent H₁, Child Assent H₂, Parent Consent H₃).

Data Collection Procedures

The primary investigator approached women and minors who sought STI, family planning, or prenatal care services at three county health departments. After explaining the details of the study, potential participants were asked to take part in this research study. Only women with the ability to obtain or give consent/assent were allowed to participate in this study. If minors 15-17 were living at home prior to enrollment, they were strongly encouraged to obtain consent from a parent/guardian. The investigator informed the minor of the importance of having a parent/guardian involved in advising them about the participation in the study. Florida Statutes, chapters 384.30, 743.01, and 743.065, permit minor persons under the age of 18 years to independently seek prenatal care, family planning, and STI services without parental permission. If the minors were concerned about their confidentiality about STI, family planning, or prenatal care services and did not wish to involve a parent/guardian but desired to participate in the research study, enrollment was allowed. Therefore, a Waiver of Informed Consent Federal Statutes 45 CFR.46.408 (c) was requested based on the 1) research involving no more than minimal risk to the participants 2) rights and welfare of the participants not being adversely affected and 3) research not feasibly possible without the waiver.

Permission to recruit subjects was obtained from each research site by the principal investigator. Potential participants were approached in the waiting area of the health units by the principal investigator. If potential subjects met inclusion criteria they were asked to take part in the study. Only those individuals who meet the inclusion criteria were invited to participate in the study. Those who agreed to participate were asked to sign an informed consent/assent form. Subjects were recruited from three

county health departments. First in Leon County followed by Gadsden County, and lastly in Wakulla County (Appendix F). All data were reported as aggregated data. No county health department is uniquely identifiable. Participants were given a predetermined date (approximately one week following pre-testing) to meet for the education intervention. All participants completed a Demographic Data Form (Appendix A), the Sexually Transmitted Infection Knowledge Survey (Appendix B), the Perceived Risk of Sexually Transmitted Infection Survey (Appendix C), and the Self-Efficacy for Sexually Transmitted Infection Survey (Appendix D). The demographic form and surveys required approximately 30 minutes to complete. Each participant in the intervention group was asked to complete the measurement surveys two times; once at pre-intervention and once at post-intervention. Each participant in the control group was asked to complete the surveys two times; once at baseline and once after a three week period. Measurements from the control group were used to compare outcomes of the educational intervention as well as to re-evaluate the reliability of the Sexually Transmitted Infection Knowledge Survey and the Perceived Risk for Sexually Transmitted Infection Survey. Participants who were randomized to the intervention group participated in an educational program facilitated by the primary investigator.

Subject Retention and Follow-Up Procedures

Follow-up visits are common for women experiencing prenatal care visits, family planning services, and test of cure after diagnosis of STIs. If the participant was not scheduled for a follow-up visit, she was given written and verbal instructions to complete the surveys two weeks after the intervention and to mail or deliver surveys to the county health department. Postage paid, pre-addressed envelope was provided. Written

permission to mail a reminder postcard was obtained from assenting minor participants. If the minor refused parental involvement, then the minor was asked to provide the PI with a confidential, safe and comfortable manner of contacting her.

The control group was pre-tested at their initial county health department visit and instructed to mail or deliver the completed surveys to the county health department three weeks after pre-testing. The envelopes were pre-addressed to the county health department to the joint attention to both the Nursing Director and the principal investigator.

So that comparisons could be made, study participants were instructed to use the same code (mothers' birth month and day) for pretest and post test surveys. At pre-testing, persons randomized to the control group were informed of the opportunity to receive the educational intervention after the completion of the study (at no cost to the participant).

Persons returning the surveys received a ten-dollar gift certificate to Wal-Mart. Study participants were given the option to pick up their gift certificates from the principal investigator from the county health department at a designated time. Alternatively, they could contact the investigator to provide an address where they would like the gift certificate mailed. If mailed, confidentiality was not a concern because of prior parental consent and minor assent.

The STI Education/Behavioral Intervention

The intervention group participated in an STI educational program facilitated by the investigator (Appendix I). The intervention group received an educational intervention designed from empirical standards and information from the Centers for

Disease Control. This program was designed at increasing women's knowledge regarding sexually transmitted infections, and increasing women's perceptions of their risk for contracting STI.

Specifically, the intervention was targeted at increasing the awareness of the consequences of STI and encouraging the incorporation of healthy behaviors into the life of women during their childbearing years. The intervention took approximately one hour to complete and included lecture, Power Point slides, and an information brochure discussing how the health of women can be affected by sexually transmitted infections. The educational intervention included content on the magnitude of sexually transmitted infections in women; susceptibility to and risk for contracting sexually transmitted infections, preventive behaviors, identifying barriers to preventive behaviors and techniques to incorporate preventive behaviors in their life. Teaching techniques included didactic instruction with group discussion. In addition, subjects in the intervention group were encouraged to read the STI Information Brochure about sexually transmitted infection prevention at least three times weekly following the educational intervention to encourage knowledge retention.

This intervention was delivered to women only. However, EL-Bassel (2003) examined whether it is more effective to deliver a STI prevention program to heterosexual couples or to women alone. No significant differences in effects were observed between couples receiving the intervention together and those in which the women received it alone.

As many as 44 million adults in the United States have impaired ability to read basic written materials and low literacy has been demonstrated in several populations at

risk for STIs. Educational material tailored at the 8th grade reading level has been shown to produce improvement in knowledge, attitude and self-efficacy. The information brochure was prepared using short words, avoiding obscure medical terminology or abstract thoughts. Encouraging repetition (three times a week reading) along with visual and verbal communication (the intervention) may have assisted the reader to more easily understand and follow the information, thus improving comprehension. The information brochure and intervention was intended to link changes in knowledge and behavior.

Fortenberry (2001) conducted a study to discuss low literacy as a risk factor for STIs. Data were obtained using face to face interview. Health literacy was measured by Rapid Estimate of Adult Literacy in Medicine (REALM), REALM is a 66 item literacy screening instrument based on word pronunciation. REALM is recorded to represent 8th grade or lower reading or 9th grade and higher reading level. Fortenberry concluded that low literacy appears to pose a barrier to care for STIs.

The intervention's proximal outcome was to increase sexually transmitted infection knowledge, adoption of preventive behaviors and to increase women's perceptions of their risk to STI and the need for incorporation of healthy sexual behavior. The nursing intervention was aimed at increasing sexually transmitted infection knowledge and changing behaviors toward an increased perception toward sexually transmitted infection prevention. Specifically, aims 1 and 2 were intended to increase knowledge. Aim 3 and 4 were intended to increase perceived risk.

1. (Aimed at increasing STI knowledge) To increase knowledge regarding STI, the primary investigator presented an information brochure. Explanations were provided as to potential sequelae of undiagnosed and untreated STI.

2. (Aimed at increasing STI knowledge) A structured discussion and answers session about sexually transmitted infections was conducted in an open forum. This was used as a step beyond the standard of care (literature with instructions to review).
3. (Aim at changing behaviors by increasing perception) This brochure described ways of lowering individual risk of contracting an STI. The information brochure also addressed potential effects of STI on pregnant women and their fetuses. The importance of protective sex even during pregnancy was addressed.
4. (Aimed at increasing perceived risk) Structured lecture and discussion supplemented with overheads depicting condoms, dental dams, and spermicidal agents to decrease potential risk of STI transmission from mother to fetus were presented.

Data Analysis

The effects of the intervention were assessed by testing three hypotheses. The following describes the data analyses methods using ANOVA that were used to test the following hypotheses.

Hypothesis 1: There will be significant increases in knowledge of sexually transmitted infection in the educational intervention group when compared to the control group.

Hypothesis 2: There will be significant increases in perceived risk of sexually transmitted infections in the educational intervention group compared to the control group.

Hypothesis 3: There will be significant increases in self-efficacy of protective sexual behavior from sexually transmitted infections in the educational intervention group compared to the control group.

To determine the intervention's effect on knowledge, self-efficacy and perceived risk, statistical analysis focused on the effect of the educational intervention on the critical variables of knowledge, self-efficacy and perceived risk measured at two times: (1) pre-intervention and (2) two weeks following the intervention. Two-way Analysis of Variance was performed to determine within group and between group differences and to test the interaction of time and treatment group. Analysis of Variance is a prevailing, robust test that allows the researcher to test for relationships between categorical independent variables. By using ANOVA, testing of the interaction provided information about whether or not the intervention effects were changed by other factors. This method allowed the researcher to investigate differences between groups (control versus

experimental) of subjects in relation to change in knowledge, self-efficacy and perceived risk. For this research study, the independent variables (control versus experimental) group had two levels. The between-subject factor was group, with two levels, one that received the intervention (experimental group) and one that did not receive the intervention (control group). To determine whether the between group difference was great enough to accept hypotheses one through three, it was statistically compared to the within group variance using F values at a probability level of 0.05.

Reliability for the Sexually Transmitted Infection Knowledge Survey and the Perceived Risk for Sexually Transmitted Infection Survey was evaluated by using Cronbach's alpha to determine the internal consistency of the instruments over time.

Descriptive statistics were used to examine data for missing values and outliers. Inconsistency of data was checked and description of data was verified by the principal investigator and a statistician. Demographic data was reported using descriptive statistics. To determine the intervention effect on each variable, the statistical analysis focused on the effect of the intervention on the critical variables of knowledge, self-efficacy, and perceived risk.

Data Management

A Statistical Analysis System (SAS) Version 9 data system with a password to secure confidentiality was used for data entry, management, and analysis.

Each participant was given instructions to mark the pretest and post test surveys with a code known only to them (mother's birth month and date). The coding allowed the primary investigator to match pretest and post test data forms and simultaneous blinding

the identity of the participants. Results of the study were reported as group data and no identifying information related to each person was presented.

Chapter Four

Results

This chapter first presents the results of this study related to the sample of childbearing-age women. These results are followed by a presentation of the results according to each of the three research hypotheses.

Sample

Using means and standard deviations from the pilot study, a sample size was determined to be 60 (30 per group). Of the potential participants approached, 107 women from the three research sites expressed an interest in participating in the study. Eighteen were lost to attrition. Of those, five were intervention group participants, and thirteen were control group participants. Randomization was conducted to divide the participants into two homogeneous groups with respect to intervention versus control group. Eighty nine (N = 89) pregnant and nonpregnant women completed all pretests and posttests. The 89 participants included 76 (85%) nonpregnant and 13 (15%) pregnant women.

The participants were recruited from three Florida County Health Departments (Leon, Gadsden, and Wakulla Counties). Participants were recruited during a prenatal care, family planning, or an STI visit. The participants were randomized to either the experimental group or the control group. All participants completed a demographic data form at baseline and completed Sexually Transmitted Infection Knowledge Survey,

Perceived Risk for Sexually Transmitted Infection, Self-Efficacy Survey of Protective Sexual Behaviors at baseline and at the two-week post-intervention interval. The racial/ethnic mix of the participants was as follows: 67 (75%) African American/Non-Hispanic; 13 (14.6%) Caucasian-American/Non-Hispanic; 1 (1.1%) Native American; 4 (4.4%) Hispanic-American; and 3 (3.3%) defined as “Other.” Collected demographic data included the following characteristics: age, work status, marital status, ethnicity, type of medical coverage, education level, annual household income, number of pregnancies, number of living children, gestational age of pregnancy, type of birth control, sexual activity during pregnancy, condom use, condom use during pregnancy, age of first sexual intercourse; number of sex partners in the last year, having an abnormal pap, douching habits, having an abnormal vaginal discharge, STI while pregnant, having a sexually transmitted infection, sex partner with an STI, believing sex partner is having sex with someone else, difficulty asking sex partner to use a condom, pregnant women having sexual relation with someone other than the baby’s father, being treated for an STI while pregnant, and number of months pregnant. The tables on the following pages display the results of the demographic data collection.

Table 4 displays frequency and percent for the demographic factors (age and ethnicity). The control group and experimental group were approximately equivalent. The mean age of the sample was 29 years with a range from 15 to 48 years.

Table 4

Demographic Characteristics (Frequency and Percentage) by Age and Ethnicity Per Intervention and Control Group

Source	Intervention Group <i>n</i> = 47	Control Group <i>n</i> = 42
<u>Age</u>		
15-25	29 (61.7%)	23 (54.8%)
26-48	18 (38.3%)	19 (45.2%)
<u>Ethnicity</u>		
Caucasian-American	6 (12.8%)	7 (16.7%)
African-American	35 (74.5%)	33 (78.6%)
Hispanic-American	4 (8.5%)	0
Native American	1 (2.1%)	0
Defined as "Other"	1 (2.1%)	2 (4.8%)

Note. N = 89

Table 5 displays the level of education attained by each participant. The majority 41 (46%) had some college education. However, only 13 (14.6%) had completed their college degrees. The study sample was recruited from an area that has two universities and several colleges.

Table 5

Frequency and Percentage of Women by Level of Education per Group Status

Education	Intervention Group N = 47	Control Group N = 42
Less than High School Diploma	4 (8.5%)	6 (14.3%)
High School Diploma	10 (21.3%)	10 (23.8%)
Technical School	3 (6.4%)	2 (4.8%)
Some College	20 (42.6%)	21 (50%)
College Degree	10 (21.3%)	3 (7.1%)

Note. N = 89

The annual household income ranged from none being reported to \$30,000. Table 6 displays the frequency and percentage by household income of the two groups. The average household income for the study group was \$10,000, with 37% of the participants reporting no income.

Table 6

Frequency and Percentage of Women by Level of Household Income per Group Status

Household Income	Intervention Group N= 47	Control Group N= 42
No Income Reported	14 (29.8%)	19 (45.2%)
Less than \$5,000	10 (21.3)	10 (23.8)
\$5,000 to \$10, 000	10 (21.3%)	6 (14.2%)
\$11,000 to \$15, 000	6 (12.7)	3 (7.8%)
\$16,000 to \$30, 000	7 (14.8)	4 (9.5%)

Note. N = 89

Table 7 displays the number of children reported by the intervention and control groups. Fifty-four (49%) of the sample had no children, twenty-four (27%) had one child, sixteen (18%) had two children, three (3.4%) had three children and two (2.2%) had four children.

Table 7

Frequency and Percentage of Number of Children per Intervention and Control Group

Number of Children	Intervention Group <i>n</i> = 47	Control Group <i>n</i> = 42
None	24 (51.1%)	20 (47.6%)
One	12 (23.5%)	12 (28.6%)
Two	8 (17.2%)	8 (19.1%)
Three	2 (4.3%)	1 (2.4%)
Four	1 (2.1%)	1 (2.4)

Note. N = 89

Table 8 depicts the frequency of work status and type of medical insurance reported by the participants. A third, 29 (33%), of the study participants were employed full time. One reported being disabled. Twenty-nine were employed part time. Some reported being in school and employed. Medical coverage was reported as Medicaid, 30%; private insurance 12%; no insurance 34%; and group insurance through work, 12%.

Table 8

Frequency and Percentage of Work Status and Medical Insurance

	Intervention Group N= 47	Control Group N= 42
<u>Work Status</u>		
Unemployed	12 (25.5%)	9 (21.4%)
Unemployed—Laid off	1 (2.1%)	0
Employed Part Time	13 (27.7%)	16 (38.1%)
Employed Full Time	19 (40.4%)	10 (23.8%)
In School	12 (25.5%)	19 (45.24%)
Disabled	0	1 (2.4%)
<u>Type of Medical Insurance</u>		
Medicaid	15 (31.9%)	12 (28.6%)
Private Insurance	7 (14.9%)	4 (9.5%)
No Insurance	14 (29.8%)	16 (38.1%)
Group Insurance	5 (10.6%)	6 (14.3%)
Other	6 (12.9%)	4 (9.5%)

Note: N = 89

Table 9 depicts the demographic characteristics related to marital status of the two groups. The majority of the subjects had never been married (66.3 %), and a small percentage were divorced (4.5%). Ten percent reported their marital status as “Other.”

Table 9

Frequency and Percentage Data of Marital Status

Marital Status	Intervention Group <i>n</i> = 47	Control Group <i>n</i> = 42
Married	8 (17%)	4 (9.5%)
Separated	2 (4.3%)	1 (2.4%)
Never Married	30 (63.8%)	29 (69%)
Divorced	1 (2.1%)	3 (7.1%)
Widowed	2 (4.3%)	0
Other	4 (8.5%)	5 (11.9%)

Note. N = 89

Table 10 depicts frequency and percent of times pregnant. Thirty-eight (43%) of the sample had never been pregnant, twenty-six (29%) had been pregnant one time, fourteen (16%) had been pregnant two times, seven (8%) had been pregnant three times, two (2.2%) had been pregnant four times, and two (2.2%) had been pregnant five times.

Table 10

Frequency and Percent of Times Pregnant per Intervention and Control Group

Number of Pregnancies	Intervention Group <i>n</i> = 47	Control Group <i>n</i> = 42
Never	18 (38.3%)	20 (47.6%)
One	14 (29.8%)	12 (28.6%)
Two	6 (12.8%)	8 (19%)
Three	6 (12.8%)	1 (2.4%)
Four	1 (2.3%)	1 (2.4%)
Five	2 (4.3%)	

Note. N = 89

Table 11 displays the results of study participants being asked if they were sexually active during pregnancy. More than half (53%) reported being sexually active during pregnancy.

Table 11

Frequency and Percentage Data of Sexually Activity during Pregnancy

Sexually Active During Pregnancy	Intervention Group <i>n</i> = 47	Control Group <i>n</i> = 42
Yes	26 (55.3%)	21 (50.0%)
No	4 (8.5%)	8 (19.1%)
Never Pregnant	17 (36.2)	13 (30.9)

Note. N = 89

Table 12 displays information on age of sexual initiation. The mean age for initiating sexual intercourse was reported as 18 years. Most of the sample (52%) were 15 to 17 years before their first sexual encounter. Only six percent of the sample reported being 21 years or older before experiencing sexual intercourse for the first time.

Table 12

Age of First Sexual Encounter (Frequency and Percentage) by Group

Age at First Sexual Encounter	Intervention Group <i>n</i> = 47	Control Group <i>n</i> = 42
12-14	11 (23.4%)	5 (12%)
15-17	22 (46.8%)	24 (57%)
18-20	11 (23.4%)	10 (23.8%)
21 and above	3 (3.4%)	0

Note. N = 89

Table 13 displays the frequency and percentage of self-reported sexual partners within the last year. In response to a question on sexual partner behavior, 55 (62%) women self-reported one sex partner, 17 (19.1%) reported two sex partners, and 10 (11.2%) reported 3 or more sex partners within the last year.

Table 13

Frequency and Percentage of Sex Partners Within The Last Year

Number of Sex Partners Within the Last Year	Intervention Group <i>n</i> = 47	Control Group <i>n</i> = 42
None	2 (4.3%)	5 (11.9%)
One	28 (59.6%)	27 (64.3%)
Two	12 (2.5%)	5 (11.9%)
Three	4 (8.5%)	3 (7.1%)
Four or More	1 (2.1%)	2 (4.8%)

Note. N = 89

Table 14 depicts self-reported sexual-partner behavior in relationship to two questions. Women were specifically asked if they “had difficulty asking their sex partner to use a condom” and if they “believed their sex partner was sexually active with someone else.” Only 10 (11.2%) reported difficulty asking their sex partners to use a condom, and 85% of the sample reported that they were in monogamous relationships. In a previous study, 91% of women reported difficulty asking their sex partners to use a condom (Johnson-Mallard, 2003).

Table 14

Frequency and Percentage of Sexual Partner Behaviors

Source	Intervention Group <i>n</i> = 47	Control Group <i>n</i> = 42
Difficulty asking sex partner to use a condom?		
YES	6 (12.8%)	4 (9.5%)
NO	41 (87.2%)	38 (90.5%)
Sex partner having sex with someone else?		
YES	8 (17.0%)	5 (11.9%)
NO	39 (82.9%)	37 (88.1%)

Note. N = 89

Table 15 displays the frequency and percentage of pregnant women in the study and the number reporting having an STI while pregnant. Twenty percent ($n = 9$) of the women in the intervention group and ten percent (4) of the women in the control group were pregnant. Women were asked to self-report past incidence of diagnosed sexually transmitted infections while pregnant; 7 (7.8 %) reported previous episodes of sexually transmitted infections while pregnant.

Table 15

Frequency and Percentage of Women With an STI While Pregnant

Source	Intervention Group <i>n</i> = 47	Control Group <i>n</i> = 42
<u>Treated for an STI while pregnant?</u>		
YES	4 (8.5%)	3 (7.1%)
NO	27 (57.4%)	22 (52.4%)
Never Pregnant	16 (34.0%)	17 (40.5%)
<u>Number of Months Pregnant?</u>		
One-Three	7 (14.9%)	2 (2.2%)
Four-Seven	2 (4.3%)	2 (2.2%)
Not pregnant	38 (80.9%)	38 (90.5%)

Note. N = 89

Table 16 is a depiction of the women sexually active with someone other than their baby's father and women ever having a sex partner with an STI. Participants self-reporting being sexually active with someone other than their baby's father were 4 (4.5%). Having a sex partner with an STI was reported to be 18 (20%) of the total sample.

Table 16

Self-Reported Sexual Intercourse and STIs Frequency and Percentage Per Group

Source	Intervention Group <i>n</i> = 47	Control Group <i>n</i> = 42
<u>Sex with someone other</u>		
<u>than baby's father?</u>		
Yes	3 (6.4%)	1 (2.4%)
No	27 (57.5%)	25 (59.5%)
Never pregnant	17 (36.2%)	16 (38.1%)
<u>Sex partner with an STI?</u>		
Yes	10 (21.3%)	8 (19.1%)
No	37 (78.7%)	34 (80.9%)

Note. N = 89

Women were asked to self-report past incidence of diagnosed sexually transmitted infections. Eighteen (20%) reported previous episodes of sexually transmitted infections. Table 17 displays the history of type of birth control. The leading method of family planning was oral contraceptives, 42 (47%). Condom use was reported by 32 (36%) of the women. However, it was unclear if condoms were used in conjunction with another form of birth control or as the primary method of birth control. The Depo Provera injection was used by 25 (28%), diaphragm 3 (3.4%), and IUD 2 (2.1 %). None reported using the vaginal Estrogen ring, a newer form of birth control. A patch was used by 3

(7.1%) of the study participants. A small number of participants 12 (13.1%) reported not using any type of birth control.

Table 17

Frequency and Percentage of Women by Birth Control per Group

<u>Type of Birth Control</u>	Intervention Group N = 47	Control Group N = 42
The Pill	20 (42.6%)	22 (52.4%)
Depo Provera or Lunelle	13 (27.7%)	12 (28.6%)
Norplant	0	0
Diaphragm	0	3 (7.1%)
Condoms	16 (34%)	16 (38.1%)
Patch	0	3 (7.1%)
IUD	1 (2.1%)	1 (2.4%)
Estrogen Ring	0	0
None	6 (12.7%)	6 (14.3%)

Note. N = 89

Table 18 displays frequency and percentage of women reporting douching and vaginal discharge. Douching was reported by 32 (36%) of the participants. Researchers have linked vaginal douching not only to pelvic inflammatory disease but also to bacterial vaginosis (Martino & Vermont, 2002). Forty-three (48%) participants reported having a vaginal discharge.

Table 18

Frequency and Percentage of Women by Birth Control per Group

Source	Intervention Group N = 47	Control Group N = 42
<u>Do you douche?</u>		
Yes	20 (42.6%)	12 (28.57%)
No	27 (57.4%)	30 (71.4%)
<u>Do you have a vaginal discharge?</u>		
Yes	26 (55.3%)	17 (40.5%)
No	21 (44.7%)	25 (59.5%)

Note. N = 89

In summary, the demographic data revealed that the majority 67 (75%) of the women that participated in this research study were African-American. The mean age was 29 years, and most 59 (66%) had never been married. Close to half of the participants had some college education, 41 (46.1%). Although 33 (37%) reported having no annual income, most of the participants were employed. Half 45 (51%) indicated that they had dependent children. The most frequent choice for birth control was the pill 42 (47%), and 48 (54%) of the study participants reported using condoms during sex. More than half 55 (62%) reported having only one sex partner within the last year.

Research Hypothesis Number One

To test the first hypothesis, “There will be significant increases in knowledge of sexually transmitted infections in the educational intervention group compared to the control group,” analysis of variance (ANOVA) was used.

Means and standard deviations for the dependent variables of STI-related knowledge are presented in Table 19. In testing the first hypothesis, a significant difference in means resulted after exposure to the education/behavioral intervention. Overall, the group mean ($M = 25.61$ $SD \pm .990$) for the intervention group was higher, indicating greater knowledge about sexually transmitted infections at posttest as compared to the control-group mean at posttest of ($M= 20.09$ $SD \pm 3.90$).

Table 19

Means and Standard Deviations for Knowledge of STI at Pre- and Posttest

STI Knowledge	Pretest			Posttest	
	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
Intervention Group	47	21.31	4.20	25.61	.990
Control Group	42	22.30	4.02	20.09	3.90

Note. Two weeks between pretest and posttest for both groups

Based on the results of ANOVA, knowledge test results for the effect of the educational/behavioral intervention resulted in statistically significant mean differences between groups at posttest on STI knowledge for women receiving the educational/behavioral intervention $F(1,87) = 73.66, p < .001$. This indicates that the brief (30-minute) education/behavioral intervention had an effect on the experimental group. Table 20 illustrates test of between- and within-subject effects of the STI related knowledge intervention.

Table 20

Test of Between- and Within-Subject Effect for Dependent Variable, Knowledge of STIs

STIKS	<i>df</i>	<i>F</i>	<i>MS</i>	<i>p</i>
<u>Between Subjects</u>				
Intervention Group	1	12.44	227.7	.001*
Error	87	(18.30)		
<u>Within Subjects</u>				
Time of Assessment	1	7.54	48.14	.001*
Time by Group	1	73.66	470.3	.001*
Error (Time)	87	(6.38)		

Note. Values enclosed in parentheses represent mean square errors.

* $p < .05$

In summary, the experimental group of women had greater STI-related knowledge as compared to women in the control group. Therefore, women who participated in the STI prevention intervention had higher levels of STI-related knowledge as compared to those that did not participate in the intervention. These data support hypothesis one.

Research Hypothesis Number Two

In testing the second hypothesis, “There will be significant increases in perceived risk of sexually transmitted infections in the educational intervention group compared to the control group,” analysis of variance (ANOVA) was used.

Means and standard deviations for the dependent variable of perceived risk are presented in Table 21. The means for the separate groups did not differ. The results revealed no significant main difference in the group mean ($M = 14.89$ $SD \pm .2.6$) at posttest for perceived risk of sexually transmitted infections between women exposed to the intervention as compared to the control-group mean at posttest ($M = 14.90$ $SD \pm .4.3$).

Table 21

Means and Standard Deviations for Perceived Risk of STI at Pre- and Posttest

STI Perceived Risk	Pretest			Posttest	
	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
Intervention Group	47	15.2	3.92	14.89	2.65
Control Group	42	15.3	5.09	14.90	4.30

Note. Two weeks between pretest and posttest for both groups

Group by time within-subjects test did not approach significance $F(1, 87) = .02, p = .901$. Test results for the effect of the educational/behavioral intervention did not result in statistical significance between group differences at posttest on STI perceived risk for women receiving the educational/behavioral intervention $F(1,87) = .01, p = .929$, indicating the brief (30-minute) educational/behavioral intervention had no effect on perceived risk in the experimental group.

Table 22 illustrates test of between- and within-subject effects for the dependent variable, perceived risk. There was no between-group variation. The lack of interaction effect suggests no differential changes between the two groups. The interaction effect of the mean for perceived risk reveals that the treatment group did not change between pretest and posttest.

Table 22

Post test of Intervention Effect on Perceived Risk for Between and Within Subjects

Perceived Risk	<i>df</i>	<i>F</i>	<i>MS</i>	<i>p</i>
<u>Between Subjects</u>				
Intervention Group	1	0.01	0.19	.929
Error	87	(24.36)		
<u>Within Subjects</u>				
Time of Assessment	1	0.730	6.20	0.395
Time by Group	1	0.02	0.132	0.901
Error (Time)	87	(8.49)		

Note. Values enclosed in parentheses represent mean square errors. * $p < .05$

In summary, the changes for perceived risk scores at two weeks posttest interval did not approach significance between groups ($p = .929$), with experimental participants scoring lower than control group participants at posttest. Hypothesis number two was not supported.

Research Hypothesis Number Three

In testing the third hypothesis, “There will be significant increases in self-efficacy of protective sexual behavior from sexually transmitted infections in the educational intervention group compared to the control group,” analysis of variance (ANOVA) was used. The information for the three self-efficacy subscales relating to Refusing Sexual Intercourse, Questioning Potential Sex Partners, and Condom Use is presented in the following summary of ANOVA tables.

Table 23 depicts means and standard deviations for the dependent variable self-efficacy subscale of “refusing sexual intercourse.” The results revealed that women in the intervention group were significantly more likely to refuse sexual intercourse at posttest than at pretest. The mean was 42.53 at posttest for the experimental group and 29.76 at posttest for those not exposed to the education intervention.

Table 23

Means and Standard Deviations for the Subscale Refusing Sexual Intercourse at Pretest and Posttest

Refuse Sexual Intercourse	Pretest			Posttest	
	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
Intervention Group	47	30.53	9.11	42.53	3.04
Control Group	42	28.47	9.78	29.76	10.9

Note. Two weeks between pretest and posttest for both groups

As shown in Table 24, confidence in questioning potential sex partners resulted in a higher mean at posttest for the experimental group. Overall, subjects in the experimental group were more confident about questioning potential sex partners at posttest (mean = 24.27) than at pretest (mean = 20.97).

Table 24

Means and Standard Deviations for Questioning Potential Sex Partners at Pre- and Posttest

Question Potential Sex Partners	Pretest			Posttest	
	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
Intervention Group	47	20.97	4.62	24.27	1.58
Control Group	42	20.23	4.98	20.59	4.75

Note. Two weeks between pretest and posttest for both groups

Table 25 depicts means and standard deviations for condom use for the two groups. Exposure to the education intervention resulted in an increased plan to use condoms during sexual intercourse.

Table 25

Means and Standard Deviations for Condom Use at Pre- and Posttest

Condom Use	Pretest			Posttest	
	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
Intervention Group	47	19.89	4.13	23.93	1.53
Control Group	42	18.90	4.39	19.52	4.28

Note. Two weeks between pretest and posttest for both groups

As shown in Tables 23 through 25, the interaction effect of the means for the three subscales of Sexual Self-Efficacy Survey revealed that the treatment group changed rather substantially between pretest and posttest. The STI education intervention had an effect on the intervention group at posttest, indicating higher self-efficacy for protective sexual intercourse.

Tables 26 through 28 illustrate test of between-subjects and within-subjects effect for the dependent variable sexual self-efficacy. Table 26 displays the ANOVA test results for the effect of the education/behavioral intervention on the ability to refuse sexual intercourse. ANOVA results showed a statistical significance between group differences at posttest $F(1, 87) = 50.18, p < .001$, indicating the brief (30-minute) education/behavioral intervention had an effect on the experimental group in refusing sexual intercourse.

Table 26

Between- and Within-Subject Effect on Refusing Sexual Intercourse

Refusing Sexual Intercourse	<i>df</i>	<i>F</i>	<i>MS</i>	<i>p</i>
<u>Between Subjects</u>				
Intervention Group	1	19.54	2437	.001*
Error	87	(124)		
<u>Within Subjects</u>				
Time of Assessment	1	77.15	1957	.001*
Time by Group	1	50.18	1273	.001*
Error (Time)	87	(25.37)		

Note. Values enclosed in parentheses represent mean square errors.

* $p < .05$

Table 27 displays results of between-subjects and within-subject effects involving questioning potential sex partners. ANOVA summary for questioning potential sex partners was significant $F(1, 87) = 15.48, p < .001$, indicating the brief (30-minute) education/behavioral intervention had an effect on the experimental group.

Table 27

Between- and Within-Subject Effect on Questioning Potential Sex Partners

Questioning Potential Sex Partners				
	<i>df</i>	<i>F</i>	<i>MS</i>	<i>p</i>
<u>Between Subjects</u>				
Intervention Group	1	7.54	216.8	.007*
Error	87	(28.77)		
<u>Within Subjects</u>				
Time of Assessment	1	23.92	148	.001*
Time by Group	1	15.48	95.9	.001*
Error (Time)	87	(6.19)		

Note. Values enclosed in parentheses represent mean square errors.

* $p < .05$

Table 28 displays between- and within-subject effect for condom use. The ANOVA results were significant for condom use $F(1, 87) = 19.60$ $p < .001$. The results indicate that scores for condom use across the two time periods differed significantly. The women were significantly more confident in their ability to use condoms during sexual activity.

Table 28

Between- and Within-Subject Effect on Condom Use during Sexual Intercourse

Refusing Sexual Intercourse	<i>df</i>	<i>F</i>	<i>MS</i>	<i>p</i>
<u>Between Subjects</u>				
Intervention Group	1	15.11	323.5	.002*
Error	87	(21.4)		
<u>Within subjects</u>				
Time of Assessment	1	36.43	240	.001*
Time by Group	1	19.60	130	.001*
Error (Time)	87	(6.63)		

Note. Values enclosed in parentheses represent mean square errors.

In summary, the interaction between the time of assessment (pretest versus posttest) and group was statistically significant for the subscales for self-efficacy of protective sexual behavior from sexually transmitted infections. Therefore, hypothesis number three was supported.

Table 29 depicts the ranking of items on the self-efficacy subscale for the “ability to refuse sexual intercourse” for the experimental group at pretest. For each item, participants indicated how sure they were of their ability to perform or refuse to perform the specified activity of refusing sex based on a 5-point Likert scale ranging from 1, “not at all sure” to 5, “very sure.” Study participants were not “very sure” if they could refuse

sex with partners they have dated a long time; with someone they want to date again; and with someone with whom they have already had sexual intercourse.

Table 29

Ranking of Items for the Self-Efficacy Subscale “Ability to Refuse Sexual Intercourse”

Experimental Group Pretest Score

Ability to Refuse Sexual Intercourse Pretest	Most common ranking	Second most common ranking	Third most common ranking	Fourth most common ranking	Fifth most common ranking
1. With someone you have known for a few days or less	5 (62%)	1 (13%)	3 (11%)	2 (9%)	4 (6%)
2. With someone whose sex and drug history is not known to you	5 (38%)	4 (23%)	3 (17%)	1 (15%)	2 (6%)
3. With someone you have dated a long time	4 (28%)	3 (26%)	2 (23%)	5 (13%)	1 (11%)
4. With someone you want to date again	3 (36%)	4 (23%)	2 (20%)	5 (15%)	1 (6%)
5. With someone with whom you have already had sexual intercourse	4 (30%)	2 (26%)	3 (24%)	5 (13%)	1 (9%)
6. With someone whom you want to fall in love with you	5 (28%)	4 (26%)	3 (26%)	1 (13%)	2 (9%)
7. With someone who is pushing you to have sexual intercourse	5 (38%)	4 (19%)	1 (19%)	3 (13%)	1 (11%)
8. With someone, after you have been smoking marijuana	5 (32%)	1 (24%)	4 (21%)	3 (13%)	2 (11%)
9. With someone, after you have been drinking alcohol	5 (32%)	3 (24%)	2 (17%)	1 (15%)	4 (13%)

Note. 1 = not at all; 2 = a little sure; 3 = somewhat sure; 4 = pretty sure; 5 = very sure

Table 30 displays the posttest ranking of items for the self-efficacy subscale for “refusing sexual intercourse.” After being exposed to the education/behavioral

intervention women were very likely to be “pretty sure” on all but one item relating to their ability to “refuse sexual intercourse.”

Table 30

Ranking of Items for the Self-Efficacy Subscale “Ability to Refuse Sexual Intercourse” Experimental Group Posttest Score

Ability to Refuse Sexual Intercourse Posttest	Most common ranking	Second most common ranking	Third most common ranking	Fourth most common ranking	Fifth most common ranking
1. With someone you have known for a few days or less	5 (89%)	4 (9%)	1 (2%)	2 (0)	3 (0)
2. With someone whose sex and drug history is not known to you	5 (66%)	4 (30%)	3 (4%)	2 (0)	1 (0)
3. With someone you have dated a long time	5 (68%)	4 (32%)	3 (0)	2 (0)	1 (0)
4. With someone you want to date again	5 (62%)	4 (38%)	3 (0)	2 (0)	1 (0)
5. With someone with whom you have already had sexual intercourse	5 (66%)	4 (43%)	3 (0)	2 (2%)	1(0)
6. With someone whom you want to fall in love with you	5 (76%)	4 (23%)	3 (0)	2 (0)	1 (0)
7. With someone who is pushing you to have sexual intercourse	5 (83%)	4 (17%)	3 (0)	2 (0)	1 (0)
8. With someone, after you have been smoking marijuana	5 (77%)	4 (23%)	3 (0)	2 (0)	1 (0)
9. With someone, after you have been drinking alcohol	5 (77%)	4 (23%)	3 (0)	2 (0)	1 (0)

Note. 1 = not at all; 2 = a little sure; 3 = somewhat sure; 4 = pretty sure; 5 = very sure

Table 31 displays the pretest ranking of items for the self-efficacy subscale “ability to question potential sex partners.” The most common ranking by participants on items relating to their ability to question potential sex partner was “very sure” at pretest.

Table 31

Ranking of Items for the Self-Efficacy Subscale “Ability to Question Potential Sex Partners” Experimental Group Pretest Score

Ability to Question Potential Sex Partners Pretest	Most common ranking	Second most common ranking	Third most common ranking	Fourth most common ranking	Fifth most common ranking
1. Ask your boyfriend if he has ever injected drugs such as heroin or cocaine into his veins	5 (60%)	4 (15%)	3 (15%)	2 (9%)	1 (2%)
2. Discuss preventing AIDS or STIs or pregnancy with your boyfriend	5 (60%)	4 (19%)	3 (17%)	2 (2%)	1 (2%)
3. Ask your boyfriend about sexual relationships that he has had in the past	5 (51%)	4 (26%)	3 (15%)	1 (7%)	2 (6%)
4. Ask your boyfriend if he has ever had anal intercourse	5 (43%)	4 (34%)	2 (13%)	3 (11%)	0 (0)
5. Ask your boyfriend if he has ever had an STI	5 (51%)	4 (26%)	3 (20%)	1 (2%)	2 (2%)

Note. 1 = not at all; 2 = a little sure; 3 = somewhat sure; 4 = pretty sure; 5 = very sure

Table 32 displays posttest ranking of items for women’s reported “ability to question potential sex partners.” Women were “very sure” in their confidence in questioning sex partners about sexual matters at pretest and posttest for the experimental group.

Table 32

Ranking of Items for the Self-Efficacy Subscale “Ability to Question Potential Sex Partners” Experimental Group Posttest Score

Ability to Question Potential Sex Partners Posttest	Most common ranking	Second most common ranking	Third most common ranking	Fourth most common ranking	Fifth most common ranking
1. Ask your boyfriend if he has ever injected drugs such as heroin or cocaine into his veins	5 (91%)	4 (6%)	2 (2%)	1 (0)	3 (0)
2. Discuss preventing AIDS or STIs or pregnancy with your boyfriend	5 (87%)	4 (13%)	3 (0)	2 (0)	1 (0)
3. Ask your boyfriend about sexual relationships that he has had in the past	5 (89%)	4 (11%)	3 (0)	2 (0)	1 (0)
4. Ask your boyfriend if he has ever had anal intercourse	5 (81%)	4 (17%)	3 (2%)	2 (0)	1 (0)
5. Ask your boyfriend if he has ever had an STI	5 (85%)	4 (15%)	3 (0)	2 (0)	1 (0)

Note 1=not at all, 2= a little sure, 3= somewhat sure, 4= pretty sure 5= very sure

Table 33 depicts the pretest ranking of items from the self-efficacy subscale, “ability to question condom use.” Ranking of items relating to the ability to question sex partners about drug use, past relationships, engaging in anal sex, or past STI exposure does not appear to be an issue for women. Women reported being “very sure” (5) about such behaviors as getting the money to buy condoms and going into the store and purchasing the condoms. Furthermore, women were “very sure” (5) they possessed the ability to use the condom correctly.

Table 33

Ranking of Items for the Self-Efficacy Subscale “Ability to Question Condom Use”

Experimental Group Pretest Score

Ability to Question Condom Use Pretest	Most common ranking	Second most common ranking	Third most common ranking	Fourth most common ranking	Fifth most common ranking
1. Use a condom correctly	5 (62%)	4 (30%)	3 (6%)	2 (2%)	0 (0)
2. Use a condom every time you had sexual intercourse	4 (45%)	5 (23%)	2 (17%)	3 (13%)	1 (2%)
3. Use a condom during sex after you have been drinking	5 (47%)	5 (23%)	2 (17%)	3 (13%)	1 (2%)
4. Use a condom during sex after you have been using marijuana	5 (51%)	4 (23%)	2 (11%)	1 (9%)	3 (6%)
5. Insist on using a condom during sex even if your boyfriend does not want to use a condom	5 (34%)	4 (32%)	3 (15%)	2 (11%)	1 (9%)
6. Refuse to have sex if your boyfriend will not use a condom	5 (28%)	4 (26%)	3 (26%)	2 (15%)	1 (6%)
7. Get the money needed to buy condoms	5 (60%)	4 (24%)	3 (11%)	1 (6%)	2 (2%)
8. Walk into a store and buy condoms	5 (64%)	4 (17%)	1 (6%)	2 (2%)	3 (0)

Note. 1 = not at all; 2 = a little sure; 3 = somewhat sure; 4 = pretty sure; 5 = very sure

Table 34 displays posttest ranking of women's "ability to question condom use."

Women were confident in their ability practice prevention behaviors every time they have sexual intercourse.

Table 34

Ranking of Items for the Self-Efficacy Subscale "Ability to Question Condom Use"

Experimental Group Posttest Score

Ability to Question Condom Use Posttest	Most common ranking	Second most common ranking	Third most common ranking	Fourth most common ranking	Fifth most common ranking
1. Use a condom correctly	5 (89%)	4 (11%)	3 (0)	2 (0)	1 (0)
2. Use a condom every time you had sexual intercourse	5 (72%)	4 (23%)	2 (4%)	3 (0)	1 (0)
3. Use a condom during sex after you have been drinking	5 (81%)	4 (19%)	3 (0)	2 (0)	1 (0)
4. Use a condom during sex after you have been using marijuana	5 (83%)	4 (17%)	3 (0)	2 (0)	1 (0)
5. Insist on using a condom during sex even if your boyfriend does not want to use a condom	5 (77%)	4 (23%)	3 (0)	2 (0)	1 (0)
6. Refuse to have sex if your boyfriend will not use a condom	5 (77%)	4 (23%)	3 (0)	2 (0)	1 (0)
7. Get the money needed to buy condoms	5 (94%)	4 (6%)	3 (0)	2 (0)	1 (0)
8. Walk into a store and buy condoms	5 (87%)	4 (11%)	1 (2%)	2 (0)	1 (0)

Note. 1 = not at all; 2 = a little sure; 3 = somewhat sure; 4 = pretty sure; 5 = very sure

In summary, Tables 29 through 34 summarized the rankings of how women in the education intervention projected confidences in specific items relating to sexual self-efficacy. For example, women were “very sure” that they could use a condom consistently with their sex partners. The posttest ANOVA results showed that women were educated on the importance of consistent condom use and likely to use condoms consistently during sexual encounters. Consistent condom use is a key factor in the prevention of contracting and spreading sexually transmitted infections.

Chapter Five

Discussion, Conclusions, and Recommendations

Introduction

This final chapter presents a synthesis of the research results, with a discussion of the findings, conclusions, implications and recommendations for future investigation.

This study endeavored to demonstrate that brief yet comprehensive sexually transmitted infection prevention education presentations can augment knowledge, perceived risk, and self-efficacy for STI prevention. This study also sought to explore whether a diverse sample of pregnant and nonpregnant women of childbearing age increased their STI-related knowledge, perceived risk, and self-efficacy behavior toward the prevention of STIs, as a result of participating in this education/behavioral intervention. The research also investigated the reliability of the STIKS and Perceived Risk Survey.

Summary of the Study

This study used an experimental design to determine whether participating in an educational program has a positive effect on knowledge, perceived risk, and self-efficacy for sexually transmitted infection prevention. An experimental two-group randomized control pretest/posttest research design was used to test the hypotheses. The sample included 89 pregnant and nonpregnant women meeting the criteria of 15 to 48 years of age, ability to read, write, and speak the English language at the seventh-grade level, and the ability to provide informed consent or assent as a minor. All participants completed

the Demographic Data Form, Sexually Transmitted Infection Survey (STIKS), Perceived Risk of Sexually Transmitted Infection Behavior Survey, and the Sexual Self-Efficacy for Sexually Transmitted Infection Survey. The pretest surveys were completed in a comfortable room in the three county health departments while the participants waited to be seen by healthcare providers. Posttest, i.e., completion of the same surveys a second time, occurred during the client's next scheduled clinic visit or at a time agreed upon by the primary investigator and the client. The participants in the control group were also asked to complete the surveys two times: (1) at baseline and (2) after a four-week period. Measurements from the control group were used to compare outcomes of the educational intervention between the two groups.

The control group participants were also offered the education intervention after completion of the posttest at a time agreed upon by the investigator and the client. Very few (5) took advantage of this opportunity.

Descriptive data were obtained for the demographic data reflecting means, percentages, ranges, frequencies, and standard deviations. The sample included 13 (14%) pregnant and 76 (85%) nonpregnant women. The mean age of the study participants was 29 years. This was a diverse population with most of the study participants being African-American, never married, and employed full time. A large number had an annual income of less than \$5,000. More than half of the sample (60%) had some college or were working toward a college degree.

To determine whether the STI preventive education/behavioral intervention increased STI knowledge, perceived risk of sexually transmitted infection behavior, and STI preventive behavior, three hypotheses were proposed. Analysis of variance was used

to determine within-group and between-group differences and to test for interaction of time and treatment group. The reliability and validity of the Sexually Transmitted Infection Survey (STIKS) and the Perceived Risk of Sexually Transmitted Infection Behavior Survey were also investigated.

Discussion and Conclusion

The following is a discussion of the findings according to the hypotheses in the study, with the conclusions that may be drawn from this research study then presented. This research is imperative because it demonstrated the efficacy of an education/behavioral intervention for a national health problem in a diverse population of women. Sexually transmitted infection knowledge, perceived risk, and sexual self-efficacy are imperative constructs to be investigated in women of childbearing age. This research study sought to examine whether participating in an STI preventive education/behavioral intervention had a positive effect on knowledge, perceived risk and sexual self-efficacy, as predictors to engage in preventive behaviors.

The sample selection for this study was purposeful, as it included women of childbearing age, a group currently at greatest risk for sexually transmitted infections (Shrier et al., 2001; Page-Shafer et al., 2002; Von Sadvoszky, 2002). All participants in this research study were women of child bearing age (15-48 years). The majority of the study participants were African-American, full-time or part-time students seeking family-planning, prenatal or primary-care services at a Florida health unit. The response rate was good; only 18 women were lost to attrition. This study is unique in that few investigations have tested an intervention on a diverse population of women seeking reproductive health care service.

The first hypothesis was tested using ANOVA to determine changes in STI-related knowledge as a consequence of participating in an education/behavioral intervention. Pre-intervention knowledge (prevention, screening, treatment, and symptoms) of STIs indicated that the majority of the participants in this research study were unacquainted with the risk factors and behaviors for acquiring sexually transmitted infections. These findings are consistent with previous research relating to women's lack of STI knowledge, particularly during pregnancy (Gray et al., 2001; Mahon et al., 2002; Ramus, 2001).

The results of testing this hypothesis established an increase in STI knowledge. Subjects who participated in the STI-preventive intervention had a significant increase in STI knowledge, and its associated pregnancy risks and sequelae for female reproductive health. The findings support previous investigations that brief educational interventions can influence knowledge of STIs (Johnson et al., 2003; Jolley, 2001; Van Devanter et al., 2002). The noted increase in STI knowledge scores indicated that women of childbearing age gained knowledge of risk factors relating to the asymptomatic nature of STIs, possible danger to the unborn fetus, and preventive behaviors. These results, relating to the first hypothesis, confirmed that introduction of brief educational interventions related to sexually transmitted infections targeted at increasing knowledge and sexual self-efficacy could be effective in areas heavily populated with African-American women of childbearing age. The results were significant in that the theory based logic model and constructs related to the achievement of self-efficacy, provided effective strategies for STI prevention among African-American women. Data showed that women needed and were able to obtain knowledge on decreasing personal risk for STI. Even though there

appears to be a plethora of information available on STI prevention, a gap remains in that persons most burdened with STIs do not appear to be receiving the information. The theory based intervention and culturally sensitive approach for this intervention could serve as a model for other researchers and health care providers to teach safer-sex strategies acceptable among African-American women of childbearing age.

The second hypothesis was tested using ANOVA to determine changes in perceived risk as a result of participating in the education/behavioral intervention. No significant treatment effect on perceived risk resulted from the education/behavioral intervention. The interaction effect of the mean for perceived risk revealed that the treatment group changed rather modestly between pretest and posttest. A possible explanation for this modest change between groups could be that as a group, they exhibited confidence in identifying perceived risk among their potential and actual sex partners. Another possible contributing factor may be the low reliability of the survey instrument to measuring perceived risk of STIs. The low alpha score (.605) of the Perceived Risk for Sexually Transmitted Infection Survey further supports this possibility. A possible solution would be to include additional items to assess more clearly the constructs of perceived risk, thus increasing reliability. The Perceived Risk for Sexually Transmitted Infection Survey instrument should be revised and retested in future studies.

The modest enhancement of perceived risk by this education/behavior intervention was supported by other research studies (Ducan, Hart, Scoular, & Brigrigg, 2001). In the current study, participants exhibited relatively low perceived risk at both pre- and posttest. This finding may reflect that women do not recognize risk for STIs,

especially with their main sex partner. The issue of main partner is important because perceived risk is a complex variable that may incorporate both subjects' perceived risk and their perception about the risk they are exposed to as a result of the sexual risk of their spouses or other partners. Inclusion of the male sex partner in the intervention may play a significant part in increased perceived risk in the couple. However, the goal at this time was to increase a woman's perceived risk by increasing knowledge and self-efficacy to encourage protective behaviors for herself to prevent transmission of STIs to herself or an unborn fetus. Taking this data into consideration when revising the intervention could be crucial. Placing an emphasis on perceived risk may change behavior by increasing mastery of information and boosting the possibility of adopting new behaviors, and in so doing, translating information into increased perceived risk of sexually transmitted infections. Lacking personal experience with and worrying less about health threats especially among adolescent may be significant predictors of more sanguinely biased risk perception. Also, as evidenced by the relative insignificant increase in perceived risk of sexually transmitted infections in the means of the educational intervention group as compared to the control group, statistical treatment of the data suggests that Hypothesis 2 was unsupported. However after a logical examination of the analysis, it may be feasible to establish support for insignificant changes in perceived risk between the intervention and control groups. That is, if one's knowledge is enhanced and their overall self-efficacy is improved, then it may prove likely that the perception of risk remains constant (perceived as no more risky) because of improved individual understanding of sexually transmitted infections and better preparation in prevention of contraction of sexually transmitted infections. These circumstances may explain the relatively unchanged means

between the education intervention group and the control group. Also, there may be other explanations such as cultural or subcultural factors that contribute to notions of vulnerability as related to risks of contracting sexually transmitted infections. For example, acceptance of practices of polygamy and tolerance of unfaithful partners may lead to perceived risks remaining elevated with diminished regard to knowledge or efficaciousness.

The third hypothesis was tested using ANOVA to determine changes in sexual self-efficacy as a result of participating in the STI education/behavior intervention. Self-efficacy is an important construct influencing a wide range of potential behaviors. Overall, the subscales measuring self-efficacy were found to increase significantly in the intervention group as compared to the control group. The constructs of self-efficacy and knowledge, regarding sexual matters, and behavior intentions were measured by the Sexual Self-Efficacy Survey. Study participants were asked to rate how confident they were that they could perform 22 behaviors comprising 3 domains: (a) refusing sexual intercourse, (b) questioning potential sexual partners, and (c) using condoms. Through ANOVA, the effectiveness of the intervention on self-efficacy was determined by assessing changes in self-efficacy behavior in the three domains. This was accomplished by exploring women's perceptions of how hard it is to carry out various tasks associated with safer sex such as refusing sexual intercourse; using condoms; refusing intercourse with persons not well known; discussing AIDS, pregnancy, and injection drug use with a partner; and being able to purchase condoms. The changing of increased sexual self-efficacy scores were higher during posttest in the intervention group shows that the intervention was effective.

The education/behavioral intervention, based on a logic model and constructs from Social Cognitive Theory, made a difference in sexual self-efficacy. This finding is similar to previous research supporting the use of the social cognitive model and the construct of self-efficacy in the usefulness of education and behavioral change targeted at safer sexual activities (Cecil & Pinkerton, 1998; Crosby, 2002; Von Sadosky, 2002). The current intervention study provided information that apparently increased awareness of the consequences of behavior and increased self-regulative skills development that translated the knowledge into preventive action.

The data from the intervention showed increased sexual self-efficacy in a diverse group of women. The intervention can therefore be used to guide the development of culturally sensitive sexual behavior messages for women who need assistance in developing sexual communication and self-assertiveness skills. Although STIs pose a significant health threat to all women, African-American women are disproportionately affected, and therefore, enhanced prevention efforts specially tailored for this population are particularly important. Health care providers could evaluate women's self-assessment skills as a means of helping them to determine their levels of self-efficacy for engaging in sexual self-protective behaviors and then base education opportunities on this assessment. Studies have not consistently found the psychological assessments such as knowledge, attitudes toward condom use, and self-efficacy statistically significant (Crosby et al., 2003) whereas this study found that self-efficacy for condom use was statistically significant.

Other studies have linked knowledge with preventive behaviors. Siegel, Aten, and Enaharo (2001) reported an intervention study that translated knowledge into

preventive action, resulting in increased knowledge and self-efficacy to behave in sexually safer ways. It could be deduced that the education/behavior intervention introduced new and “easier said than done” safe sexual behavior, at the same time increasing sexual self-efficacy. Significant treatment effect was observed for subjects exposed to the education intervention as indicated by increased mean score for self-efficacy at posttest. The association between participation education interventions and significant changes in self-efficacy is a finding shared by other researchers (Diloris et al., 2000; Siegel, Aten & Enaharo 2001). This is an important finding since it has been established in previous research and supported in this research study that significant treatment effects occur in relationship to increased knowledge.

Since this education intervention was delivered in a relaxed, brief format, it may have been non-threatening and supportive of the individual learning styles. Encouraging study participants to read the information brochure may have been helpful in increasing the intervention outcome of increased sexual self-efficacy. The improvement of sexual self-efficacy mean scores by this education/behavioral intervention is an important result, validating the education/behavioral intervention.

In summary, this study employed an experimental, pretest/posttest, control-group design. Descriptive data for the sample were obtained with frequencies, percentages, means, standard deviations, and ranges. To determine whether the STI preventive behavioral/educational intervention increased knowledge, perceived risk and self-efficacy through participation in an education/behavior intervention, three hypotheses were proposed. ANOVA was utilized to determine within-group and between-group differences and to test for the interaction of time and treatment group. The reliability of

two investigator-developed survey instruments (Perceived Risk of Sexually Transmitted Infection Behavior Survey, and the Sexually Transmitted Infection Knowledge Survey) was also investigated.

Implications for Nursing

The findings of this study indicated that nurse-directed, theory-based education/behavioral interventions can effect change in STIs for a diverse population of women. Since African-American women were in attendance in large numbers during the educational/behavioral intervention, the findings may indicate that the intervention was also culturally appropriate for African-American women. Replicating this study in settings highly populated with African-American women seeking health care may prove beneficial in lower STIs.

There is also need for development of reliable, valid, and culturally sensitive and appropriate instruments that assess or measure constructs and behaviors related to STI prevention. The findings of this study may assist providers of women's health care in anticipating questions where answers may not appear evident in current practice settings. Educating women about STIs could include brief interventions such as explaining literature in a simple and direct manner as well as fostering trusting patient/provider communication throughout the health-seeking encounter. These findings add to the growing body of literature that reports patient/provider encounters are brief and communication of health promoting concepts must be conveyed clearly and with brevity. It cannot be assumed that women previously seen by health care providers received informative instructions targeted at increasing knowledge of and preventive behavior for

sexually transmitted infections. Patients require information, along with appropriate treatment. Helping the patient to understand an STI diagnosis is important in allaying possible fears.

The findings also indicate the importance of women's health care providers in reinforcing sexually transmitted infection information during clinical encounters with clients. Health care providers and women are challenged to recognize critical points in at-risk situations such as exposure to STIs. Women need to understand that STIs contribute greatly to morbidity associated with reproductive health, including pelvic inflammatory disease, infertility, ectopic pregnancy, chronic pelvic pain, compromised birth outcomes, and cervical cancer. Health care providers in a variety of settings play major roles in the management of STIs. These care providers should attempt to ensure that their clients have a good understanding of treatment options and relevant health education information about the prevention of STIs.

Testing a nursing intervention has a potential influence on women's health by eliminating knowledge gaps and adding to evidence-based practice. Creative nurse-directed interventions could give power to women with knowledge to perceive STI risks and to take personal action at circumventing high-risk behaviors. This study's results confirmed that introduction of brief educational interventions related to sexually transmitted infections targeted at increasing knowledge could be effective. The findings of this study corroborate previous investigations that brief educational interventions can influence knowledge of STIs and increase sexual self-efficacy.

Recommendations for Future Study

Based upon the review of relevant studies and this study, the following recommendations are made for future research.

1. Replicate this research study with a larger sample, following subjects for a longer time period and providing exposure to intervention several times.
2. Since the study represents only women accessing north Florida county health departments, research whether the results may be generalized to women in other geographic locations.
3. Investigate STI knowledge among men and heterosexual couples of diverse cultural/ethnic backgrounds with a goal of generating new findings and prolonged behavior changes.
4. Investigate variables such as work experience, age, and maturity level that could contribute to individual differences in response to the STIKS and Perceived Risk surveys.
5. Replace or revise the Perceived Risk of Sexually Transmitted Infections Behavior Survey to include more questions (lengthen the survey) that may strengthen the reliability and add to construct validity of the survey.
6. Refine the intervention to make it more accessible, cost effective, and easily implemented, while incorporating and testing theoretical concepts relating to increasing perceived risk. Seek funding to deliver the intervention through video technology and research the effectiveness of such delivery.

7. Recruit a more diverse population of women (e.g., Spanish-speaking) to investigate STI knowledge and preventive behaviors. Furthermore, obtaining a larger sample would refine testing of the STIKS survey.
8. Initiate a longitudinal study that would allow measurement of the critical distal outcomes identified in the study to determine if knowledge was retained long term and resulted in sustained behavioral change related to increased perceived risk and increased sexual self-efficacy.
9. Qualitative research may be useful in identifying additional individual perceptions and behaviors associated with STI perceptions and preventive behaviors.
10. Develop an STI awareness program for nurses and health care providers about STIs and preventive behaviors to establish lifelong healthy STI practices among women.

References

- Abdullah, A. S. M., Fielding, R., Hedley, A. J., Ebrahim, S. H., & Luk, Y. K. (2002). Reasons for not using condoms among the Hong Kong Chinese population: implications for HIV and STD prevention. *The Journal of Sexual Health and HIV*, 78 (3), 180-184.
- Anachebe, N., & Sutton, M. (2003). Racial disparities in reproductive health outcomes. *American Journal of Obstetrics and Gynecology*, 188 (4), S37-S42.
- Andrews, W., Hauth, J., Goldenberg, R., (2000). Infection and preterm birth. *American Journal of Perinatology*. 17(7), 357-365.
- Asbill, K., Higgins, R., Bahrani-Mostafavi, Z., Vachris, J. C., Kotrotsios, S. H., Elliot, M., & Price, D. (2000). Detection of neisseria gonorrhoea and chlamydia trachomatis colonization of the gravid cervix. *American Journal of Obstetrics and Gynecology*, 183 (2), 340-346.
- Bandura, A. (1986). *Social foundation of thought and action: A social cognitive theory* NJ: Prentice-Hall: Englewood Cliffs.
- Bandura, A. (1997). Perceived self-efficacy in cognitive development and functioning. *Educational Psychology* 28:117
- Bandura, A. (1995). *Self-efficacy in changing societies*. New York : Cambridge University Press.
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, (52), 1-26.

- Bath, S., Singleton, J., Strikas, R., Stevenson, J., McDonald, L., & Williams, W. (2000). Performance of US hospitals on recommended screening and immunizations practices for pregnant and postpartum women. *American Journal of Infection Control*, 28(5), 327-330.
- Bauer, G. R., & Welles, S., L. (2001). Beyond assumptions of negligible risk: sexually transmitted diseases and women who have sex with women. *American Journal of Public Health*, 91(8), 1282-1286.
- Berarducci, A., & Lengacher, C., A. (1998). Self efficacy: an essential component of advanced practice nursing. *Nursing Connection*, 11 (1), 55-67.
- Bettinger, J., Adler, N., Curriero, F., & Ellen, J. M. (2004). Risk perceptions, condom use and sexually transmitted diseases among adolescent females according to social network position. *Sexually Transmitted Diseases*. 31(9), 575-579.
- Biddlecom, A. (2004). Trends in sexual behaviors and infections among young people in the United States. *The Journal of Sexual Health & HIV*. 80 (II), 74-79.
- Carey, C. J. (2000). Metronidazole to prevent preterm delivery in pregnant women with asymptomatic bacterial vaginosis. *The New England Journal of Medicine*, 342(8), 534-540.
- Centers for Disease Control CDC. (2002). Sexually transmitted diseases treatment guidelines. MMWR 2002, 51 (No. RR-6).
- Cecil, H., & Pinkerton, S. (1998). Magnitude: An important dimension of self-efficacy *Journal of Applied Social Psychology*, 30(6), 1243-1267.

Cecil, H., & Pinkerton, S. (1998). Magnitude: Reliability and validity of a self-efficacy instrument for protective sexual behaviors. *Journal of American College Health, 47*, 113-121

Coates, T., Grinstead, O., Gregorich, S., Sweat, M., & Kamenga, M. (2000). Efficacy of voluntary HIV-1 counseling and testing in individuals and couples in Kenya, Tanzania, and Trinidad: a randomized trial. *The Lancet, 356* (9224), 103-112.

Corrarino, J., Walsh, P., & Anselmo, D., (1999). A program to educate women who test positive for the hepatitis b virus during the perinatal period. *MCN, American Journal of Maternal Child Nursing. 24*(3), 151-155...

Colvin, M., & Sharp, B. (2000). Sexually transmitted infections and HIV in a rural community in the Lesotho Highlands. *Sexually Transmitted Infections. 76*(1):39-42.

Crosby, R., Yarber, W., DiClemente, R., Wingood, G., & Meyerson, B. (2002). HIV-associated histories, perceptions, and practices among low-income African American women: Does rural residence matter. *American Journal of Public Health, 92*(4), 655-659.

Crosby, F., DiClemente, R., Wingood, G., Rose, E., & Lang, D. (2003). Correlates of continued risky sex among pregnant African American teens: Implications for STD prevention. *Sexually Transmitted Disease, 30* (1), 57-63.

Davis, R. B., Duncan, L., & Young, M. (2001). Perceptions of human immunodeficiency virus and sexually transmitted disease risk among low-income adults: A pilot study. *Applied Nursing Research, 14* (2), 105-109.

- Devonshire, P., Hillman, R., Capewell, S., Clark, B., & Brian J., (1999). Knowledge of chlamydia trachomatis genital infection and its consequences in people attending a genitourinary medicine clinic. *Sexually Transmitted Infections*, 75(6):409-411.
- DiClemente, R., Wingood, G., Crosby, R., Cobb, B., Harrington, K., & Davis, S. (2001). Parent-adolescent communication and sexual risk behavior among African American adolescent females. *The Journal of Pediatrics*, 139 (3), 407-412.
- DiClemente, R., Wingood, G., Harrington, K., Lang, D., Davies, S., Hook, Edward W., Oh, M., Crosby, R., Hertzberg, V., Gordon, A., Hardin, J., & Parker, S. (2004). Efficacy of an HIV prevention intervention for African American adolescent girl. *JAMA*, 292 (2). 171-179.
- Dilorio, C., William, D., Lehr, S., Soet, J., & Johanna, E. (2000). Correlates of safer sex communication among college students. *Journal of Advanced Nursing*, 32(3), 658-665.
- Dilorio, C., Dudley, W., Soet, J., Watkins, J., & Maibach, E. (2000). A social cognitive-based model for condom use among college students. *Nursing Research*, 49(4), 208-214.
- Dixon-Woods, M., Stokes, T., Young, B., Phelps, K., Windridge, K., & Shukla, R., (2001). Choosing and using services for sexual health: a qualitative study of women's views. *Sexually Transmitted Infections*, 77(5), 335-339.
- Domeika, M., Butylkina, R., Hallen, A., Spukaite, T., Juceviciute, V., Morkunaite, D.; Jakutiene, R., Paliuniene, V., Barauskiene, J., Goberis, M., (2001). Prevalence of Chlamydia trachomatis infections in women attending six women's healthcare units in Kaunas, Lithuania. *Sexually Transmitted Infections*. 77(6):459-460.

- D'Souza, C., & Shrier, Lydia A. (1999). Prevention and intervention of sexually transmitted diseases in adolescents. *Current Opinion in Pediatrics*. 11(4), 287-290.
- Duncan, B., Hart, G., Scoular, A., & Bigrigg, A. (2001). Qualitative analysis of psychosocial impact of diagnosis of chlamydia trachomatis: implications for screening. *British Medical Journal*, 322(7280), 195-199.
- Durant, L., & Carey, M. (2000). Self-administered questionnaires versus face-to-face interviews in assessing sexual behavior in young women. *Archives of Sexual Behavior*. 29(4), 309-322.
- Ebrahim, S., M., & Marks, J., (2005). Sexual behavior: related adverse health burden in the United States. *Sexually Transmitted Infections*. 81(1), 38-40.
- El-Bassel, N., Witte, S., Gilbert, L., Wu, E., Chang, M., Hill, J., Steinglass, P. (2003). The efficacy of a relationship-based HIV/STD prevention program for heterosexual couples. *American Journal of Public Health*. HIV RETURNS. 93(6):963-969.
- Evans, M., (1992). Using a model to structure psychosocial nursing research, *Journal of Psychosocial Nursing*, 30(8). 27-32.
- Fonck, K., Claeys, P., Bashir, F., Bwayo, J., Fransen, L., & Temmerman, M. (2001). Syphilis control during pregnancy: Effectiveness and sustainability of a decentralized program, *Sexually Transmitted Infections* 91(5), 705-707.
- Fortenberry, J., Brizendine, E., Katz, B., & Orr, D. (2002). The role of self-efficacy and relationship quality in partner notification by adolescents with sexually transmitted infections. *Pediatrics & Adolescent Medicine*, 156 (11), 1133-1137.

- Fortenberry, J., McFarlane, M., Hennessy, M., Bull, S., Grimley, D., St Lawrence, J., Stoner, B., & VanDevanter, N. (2001). Relationship of health literacy to gonorrhea related care. *The Journal of Sexual Health & HIV*, 77 (3), 206-211.
- Gilbert, L., Jane, M., Scanlon, K., Ford, M., Bergmire-Sweat, D., & Weinbaum, C. (2005). Integrating Hepatitis B prevention into sexually transmitted disease services: U.S. sexually transmitted disease program and clinic trends-1997 and 2001. *Sexually Transmitted Diseases*. 32(6), 346-350.
- Gray, R., Wabwire-Mangen, F., Kigozi, G., Sewankambo, N., Serwadda, D., Moulton, L., Quinn, T., O'Brien, K., Meehan, M., Abramowsky, C., Rodd, M., & Wawer, J., (2001). Randomized trial of presumptive sexually transmitted disease therapy during pregnancy in Rakai, Uganda. *American Journal of Obstetrics and Gynecology*, 185 (5), 1209-1217.
- Gronlund, E., & Linn, L. (1900). *Measurement and assessment in teaching*. New York: Macmillan.
- Hatcher R. A., Stewart G. K., Stewart F. H. (2004). *Contraceptive Technology (18th revised edition)* New York: Irvington Publishers.
- Hellerstedt, W., Smith, A., Shew, M., Resnick, M., (2000). Perceived knowledge and training needs in adolescent pregnancy prevention: Results from a multidisciplinary survey. *Archives of Pediatrics & Adolescent Medicine*. 154(7), 679-684.
- Ho, F., & Loke, Y., (2003). HIV/AIDS knowledge and risk behavior in Hong Kong Chinese pregnant women. *Journal of Advanced Nursing* 43 (3), 238-245.

- Holtzman, D., Bland, S., Lansky, A., & Mack, K. (2001). HIV-related behavior and perception among adults in 25 states: 1997 behavior risk factor surveillance system. *American Journal of Public Health, 91*(11), 1882-1888.
- Hutchinson, M. (1999). Individual, family, and relationship predictors of young women's sexual risk perceptions. *Journal of Obstetric, Gynecologic, & Neonatal Nursing, 28*(1), 60-67.
- Ickovics J., Niccolai L., Lewis J., Kershaw T., & Ethier K., (2003). High postpartum rates of sexually transmitted infections among teens: pregnancy as a window of opportunity for prevention. *The Journal of Sexual Health & HIV. 79* (2) 177-189.
- Jemmott, J., Jemmott, L., Braverman, P., Fong, G., & Geoffrey T., (2005). HIV/STD risk reduction interventions for African American and Latino adolescent girls at an adolescent medicine clinic: A randomized controlled trial. *Archives of Pediatrics & Adolescent Medicine. 159*(5):440-449.
- Jolley, S. (2001). Promoting teenage sexual health: An investigation into the knowledge, activities and perception of gynecology nurses. *Journal of Advanced Nurses, 36*(2), 246-255.
- Johnson, B., Carey, M., Marsh, P., Levin, K., & Scott-Sheldon, L. (2003). Intervention to reduce sexual risk for the human immunodeficiency virus in adolescents, 1985-2000: a research synthesis. *Pediatric & Adolescent Medicine, 157* (4), 381-388.
- Kamb, M., Fishbein, M., Douglas, J., Rhodes, F., Rogers, J., Bolan, G., Zenilman, J., Hoxworth, T., Malotte, C., Iatesta, M., Kent, C., Lentz, A., Graziano, S., Byers, R., Peterman, T., (1998). Efficacy of risk-reduction counseling to prevent human

immunodeficiency virus and sexually transmitted diseases: A randomized controlled trial. *JAMA*. 280 (13):1161-1167.

Kellock, D., Piercy, H., Rogstad, K. (1999). Knowledge of Chlamydia trachomatis infection in genitourinary medicine clinic attendees. *Sexually Transmitted Infections*. 75(1), 36-40.

Kershaw, T., Ickovics, J., Lewis, J., Niccolai, L., Milan, S., & Ethier, K., (2004). Sexual risk following a sexually transmitted disease diagnosis: the more things change the more they stay the same. *Journal of Behavioral Medicine*. 27(5), 445-461.

King, E. A., Britt, R., McFarlane, M., & Hawkins, C. (2001). Bacteria Vaginosis and chlamydia trachomatis among pregnant abused and non-abused Hispanic women. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 29(6), 606-612.

Lambert, E. (2001). College students' knowledge of human papillomavirus and effectiveness of a brief educational intervention. *The Journal of the American Board of Family Practice*, 14(3), 178-183.

Lauby, J., Smith, P., Stark, M., Person, B., & Adams, J. (2000). A community level HIV prevention intervention for inner city-women: Results of the women and infants demonstration projects. *American Journal of Public Health*, 90(2), 216-222.

Linderberg, S., Solorzano, M., Bear, D., Strickland, O., Galvis, C., & Pittman, K. (2002). Reducing substance use and risky sexual behavior among young, low-income, Mexican-American women: Comparison of two interventions. *Applied Nursing Research*, 15 (3), 137-148.

Ludwig, K., & Pittman, J., (1999). Adolescent prosocial values and self-efficacy in relation to delinquency, risky sexual behavior, and drug use. *Youth & Society* 30

(4). 461-482.

- Mahon, B., Rosenman, M., Graham, M., & Fortenberry, D. (2002). Postpartum chlamydia trachomatis and neisseria infections. *American Journal of Obstetrics and Gynecology*, 186(6), 1320-1325.
- Manlove, J., Terry-Humen, E., Papillo, A., Franzette, S., & Ryan, S. (2002). Preventing teenage pregnancy, childbearing, and sexually transmitted diseases: research shows. *Child Trends*, 1-14.
- Mathews, C., Guttmacher, S., Coetzee, N., Magwaza, S., Lombard, C., Goldstein, S., & Coetzee, D. (2002). Evaluation of a video based health education strategy to improve sexually transmitted diseases partner notification in South Africa. *Sexually Transmitted Diseases*, 78 (1), 53-57.
- McCaul, K., Schroeder, D., & Reid, P. (1996). Breast cancer worry and screening: Some prospective data. *Health Psychology*, 15 (6), 430-433.
- Mehta S., Erbeling E., Zenilman J., & Rompalo A., (2003) Gonorrhea reinfection in heterosexual STD clinic attendees: Longitudinal analysis of risks for first infection. *The Journal of Sexual Health & HIV*. 79 (2), 79-86.
- Mindel, A., Taylor, J., Tiderman, R., Seifert, C., Berry, G., & Wagner, K. (2000). Neonatal herpes prevention: a minor public health problem in some communities. *Sexually Transmitted Infections*. 76(4), 287-291.
- Morrison-Beedy, D., Carey, M., Aronowitz, T., Mkandawire, L., & Dyne, J. (2002). An HIV risk reduction intervention in an adolescent correctional facility: lessons learned. *Applied Nursing Research*, 15 (2), 97-101.
- Mullick, S., Beksinksa, M., & Msomi, S. (2005). Treatment for syphilis in antenatal care:

compliance with the three dose standard treatment regimen. *Sexually Transmitted Infections*. 81 (3), 220-222.

Munro, B., H. (2001). *Statistical Methods for healthcare research*. Philadelphia: Lippincott Williams & Wilkins.

Narouz, A., Allan, P., Wade, A., & Wagstaffe, S. (2003). Genital herpes serotesting: A study of the epidemiology and patients' knowledge and attitude among STD clinic attendees in Coventry, UK. *The Journal of Sexual Health and HIV*, 79 (1), 35-41.

Ngo, A., Murphy, S. (2005). A theory-based intervention to improve nurses' knowledge, self-efficacy, and skills to reduce PICC occlusion. *Journal of Infusion Nursing*. 28(3), 173-181.

Niccolai, L., Ickovics, J., Zeller, K., Kershaw, T., Milan, S., Lewis, J., & Ethier, K., (2005) Knowledge of sex partner treatment for past bacterial STI and risk of current STI. *Sexually Transmitted Infections*. 81(3):271-275.

Niccolai, M., Ethier, M., Kershaw, S., Lewis, B., & Ickovics, R. (2003). Pregnant adolescents at risk: Sexual behaviors and sexually transmitted disease prevalence. *American Journal of Obstetrics & Gynecology*, 188 (1), 63-70.

Norris, E., & Beaton, M. BS. (2003). Who knows more about condoms, a comparison between Nursing students, education students, and at risk adolescents. *MCN, The American Journal of Maternal/Child Nursing*, 27 (2), 103-108.

Norwood, S. (2000). *Research strategies for advanced practice nurses*. New Jersey: Prentice-Hall.

- Orr, D., Johnston, K., Brizendine, E., & Katz, B. (2001). Subsequent sexually transmitted infections in urban adolescents and young adults. *Archives of Pediatrics and Adolescents Medicine*, 155(8), 947-953.
- Paz-Bailey, G., Kouman, E., Sternberg, M., Piece, A., Papp, J., Unger, E., Sawyer, M., Sawyer, M., Black, C., & Markowitz, L. (2005). The effects of correct and consistent condom use on chlamydial and gonococcal infectio among urban adolescents. *Archives Pediatrica & Adolescent Medicine* 159(6). 536-542.
- Peragallo, N., DeForge, B., O'Campo, P., Lee., Kim, Y., Cianelli, R., & Ferrer, L. (2005) A randomized clinical trial of an HIV risk reduction intervention among low income Latina women. *Nursing Research*. 54 (2),108-118.
- Peterson, R., Connelly, A., Martin, L., & Kupper, L. (2001). Preventive counseling during pregnancy care pregnancy risk assessment monitoring system. *American Journal of Preventive Medicine*, 20(4), 245-252.
- Polit, D., & Hunglar, B. (1999). *Nursing research: Principles and methods* (6th ed.) Philadelphia: Lippincott.
- Ramus, R., Sheffield, J., Mayfield, J., & Wendel, G. (2001). A randomized trail that compared oral cefixime and intramuscular ceftraixone for the treatment of gonorrhea in pregnancy. *American Journal of Obstetric and Gynecology*, 185(3), 629-632.
- Robinson, A., & Rogstad, K. (2002). Adolescence: a time of risk taking. *Sexually Transmitted Infections*. 78(5), 314-315.

- Rosengard, C., Adler, N., Millstein, S., Gurvey, J., Ellen, J., (2004). Perceived STD risk, relationship, and health values in adolescents' delaying sexual intercourse with new partners. *Sexually Transmitted Infections*. 80(2),130-137.
- Sexton, J., Garnett, G., & Rottingen, J., (2005) Meta analysis and meta regression in interpreting study variability in the impact of sexually transmitted diseases on susceptibility to HIV Infection. *Sexually Transmitted Diseases*. 32(6):351-357.
- Shain, R., Piper, J., Newton, E., Perdue, S., Ramos, R., Champion, J., & Guerra, F. (1999). A randomized controlled trial of a behavioral intervention to prevent sexually transmitted diseases among minority women. *New England Journal of Medicine*, 340 (2) 93-100.
- Shrier, L., Ancheta, R., Goodman, E., Chiou, V., Lyden, M., & Emans, S. (2001). Randomized controlled trail of a safer sex intervention for high risk adolescent girls. *Pediatric & Adolescent Medicine*. 155 (1), 73-79.
- Siegel, D., Aten, M., & Enaharo, M., (2001). Long term effects of a middle school and high school based human immunodeficiency virus sexual risk prevention intervention. *Pediatrics & Adolescent Medicine*, 155 (10), 1117-1126.
- Stevens, A., Chauhan, Suneet P., Magann, E., Martin, R., Bofill, J., Cushman, J., & Morrison, J., (2004). Fetal fibronectin and bacterial vaginosis are associated with preterm birth in women who are symptomatic for preterm labor. *American Journal of Obstetrics & Gynecology*. 190(6),1582-1589.
- Stewart, K., DiClemente, R., Ross, D., (1999). Adolescents and HIV: Theory-based approaches to education of nurses. *Journal of Advanced Nursing*. 30(3), 132-138.
- Stoner, B., Whittington, W., Aral, S., Hughes, J., Handsfield, H., & Holmes, K. (2003).

Avoiding risky sex partners: perception of partners' risk v partners' self reported risks. *The Journal of Sexual Health & HIV*, 79 (3), 197-201.

Swanson, J., Dibble, S., & Chapman, L. (1999). Effects of psycho educational interventions on sexual health risk and psychosocial adaptation in young adults with genital herpes. *Journal of Advanced Nursing*, 29 (4), 840-851.

Temmerman, M., Gichangi, P., Apers, K., Claeys, P., Van Renterghem, L., Kiragu, D., Karanja, G., Ndinya-Achola, J., & Bwayo, J. (2000). Effects of a syphilis control program on pregnancy outcome in Nairobi, Kenya. *Sexually Transmitted Infection*, 76(2), 117-121.

Tideman, R., Taylor, J., Marks, C., Seifert, C., Berry, G., Trudinger, B., Cunningham, A., & Mindel, A. (2001). Sexual and demographic risk factors for herpes simplex type 1 and 2 in women attending an antenatal clinic. *The Journal of Sexual Health & HIV*, 77(6), 413-415.

Todd, J., Munguti, K., Grosskurth, H., Chagalucha, J., Mayaud, P., Mosha, F., Gavyole, A., & Mabey, D. (2002). Risk factors for active syphilis and TPH seroconversion in a rural African population. *Sexually Transmitted Infection*, 77(1), 37-45.

Van Devanter, N., Gonzales, V., Merzel, C., Parikh, N., Celantano, D., & DiCementeberg, J. (2002). Effect of an STD/HIV behavior intervention on women's use of the female condom. *American Journal of Public Health*, 92(1), 109-115.

Von Sadvoszky, V., Victoria, K., & McKinney, K. (2002). College students' perception and practices of sexual activities in sexual encounters. *Journal of Nursing Scholarship*, 34(2), 133-138.

- Wang, Y., Davis, M., Robin, L., Collins, J., Coyle, K., & Baumler, E. (2000).
Economic evaluation of safer choices: a school based human immunodeficiency virus, other sexually transmitted diseases, and pregnancy prevention program. *Arch Pediatric Adolescent Medicine*, 154 (10), 1017-1024.
- Weisbord, S. J., Koumans, E. H., Toomey, E. T., Camilla, G., & Markowitz, L. E. (2001).
Sexually transmitted diseases during pregnancy: Screening, diagnostic, and treatment practices among prenatal care providers in Georgia. *Southern Medical Journal*, 94(1), 47-53.
- Weitz, B., (2001). Premature rupture of the fetal membranes: An update for advanced practice nurses. *MCN, American Journal of Maternal Child Nursing*. 26(2) ,86-92.
- Whitehead, D. (2001). A social cognitive model for health education/health promotion practice. *Journal of Advanced Nursing*, 36(3), 417-425.
- Whitehead, D. (2001). Health education, behavior change and social psychology: nursing contribution to health promotion. *Journal of Advanced Nursing*, 34(6), 822-832
- Whitehead, D. (2001). A stage planning program model for health education/health promotion practice. *Journal of Advanced Nursing*, 36(2), 311-320.
- Williams, S., Norris, E., & Bedor, M. (2003). Sexual relationships, condom use, and concerns about pregnancy, HIV/AIDS, and other sexually transmitted diseases. *Clinical Nurse Specialist*. 17(2), 89-94.
- Wilson, S., Brown, N., Chin, V., Levin, D., Y., Hu, P., & Lavori, P. (2004). Condom use by women recently diagnosed with a sexually transmitted infection: effects of

study methodology on the apparent influence of hormonal/surgical contraception.
Sexually Transmitted Diseases, 31(12). 740-747.

Wilson, E., Minkoff, H., McCalla, S., Petterkin, C., & Jaccard, J. (1996). The relationship between pregnancy and sexual risk taking. *American Journal of Obstetrics and Gynecology*, 174(3), 1033-1036.

Wong, E., Roddy, R., Tucker, H., Tamoufe, Ubald M., Ryan, K., Ngampoua, F. (2005). Use of male condoms during and after randomized, controlled trial participation in Cameroon. *Sexually Transmitted Diseases*. 32(5).300-307.

Appendices

APPENDIX A: DEMOGRAPHIC DATA FORM



DEMOGRAPHIC DATA FORM

1. What is your age?

1

2

3

4

5

6

7

8

9

0

2. What is your work status?

(Please bubble all that apply):

- Unemployed
- Unemployed - Laid off
- Disabled
- In school
- Employed full time
- Employed part time

3. What is your marital status?

(Please bubble):

- Married
- Separated
- Never married
- Divorced
- Widowed
- Other

4. Do you consider yourself to be hispanic? Yes No

4b. What is your ethnic/race group?

(Please bubble):

- Caucasian
- African American
- Hispanic
- Native American
- Asian
- Other

5. What type of medical coverage do you have?

- Medicaid
- Private insurance
- No insurance
- Group insurance through work
- Other

6. What is your level of education?

- Less than high school
- High school diploma
- Technical school
- Some college
- College degree

7. What is your approximate annual household income? (Dollars)

\$

1

2

3

4

5

6

7

8

9

0

8. How many times have you been pregnant?

1

2

3

4

5

6

7

8

9

0

9. How many living children do you have?

1

2

3

4

5

6

7

8

9

0

10. What type of birth control is used when not pregnant? (Bubble all that apply):

- The pill
- The shot (depo provera or lunelle)
- Norplant
- Diaphragm
- Condoms
- Patch
- IUD
- Estrogen ring
- None

11. Are/were you sexually active during pregnancy?

- Yes
- No
- Never been pregnant

12a. Do you use condoms during sex?

- Yes
- No

12b. Do you use condoms while pregnant?

- Yes
- No
- Never been pregnant

13. How old were you the first time you had sex?

1

2

3

4

5

6

7

8

9

0

14. Within the last year how many different sex partners have you had?

1

2

3

4

5

6

7

8

9

0

15. Have you ever had an abnormal pap test?

- Yes
- No

Office Use Only

1

2

3

4

5

6

7

8

9

0

Group

1

2

Appendix A: (Continued)



56239

16. Do you douche?

- Yes
- No

17. Have you ever had abnormal vaginal discharge?

- Yes
- No

18. Have you ever had a sexually transmitted infection?

- Yes
- No

19. Have you ever had a sexually transmitted infection while pregnant?

- Yes Type: _____
- No
- Never been pregnant

20. Have you ever had a sex partner with a sexually transmitted infection?

- Yes Type: _____
- No

21. Do you believe your sex partner is having sex with someone else?

- Yes
- No

22. Do you have difficulty asking your sex partner to use a condom?

- Yes
- No

23. If pregnant do/did you have sex with someone other than your baby's daddy?

- Yes
- No
- Never been pregnant

24. Have you ever been treated for a sexually transmitted infection while pregnant?

- Yes
- No
- Never been pregnant

25. How many months pregnant are you now?

- Not pregnant
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 0



- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 0

Page 2

Appendix B: Sexually Transmitted Infection Knowledge Survey



Sexually Transmitted Infection Knowledge Scale (STIKS)

This is a 29-item questionnaire to assess knowledge of sexually transmitted infections. Please fill the bubble for your response on each question.

1. In order for a condom to be effective it should be applied
 - at least twenty minutes before sex.
 - after the penis becomes soft.
 - while the penis is hard.
 - before the penis enters the vagina.
2. Which of the following will decrease the chance of getting HIV?
 - Wearing a diaphragm after sex.
 - Douching after sex.
 - Using a medicated cream during sex.
 - Wearing a condom during sex.
3. Which of the following is true about getting herpes? One can decrease the chance of getting herpes
 - by having oral sex.
 - if a condom is worn.
 - by having anal sex.
 - if one sore is present.
4. An important rule to safer sex is,
 - choosing an appropriate sex partner.
 - anal sex prevents spread of infections.
 - condoms offer little protection against infections.
 - sex during a menstrual period has little risk.
5. Which of the following is true about getting HIV while pregnant?
 - The bag of water decreases the baby's chances of getting HIV.
 - The womb/uterus decreases the baby's chances of getting HIV.
 - Taking medication decreases the baby's chances of getting HIV.
 - No medication decreases the baby's chances of getting HIV.
6. Women are at risk for getting which of the following sexually transmitted disease while pregnant:
 - trichomonas vaginitis.
 - bacterial vaginosis.
 - chlamydia infection.
 - syphilis infection.
7. A pregnant woman complaining of a thick white vaginal discharge that causes itching, most likely has
 - trichomonas vaginitis.
 - bacterial vaginosis.
 - chlamydia infection.
 - yeast infection.
8. Eye infections seen in newborn babies are most commonly caused by
 - herpes.
 - syphilis.
 - trichomonas.
 - chlamydia.
9. Syphilis in the baby usually does not occur if you receive medication for this infection
 - early in your pregnancy.
 - late in your pregnancy.
 - after your baby is born.
 - during your baby's birth.
10. A shot is available to prevent you from getting which of the following sexually transmitted infection.
 - herpes.
 - syphilis.
 - hepatitis.
 - chlamydia.
11. If you are already pregnant there is a need to use condoms.
 - During sex
 - If your water breaks
 - During contractions
 - During your period
12. The fastest increasing group of people at risk for getting AIDS are?
 - old women.
 - gay women.
 - gay men.
 - young people.

--	--	--	--

1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix B: (Continued)



56239

13. A pregnant woman can do which of the following at the time of birth to help prevent giving HIV to her unborn baby?
- Have a surgical delivery.
 - Nothing can be done.
 - Have a vaginal delivery.
 - Have limited sex.
14. After the woman has the baby she can do which of the following to help prevent her baby from getting HIV?
- Wear gloves when changing the baby's diaper.
 - Let her husband take care of the baby.
 - Remember not to ever kiss the baby.
 - Bottle feed the baby instead of breast-feeding.
15. What type of delivery should be expected for a woman who is positive for herpes lesions at the time of birth?
- Vaginal delivery.
 - Cesarean delivery.
 - Forceps delivery.
 - Vacuum delivery.
16. You can stop taking the medicine to cure the sexually transmitted infection when
- the discharge stops
 - you feel well again
 - all the medicine is gone
 - your sex partner uses a condom.
17. If you get syphilis while you are pregnant you can
- pass it on to your baby
 - not pass it on
 - have a cesarean delivery
 - have a forceps delivery
18. If you give someone a sexually transmitted infection you should
- share your medication with him
 - tell him as soon as possible
 - get a friend to tell him
 - wait until he asks you.
19. Active herpes lesion at the time of child birth can
- Cause harm to the baby
 - Not be passed to the baby
 - Be cured with medication
 - Stop the labor contractions
20. Which of the following problems can occur if syphilis is not treated during pregnancy?
- High blood pressure.
 - Low blood iron.
 - Miscarriage.
 - Bleeding.
21. A woman who has painful blisters on her vaginal area may have
- an ingrown hair
 - nothing to worry about
 - primary herpes.
 - HIV infection
22. Anal/rectal sex
- Protects the baby
 - Prevents the spread of STIs
 - Does not protect the baby
 - Prevents the spread of HIV
23. An important area of risk for a sexually transmitted disease is:
- large number of sex partners.
 - use of birth control pills.
 - consistent use of condoms.
 - low education level.
24. The most common newborn complications related to sexually transmitted infections are:
- newborn eye infections.
 - newborn heart problems.
 - newborn kidney problems.
 - newborn skin infections.
25. Once a pregnant woman is infected with HIV her baby can become infected
- During labor
 - At any time
 - While having sex
 - After delivery

1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix B: (Continued)



26. When having sex you should expect to have a "fishy odor" in your vaginal area:

- never
- sometimes
- always
- after your period

27. When a woman is told she has a *trichomonas* infection:

- her sex partner does not need to be treated.
- She and her sex partner need to be treated.
- only the woman needs* to be treated.
- only the man needs to be treated.

28. The best time to douche is

- after a period.
- after having sex.
- never a good time.
- during a period

29. Which of the following is true about having sex while pregnant?

- pregnant women should not have sex
- sex during pregnancy can hurt the baby
- sex with condoms can protect from sexually transmitted infections during pregnancy
- sex with condoms are not effective if a woman is already pregnant

1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix C: Perceived Risk for Sexually Transmitted Infection Survey



Perceived Risk of Sexually Transmitted Infection Behavior Survey

Please bubble the most appropriate response to the following questions:

1. How often do you worry about getting a sexually transmitted infection?

- 1-Never 2-Rarely 3-Sometimes 4-Most of the time 5-Always

2. How would you rate how worried you are about getting a sexually transmitted infection?

- 1-Not at all 2-Somewhat 3-Moderately 4-Very 5-Extremely

3. Thinking about getting a sexually transmitted infection makes me feel upset and frightened.

- 1-Strongly disagree 2-Disagree 3-Neither 4-Agree 5-Strongly Agree

4. What do you think the chances are of a woman getting a sexually transmitted infection?

- 1-Very unlikely 2-Somewhat unlikely 3-Uncertain 4-Somewhat likely 5-Very likely

5. What do you think your chances are of getting a sexually transmitted infection?

- 1-Very unlikely 2-Somewhat unlikely 3-Uncertain 4-Somewhat likely 5-Very likely

Office Use Only

	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix D: Sexually Self-Efficacy Survey

33035

Sexual Self-Efficacy Survey

Women are being asked to respond to statements on a three part questionnaire regarding sexual self-efficacy by marking one of the five spaces.

1. Refuse Sexual Intercourse

On a scale of 1 to 5, indicate how sure you are that you would be able to say NO to having sexual intercourse for each item. Please bubble in your response.

1= Not at All 2=A Little Sure 3=Somewhat Sure 4=Pretty Sure 5=Very Sure

	1	2	3	4	5
1. With someone you have known for a few days or LESS?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. With someone whose sex and drug history is not known to you?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. With someone you have dated a long time?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. With someone you want to date again?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. With someone with whom you have already had sexual intercourse?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. With someone who you want to fall in love with you?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. With someone who is pushing you to have sexual intercourse?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. With someone after you have been smoking marijuana?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. With someone after you have been drinking alcohol?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NEXT PAGE

Office Use Only

1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix D: (Continued)



33035

Question Potential Sex Partners

On a scale of 1 to 5, indicate how sure you are that you would be able to discuss each of the following with your boyfriend. Please bubble in your response.

1=Not at All 2=A Little Sure 3=Somewhat Sure 4=Pretty Sure 5=Very Sure

- | | 1 | 2 | 3 | 4 | 5 |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. Ask your boyfriend if he has ever injected drugs such as heroin or cocaine into his veins? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Discuss preventing AIDS or sexually transmitted infections (gonorrhea, etc.) or pregnancy with your boyfriend? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. Ask your boyfriend about sexual relationships that he has had in the past? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. Ask your boyfriend if he has ever had anal (rectal or butt) intercourse? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. Ask your boyfriend if he has ever had a sexually transmitted infection? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Condom Use

On a scale of 1 to 5, indicate how sure you are that you would be able to perform each of the following? Please bubble your response.

1=Not at All 2=A Little Sure 3=Somewhat Sure 4=Pretty Sure 5=Very Sure

- | | 1 | 2 | 3 | 4 | 5 | | 1 | 2 | 3 | 4 | 5 |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. Use a condom correctly. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 6. Refuse to have sex if your boyfriend will not use a condom? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Use a condom everytime you had sexual intercourse? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 7. Get the money needed to buy condoms? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. Use a condom during sex after you have been drinking? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 8. Walk into a store and buy condoms? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. Use a condom during sex after you have been using marijuana? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | | | | | | |
| 5. Insist on using a condom during sex even if your boyfriend does not want to use a condom? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | | | | | | |

Office Use Only

- | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|
| | | | | |
| 1 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 7 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

- | | |
|-------|-----------------------|
| Group | |
| 1 | <input type="radio"/> |
| 2 | <input type="radio"/> |

Appendix E: Consent to Use Instrument

Versie Mallard

From: Kevin McCaul [kevin.mccaul@ndsu.nodak.edu]
Sent: Wednesday, May 21, 2003 9:25 AM
To: 'Versie Mallard'
Subject: RE: breast cancer worry

You certainly have my permission, Versie. And the worry questions are pretty good and simple, I think. However, the risk questions are not particularly good ones. Perceived risk is much more complicated than the measures I was using way back when. Check out Weinstein, Journal of the National Cancer Institute Monographs, 1999. KDM

Kevin D. McCaul
Dale Hogoboom Professor of Psychology
Psychology, Minard Hall
NDSU
Fargo, ND 58105
701-231-7072
701-231-8426 (FAX)

-----Original Message-----

From: Versie Mallard [mailto:vmallard@comcast.net]
Sent: Wednesday, May 21, 2003 7:26 AM
To: Kevin.McCaul@NDSU.NODAK.EDU
Subject: FW: breast cancer worry

-----Original Message-----

From: Versie Mallard [mailto:vmallard@comcast.net]
Sent: Tuesday, May 20, 2003 10:54 PM
To: 'mccaul@badland.nodak.edu'
Subject: breast cancer worry

Kevin D. McCaul

I am a graduate student attending the University of South Florida. I am interesting in modeling the questions you used in the article "Breast cancer worry and screening: Some prospective data." Health Psychology 1996. vol 15 no 6. I am interesting in assessing perceived risk of sexually transmitted infections. I have attached an example of the questions I would like to use. **I would like your permission to modify your questions and use in my study.**

Respectfully

Versie Johnson-Mallard

vmallard@comcast.net

Appendix F: Research Site Consents

Versie Mallard

From: David_Keen@doh.state.fl.us
Sent: Tuesday, February 04, 2003 2:26 PM
To: vjmallard@comcast.net
Cc: Sandra_Kelsey@doh.state.fl.us
Subject: study

Sorry for the delay. There has been a plethora of meetings and conference calls as well as information as it pertains to WMD and small pox etc that requests become lost in the bigger picture/shuffle. I see what you are doing as necessary.

I welcome your study to the Wakulla County Health Department but would like to know more as to the nature of our involvement. If the nurse will have to do more of the counseling and teaching and tracking of the patient then that may pose a problem. If it is all streamlined and efficient and the data readily easy to obtain - wonderful.

As a notice of acceptance of your study in our CHD, I accept but would like the opportunity to talk about the impact. Actually, Ms Sandra Kelsey, our Nursing Director may be the one to talk to. Mrs Forney is our STD nurse.

I hope that this meets with your need.

God Bless

Appendix F: (Continued)

February 12, 2003

Versie Mallard
4678 Pimlico Drive
Tallahassee, Florida 32309

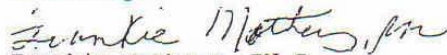
Dear Ms. Mallard:

I am so sorry and do apologize for the delay in providing you with written documentation to support your efforts to study the effects of an educational/behavioral intervention on sexually transmitted infections in African American women.

As you know public health is the leader in focusing on sexually transmitted diseases. The Leon County Health Department is happy to participate in your study and will allow you to approach potential participants through our clinics, using the guidelines you specified in the overview you shared in your January 22, 2003 email.

We welcome you. If you have any more questions please not hesitate to contact me at 487-3186.

Sincerely,


Frankie Mathews, RN, C
Public Health Nursing Director

Leon County Health Department • Nursing • P.O. Box 2745 • Tallahassee, Fl 32316

Appendix F (Continued)



Jeb Bush
Governor

John G. Agwunobi, M.D., M.B.A.
Secretary

March 6, 2003

Versie Mallard
4678 Pimlico Drive
Tallahassee, FL 32309

Dear Ms. Mallard:

I am writing to provide you with written documentation that you have our support for your efforts to study the effects of an educational/behavioral intervention on sexually transmitted infections in African American women.

Sexually transmitted diseases are definitely a public health problem and we at the health department are continually striving to improve our services in this area and promote prevention. The Wakulla County Health Department is happy to participate in your study and will allow you to approach potential participants through our clinics, using the guidelines you specified in the overview you shared in your March 3, 2003 email.

Welcome to our public health team and should you have any further questions, please do not hesitate to contact me at (850) 916-3591 Extension 112.

Sincerely,

Sandy Kelsey, RN, MSN
Nursing Director
Wakulla County Health Department

Appendix G: Institutional Review Board Approval

Jeb Bush
Governor



John O. Agwunobi, M.D., M.B.A.
Secretary

May 11, 2004

Versie Johnson-Mallard, PhDc, M.S.N., A.R.N.P.
4678 Pimlico Drive
Tallahassee, Florida 32309

RE: RCHS 1294 "The Effects of an Educational Intervention on Knowledge, Self-Efficacy and Perceived Risk of Sexually Transmitted Infections"

Dear Ms. Johnson-Mallard:

I am happy to inform you that the Florida Department of Health, Review Council for Human Subjects (RCHS) has approved the changes listed in the letter dated March 3, 2004.

You are now authorized to begin research activities. The stamped, approved consent form is enclosed. If an additional IRB has oversight of this study, its stamp should be added to the form. Only this stamped consent form is to be used for subject enrollment. Council members agreed that this study is minimal risk and will need to be reviewed annually. **Your approval period is February 18, 2004 to February 17, 2005.** Your next continuing review is due on or before February 17, 2005.

Study protocols are initially approved for one year or less from the initial approval date, and must be conducted as presented to the RCHS. If you intend to continue study activities past the initial approval period, you must submit a complete renewal application package (including study protocol, informed consent documents etc.) at least six weeks prior to the anniversary date. Failure to submit either a closure notice or a renewal application will result in administrative closure of the study by the RCHS. Any changes to the protocol's methodology, informed consent, or other materials that occur during the approval period must be reported to the RCHS for review prior to implementation. Lastly, a final report summarizing study activities must be forwarded to the RCHS upon completion of the study. Please be sure to reference the RCHS assigned number, along with the Principal Investigator's name on all correspondence.

Please feel free to call the RCHS administrative office at (850) 245-4585 or toll free in Florida at 1-866-433-2775, if you have any questions. You can also obtain helpful information from our website at <http://www.doh.state.fl.us/execstaff/rchs/index.html>.

Sincerely,

A handwritten signature in black ink, appearing to read "Paul Arons".

Paul Arons, M.D.
Chair, Review Council for Human Subjects

PA/ld
Encl.

Appendix G: (Continued)



Versie Johnson-Mallard
4678 Pimlico Drive
Tallahassee, FL 32309

August 26, 2004

Dear Ms. Johnson-Mallard:

Your new protocol (IRB# 102670) entitled, "The Effects of an Educational Intervention of Knowledge, Self-Efficacy and Perceived Risk of Sexually Transmitted Infections in Women" including your Child's Assent Form, Parental/ Guardian Informed Consent Form, Adult Informed Consent Form, and your request for Waiver of Parental Informed Consent (for only those minors who do not feel comfortable seeking parental consent), was reviewed and approved at the August 20, 2004 Institutional Review Board-02 meeting. Therefore, the approval period for your protocol including your assent form, informed consent forms, with your waiver of parental informed consent is shown on the stamp below.

You should take special note of the following:

- Approval is for up to a twelve-month period, after date of initial review. A Research Progress Report to request renewed approval must be submitted to this office by the submission deadline in the eleventh month of this approval period. A final report must be submitted if the study was never initiated, or you or the sponsor closed the study.
- The Board determined this study involving children to fall under 45 CFR 46.404- Research not involving greater than minimal risk.
- Unless the requirement has been waived by the IRB, documentation of informed consent/assent should be obtained on copies of the attached stamped informed consent/assent document. Please note the form is valid only during the period stamped on the informed consent/assent document.
- Waiver of Parental Informed Consent (for only those children who do not feel comfortable seeking parental consent), has been approved having met the following four criteria: the research will not involve greater than "minimal risk" to the subject; it is not practicable to conduct research without a waiver; waiving will not adversely affect subject's rights; and if appropriate, information will be provided to subject later.
- Based on the new HIPAA Privacy Rule, if the study involves generating, collecting, using, or disclosing 'protected health information' the subject must be given an appropriately approved Authorization form prior to enrolling them into your research study. If the study involves review of medical charts only, please ensure that you have a Waiver of HIPAA Authorization granted by the Privacy Board, prior to commencing the study.
- Any changes in the above referenced study may not be initiated without IRB approval except in the event of a life-threatening situation where there has not been sufficient time to obtain IRB approval.
- All changes in the protocol must be reported to the IRB.
- If there are any adverse events, the Chairperson of the IRB must be notified immediately in writing.
- Research investigators are required to keep all research related materials, including all IRB correspondence for no less than three (3) years. If at the end of 3 years, the data is no longer needed it should be destroyed. However, if data are kept after 3 years of study completion, please report to the IRB how you will keep data confidential

If you have any questions regarding this matter please do not hesitate to call either Angie Reagan at (813) 974-5741 or myself at 974-9343.

Sincerely,

Paul G. Stiles, J.D., Ph.D.
Chairperson, IRB-02
PGS: amr

IRB Approval	
FWA 00001669	
IRB Number:	102670
From	8-20-2004
Thru	8-19-2005

pc: Dr. Cecile A. Lengacher
FAO (NIH/DHHS)

Tricia Holtje OFFICE OF RESEARCH • DIVISION OF RESEARCH COMPLIANCE
INSTITUTIONAL REVIEW BOARDS, FWA No. 00001669

University of South Florida • 12901 Bruce B. Downs Blvd., MDC035 • Tampa, FL 33612-4799
(813) 974-5638 • FAX (813) 974-5618

Appendix H: Informed Consent/Assent

IRB Approval FWA 00001669	
IRB Number:	102670
From	8-20-2004
Thru	8-19-2005



Informed Consent to Participate in Research: Parental/Guardian Informed Consent

PI: Versie Johnson-Mallard

Study Title: The Effects of an Educational Intervention on Knowledge, Perceived Risk and Self-Efficacy of Sexually Transmitted Infections in Women.

IRB#: 102670

Information for Parent/Guardian Whose Child is Being Asked to Take Part in a Research Study

Your child is being asked to take part in a study. This form tells you about the study. The person in charge of this study or someone who speaks for the person in charge of the study will also tell you more about the study and answer all of your questions. Before you decide whether or not to let your child take part, read the pages below and ask questions about anything you do not understand. Taking part in the study is voluntary. You may refuse to let your child be in the study and your child will still be able to attend the clinic.

Study staff who can act on behalf of the person in charge: Cecile A. Lengacher RN, PhD, Professor

Where the study will be done: Three Florida Departments of Health Clinics in northwest Florida (Leon, Gadsden, and Wakulla counties).

Should your child take part in this study?

This form tells you about this research study. You can decide if you want your child to take part in it. They do not have to take part. Reading this form can help you decide.

Before you decide to permit your child to take part in this study:

- Read this form.
- Talk about this study with the person in charge of the study or the person explaining the study.
- You can have someone with you when you talk about the study.
- Find out what the study is about.

You can ask questions:

- You may have questions this form does not answer. If you do, ask the person in charge of the study or study staff as you go along.

Appendix H (Continued)



- You don't have to guess at things you don't understand. Ask the people doing the study to explain things in a way you can understand.

After you read this form, you can:

- Take your time to think about it.
- Have a friend or family member read it.
- Talk it over with someone you trust.

It's up to you. If you choose to let your child be in the study, then you can sign the form. If you decide not to let your child take part in this study, do not sign the form.

Why is this research being done?

The purpose of this study is to test the effects of an educational/behavioral intervention on knowledge, self-efficacy, and perceived risk of sexually transmitted infections (STIs) in women.

Why is your child being asked to take part?

We are asking your child to take part in this study because frequency of STIs has been identified to be highest in women under the age of 24 years.

How long will your child be asked to stay in the study?

Your child will be asked to spend about four weeks in this study. Pre-testing (answering three questionnaires/surveys) will occur at the initial clinic visit. The Knowledge/Behavior Intervention will occur the next week in a comfortable room at the health clinic. Post-testing (the same questionnaires/surveys will be asked two weeks after the Knowledge/Behavior Intervention. If your child is not chosen by randomization to attend the education/behavioral intervention than your child will meet again at post testing (three weeks).

What are the possible benefits to you?

Your child will receive information that may be helpful. Your child may learn more about sexually transmitted infections and behaviors that may help prevent contracting sexually transmitted infections. The results of this study may lead to development of better educational programs to help others. Others may benefit from your participation in this study.

What other choices do you have if you decide not to let your child take part?

The alternative to taking part in this study is not taking part in this study. If you do not want your child to take part in this study, tell Versie Johnson-Mallard and do not sign this Informed Consent Form.

If you decide to let your child take part in this study, you will need to sign this consent form. Your child will also need to sign an assent form.

Page 2 of 5



IRB Form: ICparent-SBv17 revised 7/21/04

Appendix H (Continued)



What will happen during this study?

Your child will be asked to be in a group talking about an education behavioral intervention relating to the prevention of sexually transmitted infections. Your child will be told about signs and symptoms women have related to sexually transmitted infections. These group discussions may last up to 30 minutes.

Will your child be paid for taking part in this study?

- Those participants who complete the research study and return all requested surveys will receive a five-dollar gift certificate to Wal-Mart.

What will it cost you to let your child take part in this study?

It will not cost your child or you anything to let your child take part in the study.

What are the risks if your child takes part in this study?

Possible risks of this study include a possible breach of confidentiality, and being upset by the survey.

- Very few people are upset by the questionnaires.
- If any questions upset you, you do not have to answer them, and can stop the questionnaire at any time.

If questions bother or worry your child, call the person in charge of this study at [850-561-2911]

Can you withdraw from this research study?

You are free to withdraw your consent and to stop your child's participation in this research study at any time. If you do withdraw your consent, there will be no penalty, and your child will not lose any benefits she is entitled to.

If you decide to withdraw your consent to participate in this research study for any reason, you should contact Versie Johnson-Mallard at (850) 561-2911

If you have questions about your child's rights as a person who is taking part in a research study, you may contact a member of the Division of Research Compliance of the University of South Florida at (813) 974-5638.

You may also contact the Florida Department of Health, Review Council for Human Subjects at (850) 245-4585 or toll-free in Florida, 1-866-433-2775.

What will we do to keep your child's study records from being seen by others?

Federal law requires us to keep your child's study records private.

Confidentiality of records will be maintained by a code number and by keeping your child's records in a locked and confidential file at all times.

Page 3 of 5



IRB Form: ICparent-SBv17 revised 7/21/04

Appendix H: (Continued)



However, certain people may need to see your child's study records. By law, anyone who looks at your child's records must keep them confidential. The only people who will be allowed to see these records are:

- The study staff
- People who make sure that we are doing the study in the right way. They also make sure that we protect your child's rights and safety:
 - The USF Institutional Review Board (IRB), its staff and other individuals acting on behalf of USF,
 - The United States Department of Health and Human Services (DHHS)

All others who are authorized, such as:

- Florida Department of Health Review Council for Human Subjects, sponsor (Dr. Lengacher) and any funding agency.
- We may publish what we find out from this study. If we do, we will not use your child's name or anything else that would let people know who your child is.

What happens if you decide not to let your child take part in this study?

You should only let your child take part in this study if both of you agree to.

If you decide not to let your child take part:

- You and your child won't be in trouble or lose any rights either of you normally have.
- You and your child will still get the same services you would normally receive.

What if you let your child join the study and then later decide you want to stop?

If your child decides to stop taking part in the study, tell the study staff as soon as you can.

Are there reasons we might take your child out of the study later on?

Even if you want your child to stay in the study, there may be reasons we will need to take her out of it. Your child may be taken out of this study:

- If the sponsor stops the study
- If your child is not coming for her study visits when scheduled

You can get the answers to your questions.

If you have any questions about this study, call [Versie Johnson-Mallard] at [850-561-2911].

If you have questions about your rights as a person who is taking part in a study, call USF Research Compliance at (813) 974-5638.

Florida Department of Health, Review Council for Human Subjects at (850) 245-4585 or toll-free in Florida, 1- 866- 433-2775.

Page 4 of 5



IRB Form: ICparent-SBv17 revised 7/21/04

Appendix H: (Continued)



Consent for Child to Take Part in this Research Study

It's up to you. You can decide if you want your child to take part in this study.

I give permission for my child _____ to take part in this research study.

I acknowledge I will receive a copy of this consent form to keep. I also acknowledge that I have been given the opportunity to review a blank copy of the STIKS questionnaire.

Signature of Parent
of child taking part in study

Printed Name of Parent

Date

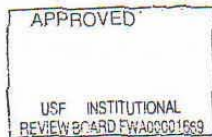
Investigator Statement

I have carefully explained to the subject the nature of the above protocol. I hereby certify that to the best of my knowledge the subject signing this consent form understands the nature, demands, risks and benefits involved in participating in this study.

Signature of Investigator
Or Authorized research investigators
designated by the Principal Investigator

Printed Name of Investigator

Date



Appendix H: (Continued)



**Review Council for Human Subjects
ADULT INFORMED CONSENT**

PI: Versie Johnson-Mallard

Study Title: *The Effects of an Educational Intervention on Knowledge, Perceived Risk and Self-Efficacy of Sexually Transmitted Infections in Women.*

IRB#: 102670

General Information about the Research Study

You are being asked to take part in this research study because you are a female aged (15-48) or a mature minor aged (15-17) with parental consent attending Leon, Gadsden or Wakulla County Health Departments. Participants in this study may benefit from increased knowledge about sexually transmitted infections (STIs). Females will be asked to take part in this study because among the 12 million cases of STIs estimated to occur annually in the United States, almost two thirds are in females. Increasing knowledge, self-efficacy, and perceived risk may be possible with an educational intervention.

The purpose of this research study is to examine whether participating in an education program about sexually transmitted infections has an effect on knowledge of sexually transmitted infection prevention. The ability to perform behaviors that prevent STIs and perceived risk to adopt behaviors to prevent STIs will be examined. It is estimated that there will be approximately 104 females taking part in this study.

Plan of Study: Your participation in this study will last for approximately four weeks. The study will take place at a room at your local county health department. There will be two groups in this study. One group will receive the educational program. The other group will not receive the education program so that comparison can be made. All participants in this study will be asked to complete pencil and paper surveys. The surveys will be completed on two separate occasions during the four-week period. The surveys take about 30 minutes to complete. Those participants who are selected by a process called randomization (which is explained below) will also take part in a 30-minute educational intervention (lecture/discussion) about STIs.

Where the study will be done: Three Florida Departments of Health Clinics in northwest Florida (Leon, Gadsden, and Wakulla counties).

Procedures: If you agree to participate in this study, you will be assigned to one of two groups based on a process called randomization (like a flip of a coin). This means that you have an equal chance of being selected for either the "intervention group" or the "control group." You will be asked to complete a demographic data form if you agree to participate in the study. Additionally, you will be asked to complete three surveys: a Sexually Transmitted Infection Knowledge Survey (STIKS) and a Perceived Risk of Sexually

Updated 7/13/04

IRB Approval	
FWA 00001659	
IRB Number:	102670
From	8-20-2004
Thru	8-19-2005

Adult Informed Consent
Page 1 of 3

Appendix H: (Continued)



Transmitted Infection Behavior Survey and a Self-Efficacy for Sexually Transmitted Infection Survey on two separate occasions. If you are selected to participate in the intervention group, you will complete the surveys today and again in three weeks after you have attended the educational intervention. You will also be asked to review an information brochure about STIs three times weekly during the four week period between the time you complete the educational program and complete the surveys for the second time. If you are selected to be in the control group, you will not participate in the educational intervention. The control group will complete the surveys today and again in four weeks. Those participants, who are chosen to be in the control group, although not participating in the educational intervention, will be offered the information brochure and the educational intervention after the completion of the study if you are interested.

• Payment for Participation

Those participants who complete the research study and return all surveys will receive a five-dollar gift certificate to Wal-Mart.

Benefits of Being a Part of this Research Study

- You will receive information that may be helpful to you. You may learn more about STIs and behaviors that may help prevent contracting STIs. The results of this study may lead to development of better educational programs to help others. Others may benefit from your taking part in this study.

Risks of Being a Part of this Research Study

- Possible risks of this study include a possible breach of confidentiality, and being upset by the survey. If any questions upset you, you do not have to answer them, and can stop the questionnaire at anytime.

Confidentiality of Your Records

- Your privacy and research records will be kept confidential to the extent of the law. The following persons or agencies may request to see study information
 - The funding agency,
 - Sponsor (Dr. Cecile Lengacher, RN, PhD),
 - Florida Department of Health Review Council for Human Subjects,
 - USF Institutional Review Board (IRB), its staff and other individuals acting on behalf of USF,
 - The United States Department of Health and Human Services (DHHS)
 - The results of this study may be published. However, the data obtained from you will be combined with data from other people in the publication. The published results will not include your name or any other information that would in any way personally identify you.
- Confidentiality of records will be maintained by a code number and by keeping your records in a locked and confidential file at all times.

Results of the study will be reported as aggregate numbers and individuals will not be identifiable. The results of the study will be made available to any study participant or Health Unit if requested.

Updated 7/13/04



Adult Informed Consent
Page 2 of 3

Appendix H: (Continued)



**Review Council for Human Subjects
Child's Assent**

PI: Versie Johnson-Mallard

Study Title: *The Effects of an Educational Intervention on Knowledge, Perceived Risk and Self-Efficacy of Sexually Transmitted Infections in Women.*

IRB#: 102670

General Information about the Research Study

You are being asked to be in a study because you are a young woman that is at least 15 years old. You are in the fastest growing group of people that get *sexually transmitted diseases (STDs)*. You may be able to benefit from a better understanding of STDs. You may get a better understanding of STDs, a better control over your health, and a better understanding of your risk from a class.

You may wish to involve your parent/guardian in this study. Your parent/guardian may be able to help you understand the study clearly and answer all of your questions. You should have a parent/guardian come to the clinic and sign for you to take part in this study.

You should understand that if you choose to take part and involve your parent or guardian, your parent/guardian would know about the health services you receive at the county health department.

However, if it is important to you that your parent/guardian not know that you are attending the county health department for health services you may still participate in the study by reading, signing and stating that you agree to take part in this research study.

Please read the pages below and ask questions about anything you do not understand. Taking part in the study is your choice. You may refuse to be in the study. You will still be able to receive health services at the county health department.

The reason for this study is to see if being in a learning program about STDs changes your understanding of STD prevention. You will be tested on your ability to do things that prevent STDs and your ideas of how to avoid STDs. There will probably be about 104 individuals taking part in this study.

Plan of Study: You will be in this study just about four weeks. The study will take place in a private room at your local clinic. There will be two groups in this study. One group will attend a 30-minute education class about sexually transmitted infections. The other group will not attend the education class. You will be selected by a process called randomization (like a flip of a coin). This means that you have just as much of a chance of being put in either group. You will be asked to fill out pencil and paper surveys at two different times during this four-week period. The surveys take about 30 minutes to fill out. The study is designed to test the effectiveness of the education class.

Where the study will be done: Three Florida Departments of Health Clinics in northwest Florida (Leon, Gadsden, and Wakulla counties).

Procedures: If you agree to take part in this study, you will be asked to fill out a form to include information such as your age, grade, race, pregnancy and sex history. You will also be asked to fill out three surveys. The first one is a

Updated 7/21/04

IRB Approval	
FWA 00001669	
IRB Number:	<u>102670</u>
From	<u>8-20-2004</u>
Thru	<u>8-19-2005</u>

Child Assent Informed Consent
Page 1 of 3

Appendix H: (Continued)



Sexually Transmitted Infection Knowledge Survey (STIKS). The next one is a Perceived Risk of Sexually Transmitted Infection Behavior Survey. The last one is a Self-Efficacy for Sexually Transmitted Infection Survey.

If you are chosen to attend the class, you will fill out the same surveys today and again three weeks after the class. You will also be asked to read a brochure about STDs three times each week during the four-week period.

If you are not chosen to attend the class, you will complete the same surveys today and again in four weeks. You will be offered the brochure and the class at the completion of the study.

With your permission the researcher will call or send a postcard as a friendly reminder of the follow up visit for post testing.

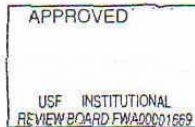
- **Payment for Participation**
Once you have returned all of the surveys, you will receive a five-dollar gift certificate to shop at Wal-Mart.
- **Benefits of Being a Part of this Research Study**
You will receive information that may increase your understanding of STIs. You may learn more about STD preventive practices. The results of this study may lead to improvement of programs to help others.
- **Risks of Being a Part of this Research Study**
Possible risks of this study include a possible breach of confidentiality, and being upset by the survey. If any questions upset you, you do not have to answer them, and can stop the questionnaire at any time.

- **Confidentiality of Your Records**
Your privacy and research records will be kept confidential to the extent protected by the law. The following persons or agencies may request to see study information:
 - The funding agency,
 - Sponsor (Dr. Cecile Lengacher, RN, PhD),
 - Florida Department of Health Review Council for Human Subjects,
 - USF Institutional Review Board (IRB), its staff, and other individuals acting on behalf of USF,
 - The United States Department of Health and Human Services (DHHS)
 - The results of this study may be published. However, the data obtained from you will be combined with data from other people in the publication. The published results will not include your name or any other information that would in any way personally identify you.
 - Confidentiality of records will be maintained by a code number and by keeping your records in a private and locked cabinet at all times.
 - Results of the study will be reported as collective numbers and individuals will not be identifiable. The results of the study will be made available to any study participant or Health Unit if requested.

Volunteering to Be Part of this Research Study

- Your choice to take part in this study is totally up to you. Parental permission does not mean you must take part in this study; the final decision is up to you. You may withdraw at any time. If you choose not to take part, or if you withdraw, you will not be penalized in anyway.

Updated 7/21/04



Child Assent Informed Consent
Page 2 of 3

Appendix H: (Continued)



Questions and Contacts

- If you have any questions about this research study, contact Versie Johnson-Mallard at (850) 561-2911
- If you have questions about your rights as a person who is taking part in a research study, you may contact a member of the Division of Research Compliance of the University of South Florida at (813) 974-5638

You may also contact the Florida Department of Health, Review Council for Human Subjects at (850) 245-4585 or toll-free in Florida, (866) 433-2775

Child's Assent Statement

Versie Johnson-Mallard and/or my parent (or guardian) has explained to me this research study called **The Effects of an Educational Intervention on Knowledge, Self-Efficacy and Perceived Risk of Sexually Transmitted Infections**. I am asked to take part in this study because I am a young woman who may benefit from better knowledge about STDs. I am at least 15 years of age and I am attending Leon, Gadsden or Wakulla county health departments for health services.

I agree to take part in this study.

Signature of Child
taking part in study

Printed Name of Child

Date



Updated 7/21/04

Child Assent Informed Consent
Page 3 of 3

Appendix H: (Continued)



Volunteering to Be Part of this Research Study

- Your decision to participate in this research study is completely voluntary. You are free to participate in this research study or to withdraw at any time. If you choose not to participate, or if you withdraw, there will be no penalty or loss of benefits that you are entitled to receive

Questions and Contacts

- If you have any questions about this research study, contact Versie Johnson-Mallard at (850) 561-2911
- If you have questions about your rights as a person who is taking part in a research study, you may contact a member of the Division of Research Compliance of the University of South Florida at (813) 974-5638

You may also contact the Florida Department of Health, Review Council for Human Subjects at (850) 245-4585 or toll-free in Florida, (866) 433-2775

If you are interested in the results of the study you may contract the primary investigator in December of 2004.

Your Consent—By signing this form I agree that:

- I have fully read or have had read and explained to me this informed consent form describing a research project.
- I have had the opportunity to question one of the persons in charge of this research and have received *satisfactory answers*.
- I understand that I am being asked to participate in research. I understand the risks and benefits, and I freely give my consent to participate in the research project outlined in this form, under the conditions indicated in it.
- I acknowledge I will be given a signed copy of this informed consent form, which is mine to keep.

Signature of Participant

Printed Name of Participant

Date

Investigator Statement

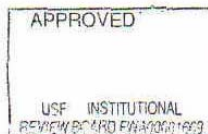
I have carefully explained to the subject the nature of the above protocol. I hereby certify that to the best of my knowledge the subject signing this consent form understands the nature, demands, risks and benefits involved in participating in this study.

Signature of Investigator
Or Authorized research investigators
designated by the Principal Investigator

Printed Name of Investigator

Date

Updated 7/13/04



Adult Informed Consent
Page 3 of 3

Appendix I: An STI Knowledge/Behavior Intervention for Women

A Sexually Transmitted Infection Knowledge/ Behavior Intervention for Women

Overall Goal:

The overall goal is to educate women on sexually transmitted infections and to offer ways to strengthen perceived risk and self-efficacy for the prevention of sexually transmitted infections.

Specific Objectives:

- 1 To educate women on the importance of knowing and understanding the transmission, symptoms and prevention of sexually transmitted infections.*
- 2 To empower women by making them an active participant in the prevention of sexually transmitted infections.*
- 3 To provide tailored communications and educational material that may improve women's knowledge and understanding of sexually transmitted infections.*
- 4 To increase self-efficacy by encouraging women to focus on individual conceptions so that they can exercise control over their motivation, behaviors and sexual environment (i.e. condom use).*
- 5 To assist women to recognize that she is at risk for STIs and assist her to learn ways to take action to prevent the exposure to sexually transmitted infections.*
- 6 To strengthen knowledge, perceived risk and self-efficacy through vicarious modeling from each other during the open discussion.*

Appendix I (Continued)

Script for Intervention

A Sexually Transmitted Infection Knowledge/ Behavior Intervention for Women

Background Information

This intervention is targeted for women of childbearing age. This intervention is intended to assist with the effort on preventing sexually transmitted infections (STIs). An educational intervention, based on up to date research-based STI knowledge and guidelines from the Centers for Disease Control (CDC) will be offered. The STI knowledge/behavior intervention is based on the following major concepts: a) What are sexually transmitted infections; b) How are people affected by sexually transmitted infections; c) How can sexually transmitted infections be prevented; d) What can be done to treat sexually transmitted infections? This intervention is targeted at changing attitudes and increasing knowledge regarding sexually transmitted infection preventive behaviors. Specifically, the intervention is designed to increase women's awareness and knowledge about their susceptibility to sexually transmitted infections, the severity of sexually transmitted infections, and the benefits of gaining knowledge about preventive behaviors.

The intervention will utilize a lecture and power point presentation addressing the above-mentioned concepts. An information brochure based on information from empirical data and CDC's guidelines will be presented following the lecture/ power point presentation. The brochure provides information about how women can be affected by sexually transmitted infections and information about what can be done to treat and prevent sexually transmitted infections. *Educational materials tailored for participants*

Appendix I (Continued)

with low literacy skills (defined as 8th grade reading level) facilitate greater improvement in knowledge, attitudes and self-efficacy (Frontenberry et al 2001). Open discussion will be encouraged with time allowed for a question and answer period following the introduction of the brochure. The lecturer will summarize the content matter delivered during the seminar following the question and answer period to reinforce teaching and learning objectives.

The proposed intervention has been designed to provide information about sexually transmitted infections as well as suggest behavior changes that can reduce a woman's risk of contracting these infections. It has been suggested that educational interventions often produce changes in knowledge but do not produce changes in health behavior unless additional steps are taken to link changes in attitudes and beliefs to behavior.

To facilitate behavior change, participants will be provided with written guidelines in the form of an information brochure to assist them in evaluating their knowledge of sexually transmitted infection and to reinforce the information presented during the knowledge/behavior intervention. The information brochure can read at their leisure at least three times weekly. The brochure was developed from content within the intervention. The following script summarizes the content matter of the lecture and power point portion of the intervention. Comments in italic font summarize the aim of the interventions.

Appendix I (Continued)

Introductory Comments

Advancements are being made daily by researchers that will help women live longer, healthier more productive lives. Regrettably, for women affected by sexually transmitted infections, quality of life can be decreased. Taking care of your health is imperative. Women need to take steps to increase their awareness of sexually transmitted infections (*perceived risk of STI: aimed at improving self-efficacy and beliefs regarding STI*).

There are steps that women can take to prevent and treat sexually transmitted infections. This discussion will help you decide if you are at risk for contracting sexually transmitted infections and will provide useful information on prevention, diagnosis, and treatment of sexually transmitted infection (*aimed at changing beliefs and attitude about STIs; increasing perceived risk of STIs*).

Defining the disease. Sexually transmitted infections are contagious infections contracted by unprotected sexual intercourse. Women can become infected with gonorrhea, syphilis, herpes simplex virus (HPV) and chlamydia after a single exposure. Women are also twice as likely as men to become infected with these pathogens (*aimed at changing beliefs and perceived risk regarding the susceptibility to and severity of STI by increasing knowledge, power point depicting these pathogens will be shown and described to provide a vivid representation*).

Affects of STIs. Sexually transmitted infections are silent diseases that can progress in women without warning or symptoms for many years. You may not know you have a STI until you attempt to have children and find that you cannot due to

Appendix I (Continued)

reproductive scaring. Once reproductive organ scaring has occurred, your fertility (ability to have a baby) is lowered or maybe none existent. That is way it is so important for you know about sexually transmitted infections (*aimed at changing behaviors and increasing knowledge by using fear application to change sexual behaviors and increasing perceived risk regarding susceptibility to STIs*).

Magnitude of the problem. Previous research has provided use with a lot of information about sexually transmitted infections and we learn more everyday. For example, we know that 46% of the 5 million incidences of sexually transmitted infections diagnosed are diagnosed in women of childbearing age. We know that chlamydia is a leading cause of reproductive morbidity in women. We also know that gonorrhea has been shown to ascend into the female genital tract attached to motile sperm. We know that bacterial vaginosis has been linked to high risk of spontaneous abortions, preterm birth, preterm premature rupture of membranes and postpartum endometritis (*information brochure will be given to all intervention participants. In half of the brochures, neon orange color dot will be included. Those participants whose brochures contain this orange dot will be asked to hold up their brochure. The purpose of this exercise is to provide a representation of the 50% of women who will be affected by a sexually transmitted infection during their childbearing years. Another 4% of the initial 50% of participants will have a green dot indicating the percentage of women who will not know they have a sexually transmitted infection. Women with green dots will be asked to hold up their brochures. Another four percent of participants will have an orange, green, and red dot. These persons with three colored dots will be asked to hold up their brochure.*

Appendix I (Continued)

This last group is a symbolic representation of the percentage of women who will be pregnant and have an undiagnosed, untreated STI that could affect their pregnancy). Educational materials such as information brochures tailored for participants with low literacy skills (defined as 8th grade reading level) facilitate greater improvement in knowledge, attitudes and self-efficacy (Frontenberry et al 2001).

Presentation of Risk Factors

Protecting yourself from sexually transmitted infections requires a lifelong approach. Sexually transmitted infections can occur at any time. Certain risk factors increase your likelihood of being affected by sexually transmitted infections. That is why it is imperative for women to know their risk and how the risk applies to her lifestyle on a normal basis. *Accordingly self-appraisal can lead to improved self-efficacy. As report by Bandura self-efficacy behavior can be changed with the presentation of efficacy information.* There are risk factors that you can change. Today, we will discuss some of them. *(Vicarious learning from discuss is the goal)*

The most reliable way to avoid being affected by a sexually transmitted infection is to abstain from sexual intercourse or to be in a long term, mutual monogamous relationship with an uninfected partner. However, if you become infected with a STI both partners should be tested for the STI and treated. If you choose to have sex with a partner whose infection status is unknown or infected with an STI, a condom should be used for each act of intercourse. *The literature supports the utility of self-efficacy as a*

Appendix I (Continued)

predictor of intending to use condoms (Cecil & Pinkerton, 1998). (Aimed at changing attitudes and beliefs regarding sexually transmitted infections and to increase knowledge of susceptibility to STIs).

Sexually intercourse during pregnancy is also a time of potential exposure to sexually transmitted infections. STIs can have debilitating effects on pregnant women, their partners, and their fetuses. All pregnant women and their sex partners should be asked about STIs, counseled about the possibility of perinatal infections and ensured access to treatment, if needed. All pregnant women should be tested for syphilis. Penicillin G is the preferred drug treatment during pregnancy and for all stages of syphilis. Pregnant women with reported penicillin allergy should be desensitized and treated with penicillin (*aim at changing attitudes and perceived risk regarding sexually transmitted infections and to increase knowledge of susceptibility to STIs*).

Role of condoms

Condoms work as a form of barrier to STI exposure. Condoms are regulated by the FDA and are tested electronically for holes before packaging. Condom failure usually results from inconsistent or incorrect use rather than condom breakage. Male condoms made of material other than latex are available. However, they have had higher breakage and slippage rates when compared to latex condom. (*Aim is to change attitudes and self-efficacy regarding STIs and to increase knowledge of susceptibility to STIs*).

Appendix I (Continued)

Role of Female condom

Female condom consists of a lubricated polyurethane sheath with a ring on each end that is inserted into the vagina and act as a barrier to STI exposure. Data regarding the use and efficacy of female condoms are incomplete. However, if used consistently and correctly, the female condom may substantially reduce the risk for STIs. *(Aim is to change self-efficacy and beliefs regarding STIs and to increase knowledge of susceptibility to STIs).*

Role of pre-exposure

Vaccination is one of the most effective method for preventing transmission of hepatitis B. Hepatitis B vaccination is recommended for all unvaccinated persons being evaluated for an STI *(Aim is to increase knowledge and decrease risk by changing perceived risk regarding STIs).*

Role of dental dams, saran wrap, and latex gloves

Persons wishing to reduce their risk for exposure during oral-anal and oral-genital contact might consider using dental dams or similar barriers methods (saran wrap) for protection. Wearing latex gloves during digital anal contact along with washing hands and genital with warm soapy water during and after activities that bring body parts in contact with feces might further reduce risk for STIs and illness *(strategy to change behavior and decrease susceptibility and increase knowledge).*

Appendix I (Continued)

Role of life style behaviors

Use of illicit drugs, smoking, and drinking alcohol can increase your risk of contracting sexually transmitted infections by limiting inhibition. Being self-motivated and skillful in talking about STIs with your sex partners can decrease your exposure to STIs. Having a mutually monogamous relationship and agreement between the two partners in the relationship to tell each other if either one has sexual relations with someone else has positive affects on decreasing your personal risk to STIs (*aimed at changing perceived self-efficacy and perceived risk regarding STI and to increase knowledge and decrease susceptibility to STIs*).

Preventive Measures

Now that you know what the risk factors for STIs are, you can take steps to protect yourself against the infections. Taking steps to prevent being affected by STIs are critical (*preventive measures discussion is aimed at increasing perceived risk and by increasing knowledge of preventive behaviors and methods to adopt these behaviors into normal lifestyle*).

Condoms

When used consistently and correctly, male and female latex condoms lines the vagina, traps semen and is then discarded. A few recommendations to ensure proper use of a male condom include: using a new condom with each act of sexual intercourse, (e.g., oral, vaginal, and/or anal) handling the condom carefully as to avoid damaging it with fingernails, teeth, or other sharp objects; putting the condom on after the penis is erect

Appendix I (Continued)

and before any genital contact; using water base lubricant like k-y jelly not oil base lubricants like petroleum jelly or massage oils that can weaken latex; and withdrawing while the penis is still erect to prevent slippage. *Here is an illustration of a female and male condom.*

Hepatitis B vaccination

The hepatitis B vaccination is given in a series of three doses over a 6-month period. Vaccination during pregnancy is not thought to pose risk to the fetus. To decrease transmission of the virus, women with hepatitis B or who test positive for the virus should maintain high levels of personal hygiene (e.g., wash hands after using the toilet, carefully dispose of tampons, pads, bandages in plastic bags; do not share razor blades, toothbrushes, needles, or manicure sets; have male partners use a condom; avoid sharing saliva through kissing).

Behavior Modification

The following behavior modifications can assist in decreasing your exposure to sexually transmitted infections. *This information is based on Bandura's definition of the four sources for efficacy information (mastery, vicarious learning, verbal persuasion, and autonomic arousal).* 1). Not using illicit drugs, smoking, and drinking alcohol before engaging in sexual intercourse. 2). Being self-motivated and skillful in talking about STIs prevention with your sex partners. 3). Having a mutually monogamous sexually relationship can also decrease your exposure to STIs.

Appendix I (Continued)

Dental Dams

Dental dams can reduce your risk for exposure during oral-genital contact by preventing saliva to mucous membrane contact. Wearing latex gloves during digital anal and good hand washing might further reduce risk for STIs. An illustration of a dental will be presented.

Diagnosis and Treatment

Bacterial STIs are easily diagnosed from genital tract, urine, and blood studied. Viral agents can also be cultured, but less successfully. Because women often are infected with more than one STI and many are asymptomatic, additional laboratory test may be done. Effective treatment includes taking all the medication and not stopping even if symptoms diminish or disappear in a few days. You should refrain from intercourse until all medication is finished and you have been back to your health care provider. You should also continue using condoms to prevent repeated infections. You should avoid having sex with a partner who has many other sexual partners. In many instances your sexual partner should be treated and sometimes it is difficult to tell him. I suggest you say to him “I care about you and I’m concerned about you. That’s why I’m calling to tell you that I have a sexually transmitted disease. My clinician is _____ and he/she will be happy to talk with you if you would like.”

Treatment of specific STIs maybe different for the pregnant women and may even be different at different stages of pregnancy. Let’s take some time to reflect silently about a

Appendix I (Continued)

time you may have been exposed to an STI and how you now have the knowledge to minimize your risk if you encounter such a situation again.

I thank you for your time and interest in this discussion.

Appendix J

SEX AND PREGNANCY

This pamphlet presents information important to improving your chances of having a healthy baby and a safe pregnancy

1 . By changing certain behaviors (or adopting new ones) you can lower the chances of you are your baby from contracting a sexual transmitted infection (STI).

2 . STIs like chlamydia and gonorrhea puts you at risk for preterm labor and preterm delivery

3 . Getting immunizations against viral infections such as hepatitis can protect you and your baby.

WHAT ELSE SHOULD YOU KNOW?

You should know that sexual need does not vanish with pregnancy and actually may increase do to decreased fear of becoming pregnant.

You should know that being exposed to sexually transmitted infections during pregnancy increase your likelihood of HIV transmission.

You should choose your sexually partners carefully.

You should know if your sex partner is sleeping around.

You should know if you are at risk.



SEX, SEXUALLY TRANSMITTED INFECTIONS, AND PREGNANCY



Versie Johnson-Mallard, ARNP

Appendix J: (Continued)

SAFER SEX BEHAVIORS

If you engage in sex with someone who has a sexually transmitted infection (STI) you may get it. Whether the sex is vaginal, anal, or oral, risk of a STI is very possible. Attempt to always position yourself in a consensual sexual relationship.

Measures to lower risk of getting a STI include:

1. Use a latex condom each and every time you engage in sexual intercourse.
2. Shield your vaginal area with saran wrap during oral sex to prevent mouth fluids from mixing with vaginal fluids.
3. Never use oils (petroleum jelly, massage oils, or body lotions) with latex condoms as they can lead to condom failure.
4. Use condoms as a normal part of sexual foreplay.



Condoms are cool to use. A little KY inside the tip can increase sensitivity.

PREGNANCY & HIV

Vertical transmission relates to the way HIV is transmitted from mother to baby and is the most common method of child HIV infection.



PRENATAL CARE

AZT, is a medication that can help prevent the passing of HIV to your unborn child.

Cesarean delivery (c-section) may decrease the risk of vertical transmission from mother to baby during delivery.

Bottle-feeding, is the best source of milk for your baby. Breastfeeding can possible pass the HIV virus to your new baby.



People are living longer with the HIV infections. However, there is no cure for you are your baby.

Use a condom even if you are already pregnant

PREGNANCY AND STI

Women are twice as likely as men to become infected with STIs

Chlamydia can cause eye infections in newborn babies

Syphilis can be detected and treated with penicillin during pregnancy

Some infections you can never get rid of such as HPV and herpes

KNOW YOUR RISK

It is Okay to say "NO"

It is Okay to say, "I want to wait"

It is Okay to insist on a condom

It is Okay to ask "do you have a sexually transmitted infection?"

Recognize your risk and have the courage to take action to keep from getting a sexually transmitted infection.

This sexual health information pamphlet was developed to provide you with information about your sexual health and your infant's health through the course of your pregnancy. This is an attempt to encourage safe sexual behaviors and to help you identify barriers to safe sex.



About the Author

Versie Johnson-Mallard is a native of Florida. Versie received her BSN from Florida A&M University. She received her MSN from the University of Florida. Her area of concentration was women's health. Her research interest is in the area of behavior change in response to education/behavioral intervention specifically "Knowledge Perceived Risk and self-efficacy of contracting Sexually Transmitted Infections".

Versie Johnson-Mallard received a prestigious Kirschstein National Research Service Award, a fellowship from the National Institute of Nursing Research. Versie is a member of an international honor society, Sigma Theta Tau, and Florida A&M University Honor Society. She is also a member of the American Nurses Association, Southern Nursing Research Society, Association of Women's Health, Obstetric and Neonatal Nurses', the Council of Advanced Practice Nurses. Versie is a board member of National Association of Nurse Practitioners Women's Health.