

**PREDICTORS OF CONDOM USE AMONG YOUNG WOMEN:
AIDS-RELATED KNOWLEDGE, AIDS VULNERABILITY, SELF-ESTEEM,
DEPRESSIVE SYMPTOMS, CONTRACEPTIVE CHOICE, RISK BEHAVIORS**

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IN THE GRADUATE SCHOOL OF THE
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COLLEGE OF NURSING

**BY
LAJUANA D. REICHMANN, M.S.**

DENTON, TEXAS

AUGUST, 1997

TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING

June 20, 1997

Date

To the Associate Vice President for Research and Dean of the Graduate School:

I am submitting herewith a dissertation written by

LaJuana D. Reichmann, M.S.

entitled PREDICTORS OF CONDOM USE AMONG YOUNG WOMEN:

AIDS-RELATED KNOWLEDGE, AIDS VULNERABILITY, SELF-ESTEEM,
DEPRESSIVE SYMPTOMS, CONTRACEPTIVE CHOICE, RISK BEHAVIORS

I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirement for the degree of Doctor of Philosophy with a major in Nursing.

Maisie Kashka
Major Professor

We have read this dissertation
and recommend its acceptance:

Rae Hammett
Margaret T. Beard
David Marshall

Accepted

Leslie M. Thompson
Associate Vice President for Research
and Dean of the Graduate School

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This work is dedicated to my husband and my family, who have made many sacrifices, but have never questioned. Their love, support, and encouragement have helped to make this experience all that it has been.

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A very special recognition to my typist Kristie Bratten, who spent many long hours solving my computer problems and helping me bring this study to its completion.

**PREDICTORS OF CONDOM USE AMONG YOUNG WOMEN:
AIDS-related knowledge, AIDS vulnerability, self-esteem,
depressive symptoms, contraceptive choice and risk behaviors**

ABSTRACT

LAJUANA D. REICHMANN, M.S.

**TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING
AUGUST, 1997**

The purpose of the research study was to test a model of predictors of condom use among young women. Specifically, relationships between AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, contraceptive choice, risk behaviors and condom use were examined.

A predictive, correlational research design was used to test the hypotheses. The Rosenberg Self-Esteem Scale (Rosenberg, 1965), the Center for Epidemiologic Studies-Depression Scale (Radloff, 1977), the AIDS-related Knowledge and Attitudes Scale (Flaskerud and Nyamathi, 1989), and the General Information Questionnaire were used to collect data.

The study sample consisted of 178 sexually active young women who presented at a family planning clinic for contraceptive purposes or treatment of sexually transmitted diseases and from a rural hospital maternity unit. The mean age was 20.5 years. The

young women completed the questionnaires after being informed verbally and in writing about the purpose and the voluntary nature of the study.

Pearson's product moment correlation was used to analyze the proposed relationships. Crosstabulation tables and chi-square analysis were used to analyze the relationship between condom use and demographic variables, contraceptive choice and risk behaviors. Logistic regression was used to estimate the probability of variables being different between women who were married and those who were not. Logistic regression was also used to determine the power of AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, risk behaviors, contraceptive choice, and demographic data in predicting condom use. Relationships were found between age, AIDS vulnerability, self-esteem, depressive symptoms, and risk behaviors. AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, oral contraceptive use, and risk variables differed between women who were married and those who were not. Income and the use of oral contraceptives were the only two variables found to predict condom use in either group. Additional findings showed significant relationships between risk behaviors and condom use, and between risk behaviors, demographic variables, AIDS vulnerability and depressive symptoms.

The conclusions drawn from the study were that AIDS-related knowledge is not enough to change risk behavior, risk behavior and condom use have little affect on women's feelings of AIDS vulnerability and that depressive symptoms and self-esteem

women's feelings of AIDS vulnerability. Depressive symptoms and self-esteem have strong relationships with risk behaviors and should be further investigated.

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CHAPTER ONE

INTRODUCTION

The United States is rated among those countries in the western world having the highest rates of adolescent pregnancy and childbirth (Alan Guttmacher Institute, 1993). Concomitant with the increase in adolescent pregnancy has been a rise in sexually transmitted diseases (STDs) in that same age group (U.S. Department of Health and Human Services: Public Health Service (USDHHS), 1991). Almost 12 million cases of STDs occur annually, of which 86% are in individuals between the ages 15 and 29 years. The most life threatening STD, Acquired Immune Deficiency Syndrome (AIDS), which develops from the Human Immunodeficiency Virus (HIV) infection, is rapidly increasing and has become the fourth leading cause of death in women aged 15 to 44 years (CDC, 1994; USDHHS, 1991). With the increased sexual activity among adolescents, the risk of HIV infection in young women is becoming a primary concern to health care workers.

Despite the advice of health care workers, most sexually active young women do not use condoms (Campbell, Peplau & DeBro, 1992; DiClemente, 1991; Jemmot & Jemmot, 1992; Hingson, Strunin, Berlin, & Heeren, 1990; Wielandt, 1993). Knowledge of AIDS does not prompt all adolescents at risk to change their behavior. Of the 11,687 women diagnosed with HIV infection in 1993, 25% were between the ages of 13 and 24

years (CDC, 1993). African Americans (64%) accounted for the largest proportion of women, followed by Caucasians (27%) and Hispanics (5%). Heterosexual adolescents and young adults, and especially African Americans, are at growing risk for HIV infection and STDs.

Two health care problems in the United States are costing the nation billions of dollars each year, and yet both are almost entirely preventable. Unintended pregnancy and sexually transmitted diseases (STD), including human immunodeficiency virus (HIV) infection, are parallel complications of sexual activity among adolescent females that share significant and devastating biological, social, and clinical outcomes.

Adolescent pregnancy and HIV are a growing threat to the economy of the United States and unless halted will continue to make major demands on health and social service systems for many decades.

Hormonal implants (Sowby, 1992) and injectable contraceptives, both of which require little or no effort from the woman, have been made available to low income women in the United States to reduce the number of unintended pregnancies. In addition, new formulations of oral contraceptives (Klitsch, 1995) based on progestins are being marketed for contraceptive protection. All three methods of contraception are highly effective in preventing pregnancy. However, they do not provide barrier protection against sexually transmitted diseases and HIV infection. Therefore, because adolescent couples and many young adults are not monogamous and often have short term

relationships, these new contraceptives may themselves foster a false sense of complacency among young women. Couples still need to use latex condoms for protection from STDs. Preventing pregnancy is only one of the health concerns; halting the spread of STDs and the life threatening HIV infection is an equally important health concern.

Condoms have proven to be highly effective in preventing STDs and HIV infection, as well as pregnancy (Cates & Stone, 1992a & 1992b; and McGregor & Hammil, 1993), and yet very few young people use them (Binson, Dolcini, Pollack, & Catania, 1993; Ku, Sonenstein & Pleck, 1993; Orr, Langefeld, Katz, Caine, Diaz, Blythe, & Jones, 1992, Weisman, Plichta, Nathanson, Ensminger, & Robinson, 1991). Research suggests that risk behavior (including sexual activity) is a part of the typical adolescent behavior profile (Choquet & Manfredi, 1992), increases with age (Hingson et al., 1990) and is influenced by parental role models and attitudes (Brown, Cromer and Fischer, 1992). Additional studies have found that as risk behavior increases so does sexual activity (Woods, Lents, Mitchell, & Oakley, 1994; DiClemente, 1991; Hingson, 1990;).

Research further indicates that low self esteem (Grossman et al, 1992; Holmbeck, Crossman, Wandrei, & Gasiewski, 1994), depressive symptoms (Grubb, Sellers & Waligroski, 1993), low socioeconomic status (Harris, 1991), perception of peer norms (DiClemente, 1991), gender (Holmbeck et al., 1994), declining school grades (Grossman et al., 1992) and level of education (Binson et al., 1993) are associated with risk

behaviors in young people. The problem investigated by this study was based on the findings of those in prior research.

Statement of the Problem

Identification of variables that predict risk behavior and condom use is necessary for health professionals to provide appropriate anticipatory guidance and counseling to young women who are sexually active. This study investigated five questions:

Among sexually active young women:

- (1) What are the correlations between AIDS-related knowledge, AIDS vulnerability, contraceptive choice and condom use?
- (2) Do self-esteem, depressive symptoms, AIDS-related knowledge, and AIDS vulnerability influence risk behaviors and condom use?
- (3) Are demographic variables such as age, educational level and ethnicity related to self-esteem, depressive symptoms, AIDS-related knowledge, AIDS vulnerability, risk behaviors, contraceptive choice and condom use?
- (4) Is there a difference in characteristics, contraceptive choice, condom use and incidence of sexually transmitted diseases between those who are married and those who are not?
- (5) Is self-reported condom use supported by a decrease in the incidence of sexually transmitted diseases?

Rationale for the Study.

The problem of adolescent pregnancy, a major social and economic burden in the U.S. has not changed since 1980. Birth rates for women aged 15 through 19 remain at more than 60 live births per 1000 women. Of the estimated 1.1 million adolescent women under 19 years of age who become pregnant each year, 84% do not intend to get pregnant (DHHS, 1991; Hollander, 1996). Oklahoma is 17th in the nation for adolescent pregnancies with 20% giving birth to a second child prior to their 20th birthday (Oklahoma State Health Department (OSHD), 1996). Few situations are as life-changing or potentially devastating for a young woman and her family as an unintended out-of-wedlock pregnancy. The manner in which she, her partner, and her family cope with the situation will have life-long consequences, not only for those involved but for the community as a whole.

The high incidence of adolescent pregnancy only confirms that young women are having unprotected sex and placing themselves at great risk for sexually transmitted diseases. Sexually transmitted diseases (STDs) are particularly serious for women because the complications from them are shared with their off-spring. Infants can be infected during pregnancy or, if born to women with active infections, can become infected during a vaginal delivery. The incidence of sexually transmitted diseases is very high in the U. S., and studies have confirmed the numbers are escalating (CDC, 1991; CDC, 1994, Cohn, 1993). Survey results report more than 12 million new cases occur

every year, including chlamydia, herpes, gonorrhea and syphilis. Of the 12 million Americans each year with STDs, approximately 86% are age 15 to 29 years (CDC, 1991). The high rate of STDs other than AIDS among young women is indicative of the potential for HIV transmission.

Women now account for 13% of the prevalence of AIDS in the United States (CDC, 1994) and are the fastest growing group of people with AIDS (Bradley-Springer, 1994). In August, 1996, AIDS became the 3rd leading cause of death among American women ages 25-44 years and the leading cause of death among black women in that same age group. Women with AIDS tend to be younger than men with AIDS, indicating that many of them were infected when they were adolescents (Bradley-Springer, 1994).

Young women tend to be more concerned with pregnancy prevention than prevention of STDs and HIV infection. Pregnancy may be of more concern to young women due to the perceived low prevalence of HIV among their peers (Langer, Zimmerman & Katz, 1994). They may use oral contraceptives, implants or injectables as methods of birth control, thereby placing themselves at risk for acquiring HIV infection. As stated earlier, HIV infection is rapidly increasing among women and AIDS is the third leading cause of death among American women (CDC, 1996).

'Safe sex' practices, such as abstinence, monogamous relationship with an uninfected partner, limitation in the number of partners, and condom use are the only methods of protection against both pregnancy and STDs. Unprotected sex among young

women may be the result of unstable relationships. Whether or not the young woman is in a stable relationship may effect her interpersonal skill in negotiating condom use. Her primary concern is with pregnancy prevention, with less concern for STDs and HIV infection. Many adolescents consider a relationship to be monogamous when they are intimate with only one partner at a time; as a result they practice serial monogamy but not limitation of total number of partners, thus increasing the risk for STDs and HIV infection.

Flaskerud and Thompson (1991) found women believe they themselves are the most effective means of preventing STDs and HIV infection. They believe they should be educated and should protect themselves. However, from thier study results, Flaskerud and Thompson (1991) found women's knowledge is not adequate for them to determine who is at risk to contract HIV infection. They have not determined that behavior spreads the virus, not groups of people.

Recent research has identified a number of barriers to condom use by young people (Albert, Hatcher & Graves, 1991; Plichta et al., 1992), and, with decreased condom use, HIV infection from heterosexual sex is now the fastest-growing risk behavior leading to new infections, especially among women (CDC, 1994). Condom use is highly advocated for the prevention of STDs and HIV infection, but urging young women to insist that their partners use them is unrealistic. Traditional sex roles in most cultures do not encourage women to discuss sex with the partner or to control the

heterosexual encounter. Adolescents are concerned that requesting their partners to use condoms may result in termination of a relationship. Mosher and Pratt (1993) found that less than half of the unmarried women report using condoms for disease prevention every time they have intercourse, and that use is dependent on the male partners' preference.

Researchers who have completed recent studies (Lowry et al., 1994; Moore, 1993) report that more than half of all high school students have already engaged in sexual intercourse and fewer than 50% of those who are sexually active used a condom the last time they had sexual intercourse. In addition, the likelihood of these sexual risk behaviors is increasing as substance use progresses from alcohol and cigarettes to marijuana, cocaine and other illicit drugs. Use of mind-altering substances, such as alcohol, crack, cocaine, marijuana, etc., can increase the chances of acquiring HIV & STDs by impairing judgment, decreasing self protection, and increasing high risk sexual and drug-use behavior (Cohen, Mackenzie, & Yeates 1991; Weinstein, Demaria, Jr., & Rosenthal, 1992).

During the same ages that women are at risk for pregnancy, STDs and HIV infection, they are also at high risk for depression (Orr, Celentano, Santelli, and Burwell, 1994). This fact is significant because women who have high levels of depression may feel a sense of hopelessness and despair, causing them to believe that behavior change is impossible. They also often have lower self-esteem, causing them to experience difficulty in changing behaviors that place them at risk.

Although pregnancy prevention programs and sex education are available to young women (Alan Guttmacher Institute, 1992), the incidence of STDs and HIV infection continues to increase. Identification of predictive risk factors will guide care-givers in focusing information, counseling and referrals without infringing on the rights of women to make their own reproductive choices. By identifying predictive factors, recommendations can be made to implement governmental and institutional policies to decrease stigmas that currently afflict young women, minority populations, and women with infections. Focus could also be placed on decreasing poverty and promoting access to a full range of health care services (Bradley-Springer, 1994).

The goal of this study is to contribute further to the understanding of predictive factors among young women that promotes condom use and prevents pregnancy, STDs, and HIV/AIDS. Some young women are knowledgeable about the potential for pregnancy and STD transmission but are still not concerned about prevention. Others view themselves as invulnerable to both. A better understanding of predictive behavior will assist the health-care worker in providing interventions that will focus on behavior change that will raise self-esteem and establish competency in decision making. From the literature and prior research, a conceptual model of the postulated predictive behavior was developed.

Conceptual Model

A conceptual model (Figure 1) derived from the various literature sources depicts the predictors of condom use in young women in a linear model. The model is useful as a heuristic device for linking relationships between the predictive variables influencing condom use and acquisition of STDs among young women. The model illustrates the premise that contraceptive choice influences condom use. Both positive and negative factors influencing condom use are incorporated in the model. Contraceptive choice is a method for preventing pregnancy but is negatively related to condom use and protection against STDs, including HIV/AIDS. Knowledge of HIV/AIDS is positively related to perception of HIV/AIDS vulnerability and negatively related to risk-taking behaviors. Self-esteem influences the ability to discuss or require condom use with a partner. Depressive symptoms decrease self-esteem and reduce the consistency of condom use, thus increasing the incidence of STDs. A lower education level will decrease AIDS-related knowledge and AIDS vulnerability and will decrease condom use. Marital status is positively related to age, self-esteem and contraceptive choice. Age is related positively to marital status, education and condom use. The relationship of ethnicity to the other variables is uncertain.

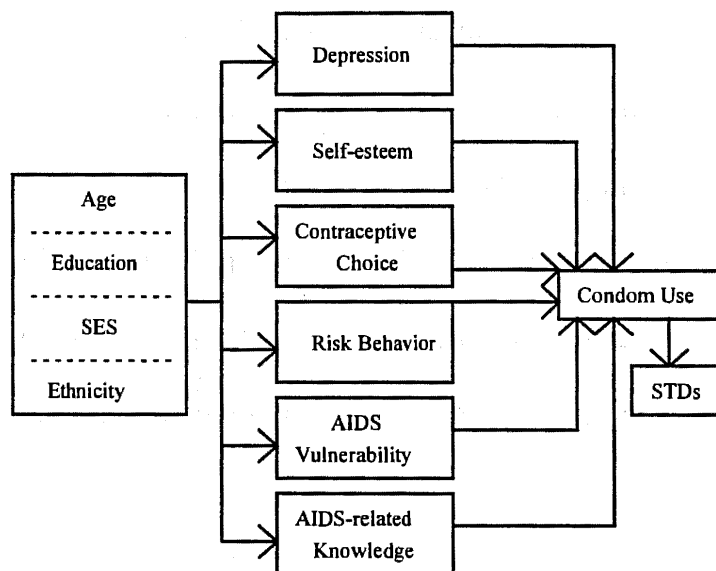


Figure 1. Predictors of Condom Use Among Young Women

Theoretical Assumptions

The theoretical assumptions of the study were:

1. Young women want to protect themselves from pregnancy and sexually transmitted diseases.
2. The Predictors of Condom Use Among Young Women model has been adequately specified.
3. Identification of variables that will predict condom use in young women will improve the focus of health teaching and reduce STDs.

Research Assumptions

1. The AIDS-Related Knowledge and Attitudes, Rosenberg Self-Esteem, Center for Epidemiologic Studies-Depression, and the General Information Questionnaire scales will elicit valid and reliable information related to these variables to predict condom use.
2. Ordinal data can be treated as if they were interval data.
3. Participants will truthfully and accurately self-report on the quantitative measures.

Hypotheses

This study investigated five hypotheses. Among young women ages 13 to 25 who are sexually active:

1. AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, risk behaviors, contraceptive choice, and condom use are related.
2. Age, educational level, ethnicity, socioeconomic level, contraceptive choice, and risk behaviors differ in women who report condom use and those who do not.
3. AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, risk behaviors, contraceptive choice, condom use and sexually transmitted diseases differ in young women who are married and those who are not.
4. AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, risk behaviors, contraceptive choice, age, educational level, ethnicity, socioeconomic status, and marital status are predictors of condom use.

5. There is a negative relationship between self-reported condom use and STDs.

Definition of Terms

In order to designate a particular focus for this study and to prevent terminological confusion, a preliminary definition of the term was given followed by an operational definition. The preliminary definition used words, concepts, or key ideas to explain the meaning and identify the perspective that was used. The operational definition referred to the way in which the concept was measured. The following terms were defined:

Young woman

In this study a young woman was identified as a female in the age range of 13 to 25 years who reports being sexually active. This was operationalized by responses to items 2 and 25 on the General Information Questionnaire (GIQ).

AIDS-related Knowledge

AIDS-related knowledge is a state of knowing truths and facts about the causes of AIDS, how HIV/AIDS is spread, what methods of self-protection can be used. This study operationally defined AIDS-related knowledge as the summed score for the 15 items on the AIDS-related Knowledge and Attitudes Scale (AKA).

AIDS vulnerability

AIDS vulnerability is the woman's view of the overall probability that she will acquire the HIV infection or AIDS. For the purposes of this study, AIDS vulnerability was operationally defined as response to question 40 on the GIQ.

Contraceptive choice

Contraceptive choice is any act, device, or medication utilized by the young woman to prevent conception or a viable pregnancy (Mosby, 1990). For the purposes of this study, contraceptive choice was operationally defined as the method of pregnancy prevention identified and presently used by the young woman and as identified in question 15 on the GIQ.

Condom use

Condom use refers to the woman's feelings about and self-reported use of a soft, flexible sheath that covers the penis and prevents semen from entering the vagina in sexual intercourse, used to avoid the transmittal of an infection and to prevent conception (Mosby, 1990). For the purposes of this study, condom use was operationally defined as a positive response to question 35 on the GIQ.

Depressive symptoms

Depressive symptoms refers to the feelings of sadness, despair, and discouragement experienced by the individual which result from demanding relationships and life events (Mosby, 1990). For the purposes of this study, depressive symptoms was operationally defined as the summed score from responses to the 20 items on the Center for Epidemiological Studies Depression Scale (CES-D).

Educational level

Educational level is the woman's report of the highest grade completed in a public or private school. For the purposes of this study, educational level was operationally defined as the highest grade the young woman reports having completed in school and as answered on item 8 on the GIQ.

Ethnicity

Ethnicity is the trait, background, or feeling of belonging to a particular social group within a culture or social system that claims or is accorded special status on the basis of complex, often variable traits including religious, linguistic, ancestral, or physical characteristics (Webster's Desk Dictionary, 1990). Ethnicity was operationalized for this study by response to item 4 on the GIQ.

Marital status

Marital status means relating to, or connected with the status of marriage; any close association; relating to a husband or his role in marriage (Merriam-Webster, 1992). For the purposes of this study, marital status was operationally defined as the young woman's report on item 6 on the GIQ of being single, married, separated, divorced, unmarried but living with a partner, and married but living with another partner.

Risk behaviors

Risk behaviors are intentional behaviors with uncertain outcomes (Kegeles, Adler, & Irwin, 1989), such as early age of first sexual intercourse, multiple sex partners,

use of injected drugs or alcohol, sex with an injection drug user, sex with a partner you do not know very well, sex with a man who has had sex with another man, etc. For the purpose of this study, risk behaviors was measured by positive responses to items 25 through 33 on the GIQ, and the responses to items 14, 23 and 24.

Self-Esteem

Self-esteem is the value or sense of worth and competency young women set for themselves in terms of attributes and personal identity (Openshaw, Thomas, & Robbins, 1984) a global appraisal or "the evaluation which the individual makes and customarily maintains with regard to himself, expressed as attitude of approval or disapproval" (Rosenberg, 1965, p. 5). For the purposes of this study, self-esteem was operationally defined as the summed score of the 10 items on the Rosenberg Self-Esteem Scale (RSE).

Sexually Transmitted Diseases (STDs)

A sexually transmitted disease is any contagious disease acquired by sexual intercourse or genital contact, to include genital herpes, gonorrhea, syphilis, human papillomavirus, chlamydia trichomatis, cytomegalovirus, hepatitis B, vaginitis, enteric infections, ectoparasitic diseases and HIV/AIDS (Mosby, 1990, USDHHS, 1991). For the purposes of this study, STDs are operationally defined as a positive response to item 18.

Demographic Data

Demographic data includes age, educational level, socioeconomic status, and ethnicity. In this study Demographic Data will be responses to items 2, 4, 8, and 38.

Limitations

The limitations of the study included:

1. Generalizations of the results to a larger population are limited due to the convenience sampling technique employed by the researcher.
2. The instruments may have limited reliability and validity.
3. Only young women who speak and read English were asked to participate in the study. This may have limited the participation of some women from different ethnic groups but no participants were excluded because of language.
4. The sensitive nature of some of the questions about behaviors and attitudes on the self-reported questionnaire may not have elicited accurate and truthful information.

Delimitations

1. The participants included a purposive sample of young women, between the ages of 13 and 25 years, who reported being sexually active and were receiving care from a planned parenthood clinic, thus limiting clients to those with like characteristics.
2. The sample was taken from clinics which provide care for women in socioeconomic groups reporting low income and/or use of public assistance.

Summary

This chapter presented an introduction of the problem of unprotected sex among young women. The transmission of STDs, including HIV/AIDS, was presented as an alarming and costly social and health care concern in Oklahoma and the United States.

The concepts of AIDS-related knowledge, risk behaviors, and contraceptive practices of young women were discussed. The empirical data of self-esteem, depressive symptoms, risk behavior, and educational level were presented as factors that may predict condom use. A conceptual model was presented and described. The assumptions, hypotheses, definition of terms, limitations and delimitations associated with this study were outlined.

CHAPTER TWO

REVIEW OF LITERATURE

The literature review evolved as a result of analysis of resources located through the use of manual and electronics on-line and CD-ROM searches. On line sources included ERIC, MEDLINE, and Health Information File; while CD-ROM sources included the Cumulative Index to Nursing and Allied Health Literature (CINAHL) Silver Platter and PsychLit Silver Platter. The review is presented in six sections. The first section provides back-ground information discussing the increased incidence of Sexually Transmitted Diseases (STDs) and HIV/AIDS in adolescents due to unprotected sexual intercourse. The second section focuses on the adolescent's physical susceptibility of STDs due to development that makes adolescent girls more at risk for acquiring STDs. The third section examines risk behaviors of female adolescents, including early initiation of sexual intercourse, multiple partners, substance use, and anal intercourse. Section four addresses the psychological development including development of the sense of self, self-esteem and depressive symptoms in adolescents in relation to contraceptive use. AIDS-related knowledge and AIDS vulnerability in adolescents is discussed in section five, and protective behavior and condom use among adolescents are examined in the last section. A summary paragraph concludes the chapter.

Background Information

Adolescents engage in behaviors that place them at risk for STDs, including human immunodeficiency virus (HIV) infection. While the most effective prevention strategy is sexual abstinence, research studies have shown that by age 20, 75% of females and 86% of males have experienced sexual intercourse (CDC, 1991). Of these adolescents, less than 45% reported using condoms at last intercourse (Anderson, Freese and Pennbridge, 1994; Ku, Morrison, Baker, and Gillmore, 1994; Joffe and Radius, 1993; Richter, Valois, McKeown, and Vincent, 1993; Moore, 1993; Brown et al., 1992; CDC 1992)

The provisional number of overall births reported during July 1993 to July 1994 had decreased 1%, and the number of births during 1995 was down 2% from 1994 (CDC, 1995; CDC, 1996). Declines in the teen birth rate, age 15-19 years, are smaller. The number of births declined slightly from 1992 (60.7) to 1993 (59.6) totaling 1.1 decline; however, this decline was concentrated among older teens (Moore, 1996). The decline among teens 15 to 19 year from 1993 (59.6) to 1994 (58.9) was only 0.7. In addition, among 15-17 years, there was no decline (37.8) from 1992 to 1993, and only 0.2 from 1993 (37.8) to 1994 (37.6). The decline was greater (0.6 per year) among adolescents 18-19 years. The availability of teen birth rates for 1995 have been slow to be published and were not available through the State Health Departments by October 1996. It is too soon

to know whether the decline represents the beginning of a sustained downturn or just a trend.

It is evident, however, that reducing the pregnancy rates of younger adolescents is still a major problem. It is particularly important because the number of girls aged 14-17 years is projected to increase by 1.2 million between 1995 and 2005 (Moore, 1996).

Supporting this fact, the number of births to school-age adolescents has begun to increase, even though the teen birth rate has stopped increasing.

As a result of unprotected sexual behavior, gonorrhea, chlamydia, and human papilloma virus infection rates are highest among 15 to 19 year olds (CDC, 1993). The problem has become exacerbated because the number of adolescents who become sexually active before age 15 is steadily increasing (Leigh, Trocki, & Temple, 1994) and the same adolescents who are at risk for STDs and pregnancy due to unprotected sex, are also at risk for acquiring HIV infection.

The epidemiology of HIV disease is identified using two types of data: reported acquired immunodeficiency disease syndrome (AIDS) cases and estimated numbers of HIV-infected persons. AIDS is diagnosed in individuals after several years of HIV infection, and the number of cases of AIDS represents only a small proportion of persons with HIV infection in the United States.

There is cautious optimism about finding a cure for HIV that will cease the HIV/AIDS epidemic in the near future in this country; however the heterosexual threat

for transmission continues. The proportion of AIDS cases among women has steadily increased during the last decade (CDC, 1994). In 1996 (CDC), AIDS among women represented 20% of the total number of adults/adolescents reported with AIDS, greater than the proportion in any previous year. Heterosexual contact and injecting drug use accounted for 40 % and 34%, respectively, of the cases reported in 1996 (CDC, 1996). AIDS cases in adolescents and adults under age 25 increased 16% from 1993 (13,890) (CDC, 1993) to 1994 (16,575) (CDC, 1994) and another 20% from 1994 to 1996 (20,659). Although the AIDS cases in adolescents, 13 to 19 years of age, had decreased by 8% from 1993 to 1994, the female cases increased to 52% from Dec. 1994 (484) to Dec. 1996 (1,010). In 1996, the highest number of AIDS cases were reported among the Blacks (47,367) followed by Whites (20,026), and then Hispanics (17,330). AIDS cases among 20 to 24 years old showed the female to male ratio increasing from 21% in 1993, 23% in 1994, to 47% in 1996. The number of AIDS cases among the 13 to 24 year olds increased 38% from 1994 (15,444) to 1996 (24,755) (CDC, 1996). In the past, the majority of the women reported were Black (56%) or Hispanic (20%); however in 1996 Whites (23%) exceeded the Hispanics. In 1996 AIDS was the leading cause of death among Black women age 25-44, and the third leading cause of death among White women of the same age. Most of the women with AIDS in 1996 reported being infected with HIV through injecting drugs (30%) or heterosexual contact (53%) with a man who was at risk for, or had, HIV/AIDS infection (CDC, 1996).

Sexual activity is increasing among adolescents, and, at the same time, the rates of Sexually Transmitted Diseases (STDs) are increasing among the adolescent population along with the risk of HIV. Data were collected by the CDC (1991) from two school based components of the Youth Risk Behavior Surveillance System (YRBS) in 23 cities and 10 states. A sample of 12,272 students in grades 9-12 were surveyed. Of the students participating, 33% to 79% of them reported being sexually active, 8% to 46% reported having had intercourse with four or more partners during their lifetime, 1 % to 4% reported illicit drug use, and 28% to 53% reported use of a condom at last sexual intercourse.

Another similar study on a national school-based Youth Risk Behavior Survey was completed by the CDC (1992) using 11,631 students in grades 9-12 in 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands. The results showed that 54% had reported ever having sexual intercourse, 60% of the males and 48% of females. Thirty nine percent had intercourse in the last three months, 43% of the males and 36% of females. Black students (73%) were significantly more likely ever to have had sexual intercourse than White (52%) or Hispanic (53%) students, and also to have had sexual intercourse during the last 3 months preceding the study. The percentage of students ever having sexual intercourse and having sexual intercourse during the last 3 months increased significantly by grade. Only four percent of the students reported having had a STD, with Blacks (8.4%) more likely to report having an STD than White (3.1%) or

Hispanic (3.5%) students. The findings from both of the CDC studies (CDC, 1991; CDC, 1992; Moore, 1993) substantiate that a large number of students engage in behaviors that simultaneously place them at risk for HIV, STDs and unintended pregnancy.

Usually the clinical features, diagnosis, treatment and possible complications of STDs are similar for adult and adolescent women (Cowan & Mindel, 1993). These diseases include gonorrhea, chlamydia trachomatis, urethritis, pelvic inflammatory disease, herpes simplex, human papilloma virus, syphilis, and HIV infection.

Chlamydial and gonorrheal rates are increasing for both the male and female adolescents. Twenty five percent of all female cases occurred in women younger than 20 years of age (CDC, 1991). Both infections are asymptomatic in the adolescent, and do not prompt them to seek medical attention. Unless the female is seeking contraception from a clinic or physician and receives the annual cytological screening, the infection could remain undetected for an extended time period. The increasing rate of STDs among adolescents is understandable given their increasing rate of sexual activity.

Another STD, Pelvic Inflammatory Disease (PID), causes more than one million women in the United States to be hospitalized each year. Twenty percent of these women are adolescents. Often the adolescent presents herself for treatment at a later stage in her disease, and as a result has more subsequent infertility problems than the adult (Cowan & Mindel, 1993). Although the adult who has PID is often treated in a clinic, the adolescent is frequently hospitalized for therapy because of the high fertility risk and the possible

drug therapy noncompliance of the adolescent. Both gonorrhea and/or chlamydia are also often found in adolescents with PID (Cowan & Mindel, 1993).

Human Papilloma virus (HPV) infection is the most commonly diagnosed viral STD in the United States and is normally sexually transmitted (Shah, 1990). Although this infection is more commonly seen in women between 20 and 29 years of age, Shah claims the prevalence among adolescents is increasing. When there is an absence of genital warts, HPV infection can be detected in specimens taken for cervical cytology. Younger women show a greater risk for insitu cervical cancer following HPV infection (Shah, 1990). Biological immaturity of the cervix seems to be an important risk factor in adolescents who develop cervical dysplasia related to HPV.

Women ($N=46$) attending an adolescent dysplasia clinic were asked to complete a survey regarding the impact of cervical dysplasia on their sexual beliefs and behaviors (Biro, Rosenthal, Wildley, & Hillard, 1991). Questions were asked about the frequency of intercourse, the number of life-time partners, and the number of partners in the last 6 months. Assessment of changes in sexual behavior was completed by asking the young women if they had discontinued having sex and the frequency with which they had avoided intercourse because they knew they had dysplasia.

The age range of the group (Biro et al., 1991) was from 14.6 to 20.2 years, with a mean age of 18 years. Thirty-seven percent of the group was White and 63% was Black. Eighty-nine percent of the 46 adolescents had worries or concerns about having dysplasia

and 59% reported they had stopped sexual activity. There was some discrepancy in the reports received from the adolescents, because even those who were no longer sexually active said they had no behavior change. Among those who had made a behavior change and those who had not, there was no significant difference. But, there was a significant difference [$F(1,44) = 7.85, p = .008$] in the number of partners in the past year between the two groups (1.3 vs. 2.6). No one reported an increase in the frequency of sexual intercourse and in having a new partner; however, there was a difference noted in the two groups (.07 vs. 1.8) in the number of partners in the last 6 months [$F(1,44) = 6.16, p = .017$]. The rate of STDs/pregnancies prior to diagnosis of dysplasia showed no significant difference between those who became inactive sexually and those who did not (.58 vs. .50 episodes of sexual intercourse per year) [$F(1,44) = .27, p = .61$]. This was a small sample size and power would, therefore, be low.

In summary, the increase in sexual activity among adolescents has also brought an increase in the incidence of STDs, unprotected sexual intercourse, multiple partners, and less discriminate selection of partners, and all of which increase the STD and pregnancy risk for the adolescent. In addition, young adolescents may not feel comfortable with their own sexual identity and therefore have difficulty in complying with contraceptive methods that involve anticipating intercourse. Sexually transmitted diseases are very often asymptomatic and they can affect the infant if present during pregnancy. STDs can also affect future fertility in young women and have serious long term sequelae.

Adolescent Physical Susceptibility to STDs

Adolescence is a period of physical and psychosocial development that begins in the preteen years, usually in conjunction with the onset of puberty, and extends until adulthood. Various psychological and interpersonal transformations occur as the individual attempts to assume an adult role in society. Development takes place in several factors or areas of life, and changes in one factor will invariably interact with other factors. In this section, the physical factors that strongly influence the response of the adolescent to any health concerns and that makes her particularly susceptible to STDs, including HIV, and their related outcomes will be discussed.

Adolescence is a time of rapid physical maturation of the genitourinary systems. In women, the stage of physical maturity can affect their susceptibility to infection. Defense mechanisms are enhanced in the adolescent female when ovulation begins (usually 2-3 years after menarche) (Cowan & Mindel, 1993), but they are limited in the younger adolescent.

The cervix has a significant role in excluding infection from the genital tract. The mucosa of the vagina and cervix is composed of columnar, squamous, and transitional epithelium. The squamo-columnar junction of the cervix lies on the extocervix until several years after menarche. Until then, the delicate mucus-secreting columnar epithelium is particularly exposed to pathogens. The columnar epithelium consists of a single-layer of epithelium with a vasculature that is close to the surface, thus making the

area more susceptible to trauma than the vagina which has thicker stratified squamous epithelium. The displacement of the squamo-columnar junction of the cervix is referred to as cervical ectopy. Cervical ectopy is highest during adolescence, adolescent women usually have more than 50% cervical ectopy. During adolescence this is the primary site for chlamydia and gonococcal infections to occur (Cowan & Mindel, 1993; Hiltabiddle, 1996) and possibly other STDs (Cohen, Weber, & Mardh, 1990). Importantly, the cervical ectopy enhances the risk of both HIV acquisition and transmission.

Many microorganisms are found on the genitourinary mucosal surfaces in the vagina following sexual intercourse. Organisms that cannot attach to the mucosa are carried away by the mucociliary activity. Attachment of the organisms without evidence of inflammation results in the process of bacterial division and the formation of colonies. The colonization process leads to the formation of the normal indigenous bacterial flora of the vagina. However, attachment of the organisms can also result in tissue damage and local inflammatory responses, such as chlamydial or gonococcal infections. Mucus in the vaginal tract, consisting of mainly glycoproteins, is produced primarily by the cervix. This mucus, under hormonal control, is important in excluding pathogens and antigens in the vagina. By providing an appropriate environment, phagocytic cells can engulf and kill invading pathogens (Cohen et al, 1990). The mucus also contains antibody molecules that can neutralize viruses and directly interfere with attachment of organisms to the mucosal cells. With complement components, pathogens can be singled out to optimize

their interaction with phagocytic cells or make them more susceptible to intracellular lysis (Cohen et al, 1990). Progesterone is produced cyclically to promote the defensive role of cervical mucus (Cowan & Mindel, 1993).

Many adolescents experience their first act of sexual intercourse during early hormone production and irregular menses. The protective factors of the cervical epithelial maturation and cervical mucus do not fully develop until 2 to 3 years after the beginning of menarche (Cowan & Mindel, 1993). Early age of first sexual intercourse is associated with an increased number of lifetime partners. With each exposure to infectious organisms, the adolescent female's risk of acquiring STDs, including HIV, increases significantly due to the biological immaturity of her genital tract.

Risk Behaviors

A number of factors put adolescent women at risk for STDs and HIV infection. Some of the risks identified through research studies include initiation of sexual intercourse at early age, unprotected sex, multiple partners, alcohol and drug use, risky partners, and anal intercourse.

Initiation of early age sexual intercourse

Because of the physical factors in young adolescents who have early initiation of sexual intercourse and multiple partners, the risk of STDs and HIV is magnified.

Millstein and Moscicki (1992) studied 571 sexually active female adolescents, ages 13-19 years. Thirty-three percent had their first sexual intercourse before the age of 14 years.

Overall, 20.4% ($n = 116$) of the participants were currently diagnosed with an STD and 46.6% of those who were currently diagnosed also reported a previous history of STDs. Ninety-one participants (15.9%) had reported having a previous STD infection but tested negative for infections at the present. There was no significant relationship between early initiation of sexual intercourse and STDs. However, initiation of sexual activity at an early age is associated with less frequent use of condoms, a greater number of sexual partners, and increased rates of STDs and unplanned pregnancies.

Another study by Hillis, Nakashima, Marchbanks, Addis, & Davis (1994) supports that young age of initiation of sexual intercourse was associated with increased incidence of chlamydial trachomatis infections. In a retrospective study designed to predict recurrent chlamydial infections, 38,866 women whose first infection was diagnosed during the period of Jan. 1, 1985 to Dec. 31, 1990 were studied. Young age of first infection was the strongest predictor of recurrent chlamydial infection. Compared to women 30-44 years of age, adolescents under 15 years were six times as likely to have recurrent infections, while adolescents age 15-19 had were almost four times as likely to have recurrent infections, and women 20-29 years were only twice as likely to have recurrent infections. The risk of recurrent chlamydial infections was significantly ($p = .05$) higher in women who reported multiple sexual partners, were coinfecting with gonorrhea, and had previously reported STDs.

The association of early initiation of sexual activity and greater number of sex partners is also common among adolescent males. Data was collected by DiClemente (1991) from 112 sexually active adolescents who were incarcerated in a juvenile detention facility. Because of the setting, the sample was disproportionately male (77%) and Black (65%) and consistent condom use was low (29%). A majority of the participants (52%) reported that they had initiated sexual intercourse before twelve years of age and 88% reported having had three or more sexual partners.

Both physiological (the increased exposure of the columnar epithelium) and behavioral characteristics (early initiation of sexual activity and multiple partners) contribute to the high risk recurrence of chlamydial infections in adolescent females. The high incidence of risk behavior and inconsistent use of barrier methods of protection during sexual activity leads to increased recurrence of chlamydia and other STDs (Millstein, Moscocki, & Broering, 1993; Hillis et al., 1994).

Multiple and Risky Partners

Numerous studies (Barone et al., 1996; Binson et al., 1993; Hillis et al., 1994; Millstein et al., 1993; Orr et al., 1992; Plichta et al., 1992; Richert et al., 1993; Tubman, Windle & Windle, 1996; Walker, 1992; Weisman et al., 1991) have cited that 30 to 47% of sexually active adolescents report an increased number of sexual partners. Millstein et al. (1993) reported a significant relationship between multiple partners and STD acquisition ($N = 696$, $r = .22$, $p = .0001$). The average number of partners over the 60-

day period prior to the study was 1.6, and 37% reported having had more than 10 lifetime sexual partners. Adolescents who have multiple partners are considered to be at greater risk of acquiring HIV and STDs than those who have a single partner, because the probability of the partner being infected increases as the number of partners increases.

Multiple sex partners is more common among adolescents who have early initiation of sexual activity. The Social and Health Assessment survey (Barone, et al., 1996), designed to evaluate school and community involvement and high risk behavior among middle and high school students, was administered to 6th, 8th, and 10th grade students in Southern New England. The 2,248 students who completed questionnaires ranged in age from 11 to 19 years of age. The sample was racially diverse and had a 50% female population. Of the total group of students, 45% reported having engaged in sexual intercourse. One striking result of the study was that 28% of the sixth graders were sexually active. The incidence increased with grade, with 50% of the 8th and 67% of the 10th grade students reporting being sexually active. While Hispanic and White females reported comparable levels of sexual activity, both groups reported much lower levels of sexual activity than Blacks.

Most of the sexually experienced participants (Barone, 1996) reported having had multiple partners. Among 6th graders, of the 28% who were sexually active, 8% had had 2-3 partners, and 13% had had 4 or more partners. Of the eighth graders, 50% were sexually active, 14% had had 2-3 partners and 24% had had 4 or more. As expected, the

numbers increased in the 10th grade with 66% being sexually experienced, of whom 21% had had 2-3 partners and 29% had had 4 or more. They found no significant increases in number of partners based on grade. This indicates that once adolescents become sexually active, they are likely to have a comparable number of partners regardless of grade.

Not only was the level of sexual activity high among the respondents of this study (Barone, 1996), but so too was the report of condom use at last intercourse (71%). Either the social desirability influenced their responses or the students had been well educated. This particular study did not examine AIDS-related knowledge; therefore it is not known if the high rate of condom use was a result of age-related AIDS knowledge.

As indicated in the study by Barone, the number of sexual partners for adolescents tends to increase steadily over time. Across four measurement occasions (every 6 months) during a two year study of 10th and 11th grade students (Tubman et al. , 1996), the number of adolescents reporting four or more partners during the last six months tripled for both boys and girls. The Chi square test $[(3, N=1174) = 18.22, p < .001]$ reported that boys were more likely to report a greater number of sexual partners. The data in this study also indicates that once initiated, patterns of sexual intercourse for most sexually active adolescents (88.8%) tended to be persistent rather than sporadic.

Teenagers, 13-18 years of age, are considered to be in a transition period of adjustment between childhood and adulthood. However, adulthood does not begin at the end of the teen years. Young people aged 18-25 years are in a transitional period between

adolescence and adulthood, and they also tend to exhibit high levels of sexual risk-taking behavior. Binson et al. (1993) drew on a subsample of participants ($n=1,334$) from the National AIDS Behavioral Survey (NABS) to examine HIV-relevant -taking sexual behavior among young men and women. The sample contained 51% women and 49% men, and was 54% White, 24% Black, and 17% Hispanic. While 23% of the sample was still in their teens, 37% were aged 20-22, and 41% was aged 23-25. Fifty-two percent of the sample had more than 12 years of schooling, 19% had less. The number of married participants was small (17%), another 8% were cohabiting, and 4% were formerly married.

The results of the study (Binson et al., 1993) reported that men were more than twice as likely as women to have multiple partners. As expected, unmarried participants were eight times as likely as married respondents to report having had multiple partners. Among the Whites, participants with more than 12 years of education were four times more likely than those with less education to have had multiple partners. There was no significant difference between married and cohabiting participants in reporting multiple partners. This study indicates that the previously reported pattern of multiple sexual partners among adolescents continues into young adulthood.

Substance Use

Both drug and alcohol use in adolescents are associated with a decline in school performance, a higher incidence of unprotected sex, and increased rates of STDs and

HIV. Because alcohol and drugs interfere with judgment and decision-making, it has been suggested that their use increases the probability of sexual activity, risky behavior, and STDs, particularly if the virus is present within the population from which their partners are selected. According to Barth (1994), the use of alcohol is a powerful divider between the sexually active and the nonactive.

This is supported by a recent clinically based study by Millstein et al. (1993). Differences in beliefs and behaviors of sexually active female adolescents ($N = 696$) were examined to determine the probable risk for HIV. The participants were categorized into four risk status groups based on criteria that reflected differences in potential exposure to HIV (history of IV drug use, STDs, and probable risk of contact with an infected individual). A sizable minority of females reported using alcohol (29.4%) and other substances (12.5%) during one of their last four sexual experiences. Differences between the groups were analyzed using the chi square test. The highest prevalence of illicit substance use during sex varied by group, with the highest prevalence in the 'very high' risk group ($p = 0.016$) and the lowest prevalence among participants in the 'low' risk group ($p < 0.0001$). Seventy-eight percent of the girls felt it was "easier to have sex" when using alcohol or illicit substances, with significant differences between the 'very high' (90%) and 'moderately high' (58%) risk groups ($p = 0.037$). The majority of females in all of the risk groups stated that they 'enjoyed sex more' while under the influence of alcohol (74%) or other drugs (57%). The highest rates of substance use were

in the 'very high' risk group, while the lowest rates of substance use were in the 'moderately high' risk group.

Significant differences ($F = 9.35$, $p = .000$) in patterns of contraception were found (Millstein, 1994) among the four groups, with females in the two highest risk groups showing the least frequent and the least consistent use of contraception. Females in the high risk groups also reported less frequency of condom use with new partners ($p = 0.04$), and fewer intentions of condom use with new partners in the future ($p = 0.028$).

The moderately high risk group (Millstein et al., 1993) had a history of STDs, were almost exclusively Black, lived in a high risk geographic area, had a lower substance use rate, and showed the least consistent contraceptive use. Twenty-five percent did not intend to use a condom with a new partner in the future.

Although the number of self-reported sexual partners did not differ among the females in the three highest-risk groups, Millstein et al. (1993) reported that differences were evident between the females in the 'moderately high' and 'very high' risk groups. Females in the 'very high' risk group began their sexual activity early, had multiple partners and were more likely to engage in anal intercourse. They reported the highest rate of substance use, and less than 25% had intentions of using condoms with new sexual partners in the future. In addition, the females in the 'very high' risk group were not opposed to having sex with someone who had a history of intravenous drug use

(IVDU) or same sex experiences. This study verifies that substance use strongly influences risk behaviors in adolescence.

Another study by Ku (1993) found that male participants who were substance users had more sexual partners in the last year and also had sex more frequently than nonusers. Specifically, of the 1,676 adolescent males, 26% reported drinking alcoholic beverages before having sex, at least 4% reported they had used IV drugs before having sex, and 2% said they had used both before sex. When compared with participants who were substance nonusers, the substance users reported condom use 38% of the time, which was 10% lower than the nonusers.

The risk factors reported were high for both males and females in a study completed by Anderson et al. (1994) on 610 street youth, age 13-23, who attended 'drop in' centers in Hollywood, California. The participants were surveyed to determine the prevalence of sexual risk behavior and correlates of condom use. Fifty percent of the females were under 18 years of age compared to 25% of the males. Approximately 95% of both males and females were sexually active. More than half of the women had experienced a pregnancy. One half of the males and one third of the females had participated in "survival sex" (exchange of sex for anything needed, e.g. money, food, shelter, clothes or drugs). Drug use was very common: 50% of the males and 42% of the females reported having used cocaine, 46% of the males and 35% of the females had used crack, and 25% of the males and 15% of females had used injectable illegal drugs. One

third of the group had been told they had an STD, and 67% had been tested for HIV.

Although consistent condom use is known to reduce the risk of STDs and HIV, only 45 % of the males and 30% of the females reported condom use during their last sexual intercourse. The youngest women (13-14 years old) were more likely to use condoms, and the women who had been pregnant were the least likely to use condoms. As found in other studies, those who did not use condoms in the past are less likely to use them in the present. Women who exchanged sex for food, money or lodging were associated with significantly higher condom use. This could indicate that the women who were using sex for survival were trying to protect themselves from STDs and HIV to maintain their livelihood. All of the participants in this study were at high risk of HIV and STDs and substance use was definitely an influencing factor.

A similar study (Morrison et al., 1994) used adolescents from a juvenile detention center in Seattle, Washington. Most of the participants had three or more life time partners, with the girls reporting partners who were several years older than the boys' partners. Approximately 30% of the White girls, 15% of the African-American males and 15% of the total females had participated in paid sex. White females reported the highest (27%) incidence of having sex with a known IV drug user. All of the participants were inconsistent condom users. The report indicated that males have a higher incidence of alcohol and drug use than females, and, although females have a lower alcohol and drug-use rates, they are less likely to use condoms.

Anal Intercourse

Although the acquisition of HIV has been associated with anal intercourse, very few researchers have studied the prevalence of anal intercourse among heterosexuals in the general population, and even fewer have examined its prevalence among adolescents and young adults. Reports have been very brief. Smith et al. (1993) used data gathered from 586 Latino male and female adolescents in two New England cities. The only results reported were that twelve respondents either had sex with high risk partners or engaged in anal intercourse. Morrison et al. (1994) revealed that a substantial minority of respondents (7-10% of males and 20-23% of the females) in their study reported anal sex in the past 3 months, and very few used condoms during anal sex. In the study by Millstein, females in the 'very high' risk group ($n = 40$) were significantly ($p = 0.009$) more likely than those in the 'moderately high' risk group ($n = 23.7$) to engage in anal sex.

Koniak-Griffin & Brecht (1995) examined the relationships of sexual risk-taking, substance use and AIDS knowledge in 58 pregnant adolescents and 93 young mothers who were considered at greater risk of contracting HIV and STDs than the general population of youth because they have had unprotected sexual intercourse. They also had often initiated sexual activity at an early age and were likely to remain sexually active and may have multiple sex partners.. The results of the study indicated that anal sex was an uncommon practice among the 151 participants and only 12 % ($n = 18$) of the participants reported participation.

Two conclusions can be drawn from the limited reports on anal intercourse:

- (1) Because of the association of anal intercourse with gay populations, in self-reported studies adolescents may not be willing to reveal that they participate in this behavior, or
- (2) adolescents are indeed not practicing anal intercourse to a significant degree.

Psychological Development

Sexuality is basic to human nature and is a part of the life-long developmental process. A child's first sense of being a boy or a girl is conveyed to her/him by parents from the beginning of life. Even though parents' convictions vary from culture to culture and from family to family, a learned female/male attitude evolves into an unquestioned femininity/masculinity and becomes a firm part of the child's early identity. Evidence of belonging to the female or male sex can be seen in a child as they develop a sense of self, often by the time she/he begins to walk.

In recent years, Miller (1990), Gilligan (1982), Gilligan, Lyons, & Hanmer (1990), and Chodorow (1990) found differences in the sexes and have clarified women's development within the American culture. Miller describes the beginning concept of the sense of self by a hyphenated term, "being-in-relationship", and it is through this "being-in-relationship" or having emotional connections that all developmental growth occurs.

Developing a Sense of Self

The beginning of a sense of self is reflected by what is happening between a mother and infant (Miller, 1990). The sense of self is generated by the interaction

between the mother (the most common caretaker) and infant. On first contact as the infant is touched, stroked and held, the infant experiences a sense of the mother's comfort. When the infant is held with eye to eye contact, the mother responds to the infant's emotions, and the infant responds to the mother's emotions and responses. The infant picks up the feelings of the mother as they both engage in a progressive emotional relationship. Out of this experience of interplay, the infant "knows" or "feels" the interaction, and begins to develop the inner sense that he/she can actively exert an effect on the relationship. The early self grows within the emotional connections, picking up the feelings of others and responding to the interaction between the self and others. The relationship is accepted as a "natural way" of being and acting that is learned and assumed (Miller, 1990).

As a girl grows, the relationship differs from that of infancy, but she does not develop a sense of "separation" (Miller, 1990). She merely becomes attuned to the feelings of the other persons and her own greater capability to put her own responses into effect. She knows that her feelings and actions influence theirs, just as theirs influences hers. As others enter the relationship the mother recognizes and supports the changes and becomes more caring in another way.

During childhood, the relationship with the mother and other women continues but may be less obvious and may be approached by the parent as less important. However, the relationship does continue and new qualities develop. This is a time when

girls are extremely involved in all relationships, particularly those with other girls. Many of the girls are interested in boys, but Gilligan (1982) claims that at this time boys are more interested playing games and learning about how rules can be made and changed than in girls. They want to learn how to win. However, the girls remain very involved in interactions with others and relationships. Developing a sense of self is a progressive interaction between the self and others, and girls emerge from this period with a strong sense of empathy built in to their sense of self (Chodorow, 1974).

The sense of self becomes more complex as more complex relationships with others enter into a girls' life. Maintaining relationships with the main people in her life is still the most important thing, but the girl can move on to a larger mode of action as her capacities increase. She feels a greater sense of self because of her greater capabilities and a stronger sense of her own ability to put her views into effect.

During interviews for a qualitative research study at the Emma Willard School, Gilligan, Lyons, and Hanmer (1990) found that some of the young girls would speak about the pleasures they found in relationships. Pleasure was linked to knowledge gained by exchanging views, learning more about others and having others learn more about them. When the girls were comfortable with the relationship they felt free to argue or disagree, to be heard and known, and yet assured that the other person would still be there after the difference. When the girls could not voice disagreement, they felt there was no relationship, the interaction was gone.

Gilligan (1990) related that girls would often speak about similarities and differences between themselves and their mothers, and because they knew their mother would still be there after a disagreement, they would describe conflicts in their relationships and connections with others. Some girls were able to see how they were or wanted to be different from their mother, and they could identify qualities in aunts, sisters and even celebrities that they admired. From this they were able to see the world as choices and opportunities.

Certain features of social structure, supported by cultural beliefs, values and perceptions are internalized through the girl's family and her early social relationships. Girls grow up with a sense of continuity and similarity to their mothers that is assumed easily along with her developing sense of self. This is an unconscious organization in which the girl learns role-training and purposive socialization (Chodorow, 1974).

Derek Miller (1974) proposed three stages of psychosocial development during adolescence. The stages are age related, are approximately 3 years long each, and are categorized as early, middle and late adolescence.

During early adolescence, ages 11 to 15 years, girls are characterized by turmoil stemming from physical changes, hormonal influences on their emotions, and loss of body control. The adolescents were aware of this tension and restlessness, according to Miller (1974), and unconsciously looked for a way to regain control. In trying to gain control, they showed over defiance of their parents and other authority figures. Girls

exhibit shy embarrassment and defensive behavior, such as giggling and they may seek solitude. The solitude can be drawn out by writing in a diary or talking with friends. They also have a profound preoccupation with their appearance and may dress or don extreme hairstyles and clothing. According to Miller (1974), girls are highly influenced by their fathers' reactions to their appearance and their fathers comments on their attractiveness.

In her studies on the development of adolescent females, Gilligan et al. (1990) found that the period between the ages of 11 and 16 was an especially critical time in which a crisis of relationship occurs. At around the age of 11 or 12, girls tend to become bossy and outspoken. It's a time when there is a close relationship and interaction between the girl and her peers. Cliques form, and the girls discover what it means to be taken in and also how it feels to be left out. They feel the disruption in relationships and turmoil described by Miller (1974).

While being interviewed by Gilligan, Lyons, & Hanmer (1990) the twelve year old girls would describe relationships and learning experiences that took place both inside and outside of school. Most of the time, the conversation moved freely as they discussed knowledge and learning; then, at other times it seemed to be "blocked" or "walled." Knowledge was disclaimed and the often-used expression "I don't know" emerged as a sign of withdrawal and repression.

Adolescence is a time when girls are at risk of losing their voices (Gilligan et al., 1990) and their connections with others. At the same time, gaining a voice and knowledge puts them at risk for speaking the unspeakable and losing connections with "reality." By eleven and twelve years of age, girls have observed women and learned where and when women speak and when they are silent. They also have observed how women comply with male authority.

One of the girls interviewed provided an example (Gilligan et al., 1990), Gail felt she was not achieving anywhere near her potential. She wasn't sure what was preventing her from achieving, but some day "it" would be gone and she would get her act together. She described the "it" as a "large thick cube." This same girl, as a senior, felt differently; she had discovered the reason for the "block." When her parents verbalized expectations that interrupted her sense of what she thought she should be, she would "soak up" their comments like a big sponge. She would never say or do anything. This happened all through childhood; in time as her sponge became full, her perception of herself became distorted and the block formed. As described by Miller (1974), adolescence is a time of turmoil in which girls become aware of their tensions and restlessness.

Gail had never voiced an interpretation of the block, but she began questioning and doubting her own thinking and actions (Gilligan et al. 1990). Because she could not voice her views and disagree with her parents, in her mind there was no relationship. She was overwhelmed and her perceptions were warped. After talking with a friend who

responded to anger and criticism from her father by tensing her muscles and "cuddling up like a rock," Gail began to understand the logic of her own feelings. Through conversation with her friend about their responses to unacceptable comments made by parents, Gail became aware of what "it" or the block was. By soaking up the anger she was able to disconnect or separate her own bad feelings. Through back and forth conversation with her friend, she was able to gain insight and knowledge and the "it" was no longer a wall but a relationship that joins Gail with herself and with her friend. The return of her perspective was tied to the return of connections and relationships (Gilligan et al., 1990).

During middle adolescence (Miller, 1974), ages 14 to 18 years, self-identification and self-realization emerge. The adolescent girl develops a sense of her own identity. She begins to make choices about her life and what she wants to be and do. According to Miller, sexual activity at this time is apt to be a test of oneself and a response to peer pressure rather than a loving relationship. Adolescents have a strong need at this time for adult role models other than parents, because they tend to test the quality of the people (her parents) in their environment. By exploring ideas, values and feeling about morality and their sexual desires with significant adults, the girls are able to determine ways they want to be similar and different. In doing so they are able to develop autonomy and clarify their own identity.

The image of the wall described by the girls (Gilligan, 1990) recurred during interviews with other girls, causing a block or preventing connections and relationships that the girls described and associated with strong feelings of anger and sadness. By listening to the girls, Gilligan learned how knowledge and pleasure are gained through relationships. As girls learn more about others, they also become better known and know themselves. As new people enter into the relationships, the girl is able to perceive herself and others differently.

At adolescence, a girl is developing the sense of self in increasingly complex ways to enter into an increasingly complex relationship, intimacy. According to J. Miller (1990), boys have the same needs, but have been encouraged to be more preoccupied with the development of an independent identity. Boys are more interested in the pleasures of sexual activity rather than in a lasting relationship. They have learned that the girl should adapt to them, and they have not been encouraged to develop a sense of being a part of a relationship.

During adolescence, societal influences stress that a girl "is not to fully and freely use her powers" (Miller, 1990, p. 446). The girl learns that her own sexual perceptions, impulses and responses are not to originate for her own gratification, but are to be stimulated by and for men. She picks up, from society, a strong message that her own bodily and sexual sensations are wrong, bad, evil and/or unacceptable. In the past she has been able to act within and for a relationship but now, in adolescence, to do so is wrong

and shameful. Jean Miller (1990) believes that, in dealing with this conflict, the girl alters her internal sense of self and her overt actions to a more passive and submissive state.

By age 15 years, more than 50% of the girls focused on experiences outside of school with family or friends as the central catalyst (Gilligan, 1990). Previous knowledge seemed to be buried or disclaimed as the educational experiences seemed to move out of the public sector into a private realm. Self-esteem often decreased. This was a common time for the girls to drop out of school (Gilligan, 1990).

In a relationship, disagreement and agreement can create situations or experiences of being misunderstood, misrepresented and unheard, resulting in knowledge wounds and scars. Silence and withdrawal are ways of avoiding hurt. Belinky (1986) describes how women resort to silence to prevent words from being used as weapons. Girls who had limited experiences in dialogue or had found school to be a place of chronic failure lost confidence in their ability to express or share their thoughts.

Late adolescence, age 17 to 20 years (and often older if they are going to college), is characterized by Miller as a time of coping (1974). The personality that was confirmed during middle adolescence is tested. With a firm sense of self, the late adolescents learn to cope with the complexities of intimate relationships and adulthood. Advanced education helps them attain specific roles in society. Depending on their relationship

with their parents, they may be able to forgive them for their failures and omissions or to relinquish the relationship.

Many of the girls at the Emma Willard School had witnessed conflict between parents (Gilligan et al., 1990). Many of the girls came from divorced families, and mothers would discuss their problems with the daughter. As a result, many of the daughters felt that marriage was a temporary status and some of them felt deprived of their relationship with their father. Others who had positive relationships with their fathers would talk of marriage and retaining emotional and financial independence.

Gilligan (1990) describes girls coming to voice realistic perceptions of mothers. One of the girls stated, "I think there is a time for every kid when they stop seeing their parents as perfect and start seeing them as human beings" (pg. 264). Recognizing the imperfection of parents mediates between being aware that differences do exist and realizing that parents have their own view points which need to be voiced. As the girls' perceptions change, new connections are experienced.

In summary, Miller (1990), stresses that all growth occurs with emotional connections. The early self is built on interactions between the self and the mother, a loving care taker. The "interaction-between" is learned, and the girl's self esteem is based on feeling that she is a part of and is in taking-care-of relationships (Gilligan et al., 1990). Girls become tensely involved in all relationships, especially with other girls. At adolescence girls are seeking the kind of identity that will fulfill their two important

needs: to use themselves, including their sexual and all their potentials, and to do so in a way that will fill their great desire for a "being-in-relationship." However, boys are preoccupied with trying to develop the "self" and their independent identity. Parents and culture have heavily promoted the adolescent males' preoccupation with independence. During adolescence, however, girls encounter a blockage which causes them to become dependent as they repress their knowledge and question their worth. There is a decrease in Self-Esteem in middle adolescence (Miller, 1990; Gilligan et al., 1990). In late adolescence the girl learns to cope with some of the complexities of life and relationships as their sense of self becomes tested and confirmed.

Self-Esteem

Self-Esteem is a learned phenomenon involving a life-long interaction with family, friends and peers in the social environment. Rosenberg (1965) studied 5,024 adolescents to determine the bearing of certain social factors on self-esteem and to identify how self-esteem influences attitudes, thoughts, feelings and behaviors. Results of his study did indicate that self-esteem was lower when influenced by family composition and parental indifference. Low self-esteem produced feelings of inadequacy, incompetence, worthlessness and isolation. Adolescents with low self-esteem believed they were unimportant or uninteresting. Because of this they felt awkward and lacked confidence and were likely to avoid other people or fail to initiate any social contact. As a result, they were not likely to participate in extracurricular

activities, formal or informal discussions, or situations where they would be in competition with others.

Self-esteem is a positive or negative attitude toward the self in relation to self worth, respect, and acceptance. A person with high self-esteem expresses the feeling of being 'good enough,' not better or worse than others, considers the self worthy, and recognizes limitations, expecting to grow and improve. On the other hand, a person with low self-esteem expresses self-rejection, self-dissatisfaction, and self-contempt. This individual lacks respect for the self that is perceived and wishes the self-picture were less disagreeable (Rosenberg, 1965).

D. Miller (1974) and Gilligan (1990) explained that turmoil, tension and restlessness decrease self-esteem in adolescent girls. This was supported in a study by Harper and Marshall (1991). They reported that during adolescence, girls reported significantly more problems and lower self-esteem ($r = 0.43$, $p < .001$) levels than did boys ($r = 0.38$, $p < .001$) (Harper & Marshall, 1991). The purpose of the study was to determine which problem areas among adolescents would best predict self-esteem. The girls were troubled by appearance, personal matters and interpersonal issues, while the boys were more concerned about finance, education and vocational issues. Harper and Marshall found that, from the different societal and familial demands made on males and females, girls are expected to be sociable, sensitive, and tolerant, whereas boys are

expected to be more confident, assertive and dominant. The inconsistent expectations of others may cause the girls to be confused and to develop conflict.

The self-esteem of girls declines dramatically around puberty and even in older adolescent females as they become aware of the difficulty they have in attaining the ideal body image. There is also a strong association between low self-esteem and having problems with home and family reflecting the effects of parental restrictions imposed upon them that are different than those imposed on boys (Harper & Marshall, 1991). The problems of adolescents are influenced by changes in society; however the family continues to be the most important resource as adolescents develop into adulthood. This fact confirms the importance of early relationships and the development of the sense of self.

A study by Holland and Andre (1994) was designed to investigate relationships among self-esteem and various personal and environmental factors. The sample consisted of 366 adolescents from either small or large high schools and 282 first and second year college students who had graduated from small and large high schools. The focus was on the variables that predicted adolescent self-esteem for male and female adolescents from small and large high schools. Results indicated that the size of the school and community contributed to the development of different patterns of masculinity, femininity, and attitudes toward women in both males and females. In addition, personal characteristics (sex role orientation and activity participation) are more

instrumental in the development of self-esteem among adolescents than are environmental characteristics (parents' marital and socioeconomic status).

The relationship between self-esteem, sexual activity and pregnancy was investigated by Robinson and Frank (1994). From a racially-mixed sample, 287 students from two university-affiliated high schools and 16 pregnant adolescents from a local physicians office were recruited. The mean self-esteem score from both groups was 17.77. The sample consisted of both males (45%) and females (55%) and the ages ranged from 13 to 19 years of age. Sexually active males reported a slightly higher level of self-esteem (mean = 18.37) than nonsexually active males (mean = 17.53); however, there was no significant difference between the two groups of males. Likewise, there was no significant difference in the self-esteem levels reported by sexually active (mean = 17.3) and nonsexually active (mean = 17.63) females; however nonsexually active females had a higher self-esteem level than sexually active females (Robinson & Frank, 1994).

Race and gender interacted to produce different levels of core specific (public domain) self-esteem among youth. Dukes and Martinez (1994) used the Rosenberg Self-esteem Scale (RSE) to measure core self-esteem, and three likert-scaled items to measure public self-esteem. Data were collected from 18,612 junior high and high school students in Colorado Springs, Colorado. The analysis revealed evidence of statistical interaction between ethnicity and gender. The mean score on the RSE for males was 31.5 and for females 29.8. The difference between the two scores was significant ($p < .001$).

Whites scored significantly higher on the RSE than the minorities ($p < .001$), and although both gender and ethnicity were statistically significant, gender had a stronger effect. Male scores of all ethnic groups appeared above the grand mean while only Black females scored above the grand mean and their mean ranked in the middle of all male groups.

In summary, research studies have confirmed that the self-esteem of girls drops dramatically around puberty as girls become more concerned with appearance, personal matters and relationships. Males score higher on self-esteem scales than females due to encouragement and support they receive for achievement. Pregnancy, having a child, or being sexually active did influence self-esteem scores in females or males; and although not significant a trend was suggested.

Depressive Symptoms

Adolescence is a time of transition when the adolescent is focusing on becoming more independent and forming supportive relationships with peers and other adults. During this transition, stress-related problems become more common and can result in depressive symptoms. Adolescents usually seek medical care for a physical examination for sports, work, camp or school or for an acute illness. A study (Schichor et al., 1994) was undertaken to determine the frequency of depressive symptoms in a group of healthy young people who seek routine health care, and the relationship between these depressed feelings and somatic complaints. A total of 966 adolescents who were seeking care at an

inner-city adolescent medicine clinic completed the questionnaire. On the questionnaire the teens were asked if they had ever felt down or depressed and if so, the frequency of their feelings (e.g. once a month, more than once a month, every week or daily). They were also asked to indicate if they had problems with any of the twenty common concerns, such as being tired all the time, feeling too fat or too thin, having difficulty with parents "understanding them".

Of the adolescents who participated in the study (Schichor, 1994), 38% reported never 'being down' or depressed. Of the 595 participants who reported being down or depressed, 78% reported the depressed feelings as being infrequent (once a month or less), and 22% reported feeling down weekly or more often. Females were twice as likely to report being down or depressed as males and Caucasians were more apt to report being down or depressed than Blacks or Latinos.

Other studies have looked at gender differences in depressive symptoms among adolescents. Avison and McAlpine (1992) studied Canadian high school students in both rural and urban communities. The participants (46% male and 54% female) ranged in age from 15 to 19 years. The females reported higher frequencies of depressive symptoms (mean score 18.98) than occurred in the males (mean score 15.45). These scores are higher than typically reported among samples of adults, but they are comparable to reports of other studies on adolescents. The gender difference may be due to higher levels of self-esteem among males. For all participants in the study, the adolescents'

perceptions of their mothers and fathers as caring parents were positively associated with self-esteem, whereas those who perceived their fathers as being over-protective were more distressed.

Similar results were obtained from a study (Gore, Aseltine, & Colton, 1992) of 1,208 randomly selected ninth, tenth and eleventh graders from three community high schools in the Boston metropolitan area. The purpose of the study was to examine the means through which life stress is associated with depressive symptoms. The CES-D scale was used to assess the frequency of self-reported depressive symptoms during the past week in the adolescent male and female students. Elevated scores on the CES-D were predictive of clinical depression. For estimating the prevalence of depressive symptoms in the adolescent population, Gore et al. (1992) used a cut-off score 22 or greater for boys and 24 for girls, rather than the commonly used score of 16 for adult populations. Using these designated cut-off points, 13% of the total sample was depressed. Of the 13% who were depressed, 8% were male and 17% were female. Using a bivariate analysis, the study found that gender was significantly related to levels of depressive symptoms, with girls experiencing higher levels of distress than boys ($b = 0.54$, $se = .008$, $p < .05$). In addition, data from this study showed that non-depressed students (16%) reported having a two-week period of depression sometime in their lives, which was significantly different from the depressed students (54%). Gore (1992) also found that life stress was positively ($p = .05$) related to depressive symptoms

in both groups, and that parent education and socioeconomic status were significantly related to depressive symptoms among girls. Additional findings indicated that lower levels of depressive symptoms were associated with higher socioeconomic levels and that girls from low-education backgrounds have the highest levels of depressive symptoms among adolescents.

Females tend to score higher on depressive symptom scales than do males, and Caucasian females often are more depressed than females of other ethnic groups. This may be due to females having more parental restrictions than males. Adolescent mothers and women with less than high school education and lower financial status are more depressed, perhaps a reflection of their life situation and limited opportunities. Some adolescents with depressive symptoms develop physical symptoms and seek medical help. Seeking medical help may be a way for them to have someone recognize that they have problems. Depressive symptoms tend to increase as self-esteem levels decline. This may affect the adolescent females' ability or desire to negotiate condom use with her partner. Depressed individuals with lower self-esteem can be expected to have decreased power within their relationship. These girls may become more concerned with the relationship than with acquiring STDs or HIV.

AIDS-related Knowledge

According to the CDC (1996), young women (aged 13 - 25) currently represent only 3.4% ($n = 19,649$) of all diagnosed cases of AIDS ($N = 581,429$) and 22%

($n = 4,762$) of the total female ($N = 89,208$) diagnosed cases of AIDS in the US.

Nevertheless, current adolescent sexual behavior, the increase in STDs among adolescents, and the strong association between IV drug use and HIV infection in adults suggests that future rates of HIV transmission may greatly exceed the present rate in adolescents, especially among the minority groups (CDC, 1995). Since the late 1980's some schools in the United States have been offering AIDS education programs. However, educational efforts need systematic evaluation to determine if positive changes in behavior have resulted among adolescents.

Through use of the Youth Risk Behavior Survey, data were obtained from two independent samples of high school students (grades 9-12) in the spring of 1989 ($N = 8,098$) and the spring of 1990 ($N = 11,631$) to examine AIDS knowledge levels and behaviors that place the students at risk (Holtzman et al. 1994). In both 1989 and 1990, students were taught about AIDS and HIV infection in school, but the proportion of students receiving the information increased significantly from 54% in 1989 to 74% in 1990. Essentially there was no change from 1989 (8.1%) to 1990 (8.3%) in the percentage of students who reported initiating first sexual intercourse before age 13. However, in 1990 fewer students reported that they had had sexual intercourse and among White students and female students the decreases were significant ($p = <.05$). In addition, the number of students who reported having two or more sex partners during their lifetime was lower in 1990 (36%) than in 1989 (40%).

Holtzman, Lowry, Kahn, Collins & Kolbe, (1994) determined that the proportion of students who reported having four or more sexual partners decreased significantly for total students (95% CI = 10.3, 13.3) between 1989 and 1990. Specifically, the decrease was significant for 15 and 16-year-olds (95% CI = 12.6, 16.8), White students (95% CI = 29.7, 35.1), and female students (95% CI = 10.3, 13.3). Overall, the respondents answered 19 of the 22 questions correctly indicating that they knew the basic facts about the cause and transmission of AIDS. The respondents were also cognizant of the inability to contract HIV from casual contact such as hand shaking, hugging and food handling. They knew that use of condoms and limiting the number of sexual partners reduced the acquisition of HIV. However, 30% of the respondents did not know that use of latex condoms was considered more effective than use of non-latex condoms and 13% were not aware that HIV could be transmitted from women to men. Fewer than 50% of the participants knew that oral contraceptives and diaphragms are not considered helpful in preventing the transmission of HIV infection. Although there was an improvement in HIV knowledge and changes in the risk behavior of students, it is not clear if the improvements resulted from the educational programs.

A study by Walker (1992) did not provide the same improvement in risk behavior as the one by Holtzman. Walker reported high knowledge levels in the 152 adolescents surveyed (age 13-18) in grades 9 through 12. Seventy-four percent of the students received a knowledge score of 20 or greater (maximum score 25) and 96% of the students

correctly identified the four main modes of transmission of HIV. There was a significant relationship in knowledge scores of students with previous AIDS education ($p = .0069$) as compared to those without. However, the sexual behaviors reported by the students indicate that they do not put their knowledge into practical use. Forty-nine percent of the males and forty-three percent of the females reported having sexual intercourse at least once. Of the sexually experienced males, 66% reported having more than one partner in their lifetime as compared to 47% of the sexually experienced females. Although 97% reported knowing that condom use during sexual intercourse reduces the possibility of contracting HIV, only 60% of the males reported condom use. Even though the students have the knowledge about HIV/AIDS, they still participate in risky behaviors.

Because knowledge alone is insufficient to promote risk-reducing sexual practices, it is important to determine what the adolescents know and what misconceptions they may have. Knowledge about AIDS and safer sex practices was assessed among 689 college freshmen (Dilorio, Parsons, Lehr, Adame, & Carlone, 1993) using the modified DiClemente AIDS information survey and the knowledge of safe sex practices questionnaire (KSSPQ). The mean age of the participants was 18.4 years. Forty-nine percent were women, 63% were Black, 31% were White, 6% were from other minority groups, and 71% were sexually active. The respondents, on the average, answered 23 of the 25 knowledge items correctly and 4.9 of the 5 misconception items correctly. As a group, White respondents were more knowledgeable than Blacks.

Interestingly, more than half of the participants erroneously believed that using oral contraceptives (51%) and diaphragms (58%), and urinating after intercourse (42%) constitute safer sex. Women were more likely than men to respond correctly about oral contraceptives, diaphragms, urinating and using latex versus non-latex condoms.

Knowledge, however, is not enough. In addition to improving knowledge, the only hope for slowing the spread of AIDS is to change behaviors that promote its transmission.

In early 1990, there was no HIV/AIDS education in the curriculum in the Richmond County school system. Sporadic AIDS education was initiated by individual teachers. To determine the AIDS/HIV knowledge level of 2,483 students in the 11th and 12th grade in Richmond County, Georgia (DuRant et al. 1992), a 12 item questionnaire was used. HIV/AIDS knowledge were based on responses to a scale of "Yes," "No," or "Not sure." The mean number of correct responses on the 12 point AIDS knowledge scale was 9.38 ± 2.18 . Nearly all (93%) the students knew that HIV can be transmitted by needle-sharing with an infected person. Seventeen percent believed birth control pills provided some protection against HIV. Several students were misinformed about items that do not increase HIV risk including donating blood (54%), insect bites (53%) and use of public toilets (24%). Based on multivariate analysis of variance, results of the study showed that lower AIDS knowledge levels were associated with no prior school-based AIDS education ($p \leq 0.001$), previous IV drug use ($p \leq 0.0001$), male gender ($p \leq 0.0001$), and being Black ethnic group ($p \leq 0.0011$).

In summary, AIDS knowledge has increased significantly among women in general and especially adolescents in the last eight years. Many of the students know how HIV/AIDS is transmitted and how the acquisition can be prevented. However, some still have misconceptions, and even though they have more knowledge about HIV/AIDS, they still report participating in risky behaviors. Knowledge alone does not promote risk-reducing practices among adolescents.

AIDS Vulnerability

Adolescents have the feeling that they are invulnerable. They feel that HIV/AIDS, STDs, pregnancy and bad things only happen to others. DuRant (1992) used only one question to measure students' beliefs concerning current potential for HIV infection. Twenty three percent of the participants ($N =$) in the study felt there was some chance that they were currently infected with HIV. A perceived chance of having HIV infection had a weak negative correlation ($\rho = -0.11$, $p \leq 0.0001$) with HIV/AIDS knowledge. Higher perceived risk of currently having HIV infection was associated with previous IV drug users who had no previous AIDS education ($p \leq 0.001$), and being from a Black or other ethnic group ($p \leq 0.008$).

With respect to worrying about getting AIDS in the future, Stevenson, Gay and Josar (1995) found that 27% of the 194 Black adolescents worried "all the time" and 34% worried "a lot." The group who worried "somewhat" represents the moderately worried response group ($n = 18$), and their mean AIDS knowledge score was 43.75 (84%), the

highest score of all the worried groups. Those who were "a little worried" about getting AIDS in the future were significantly less knowledgeable about AIDS than those who were "somewhat" worried. This suggests that adolescents whose degree of concern is extreme (mildly or overly concerned) may be less knowledgeable about AIDS than adolescents who admit some concern.

Mickler (1993) questioned why heterosexual college students failed to engage in AIDS preventive behavior. The vulnerability of sexually active participants was assessed via 3 questionnaire items: (1) perceptions of personal risk of contracting AIDS, rated on a 10-point scale where 1 = not risk and 10 = very high risk; (2) degree of worry about contracting AIDS is indicated on a 10-point scale by 1 = no worry and 10 = extreme worry; and (3) a percentage estimate of their own chance of becoming infected with HIV within the next 2 years (estimate range = 0% - 100%). AIDS knowledge was also assessed using a 21-item scale about modes of transmission and common misconceptions.

The findings demonstrate that the participants believe that they are at low risk for acquiring AIDS. The mean for perceived personal risk of AIDS to self was 2.54 (on a 10 point scale). The average participant believed that his or her own chances of acquiring AIDS was less than 8 in 100. The resulting AIDS knowledge scores were trichotomized according to frequency of distribution of the scores. Accordingly, 31% of the participants scored 15 or less and were classified as low knowledge; 28% scored 16 or 17 and were considered moderate knowledge; and 41% scored above 17 and were ranked high

knowledge. AIDS preventive behavior could not be predicted and was not correlated to risk, worry or knowledge. And although little AIDS preventive behaviors was reported by the participants, greater knowledge was associated with lower AIDS vulnerability.

In contrast, Ellen, Boyer, Tschann, and Shafer (1996) found that 278 9th and 10th grade students perceived themselves to be at similar risk for STDs and HIV as they perceived their peers. Analysis of variance revealed that the relative risk for HIV varied by race/ethnicity ($F[4,227] = 2.84, p \leq 0.05$). Whites subjects perceived themselves to be at less risk than did participants of other races/ethnicity. Perceived risk for HIV was predicted by HIV anxiety ($\beta = 0.33, p \leq 0.001$) and not by past condom use, number of lifetime partners or by STD and HIV related beliefs. This study found that sexually active adolescents know they are at risk for STDs and HIV and their risk taking behavior may be associated with social norms and the use of alcohol during sex.

In summary, young people, in general, do not perceive themselves to be vulnerable for acquiring HIV. Low knowledge may reflect extreme concern (mildly or overly concern), and yet, higher levels of knowledge are associated with invulnerability. AIDS knowledge alone does not change risk behavior.

Condom Use in Adolescents

While the most effective prevention of adolescent pregnancy, STDs, and HIV transmission is sexual abstinence, recent findings indicate that a large proportion of adolescents are sexually active. The national school-based Youth Risk Behavior Survey

was completed by the CDC (1992) using 11,631 students in grades 9-12 in 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands. The students were asked if they had ever had sexual intercourse, if they had had sexual intercourse during the last three months, what type of pregnancy prevention method they had used (if any), if they had ever had an STD and if they had used a condom at last intercourse to prevent STDs.

The results showed that 54% (60% of the males and 48% of the females) had reported ever having sexual intercourse and 39% had had intercourse in the last three months (43% of the males and 36% of the females). Black students (73%) were significantly more likely to have ever had sexual intercourse than White (52%) or Hispanic (53%) students, and also to have had sexual intercourse during the last three months preceding the study. The percentage of students ever having sexual intercourse and having sexual intercourse in the last three months increased significantly by grade. Among the sexually active students 77.7% of the females and 77.8% of the males reported using contraception during last sexual intercourse. White female students (82%) were significantly more likely to use contraceptives than Black (72%) or Hispanic (63%). Condom use by the sexually active students was indicated by 49.5% of the male students and 40% of the female students reporting condom use during last sexual intercourse.

A program to delay sexual involvement was implemented in California and targeted at high-risk youth. As a part of an ongoing evaluation of the program, Barth and his colleagues (1994) collected data from nearly 11,000 participants who were primarily

12-, 13-, and 14-year olds from 63 schools and 22 community-based agencies. The findings showed Black youths were more likely to be sexually active and Asian/Pacific Islanders to be less likely, and that males reported sexual activity ratings 2.5 times higher than females. Nearly 25% of the males and 10% of the females reported being sexually active. The sexually active students were far more likely to report that their peers were also having sex, indicating that peer pressure was a major issue in influencing sexual activity. The strongest reasons the participants had for not being sexually active were health reasons, and avoidance of pregnancy and STDs.

In order to prevent the acquisition of HIV and other STDs, condom use has been widely stressed by health care workers. And although adolescents' awareness of the protective value of condoms has increased, there has not been a corresponding increase in condom use during most recent intercourse.

A survey completed on ninth-, tenth-, and eleventh-grade students from four school districts in Rhode Island (Brown et al., 1992) reported that of the 266 sexually active students, only 29% reported consistently using condoms. Another 23% reported inconsistent condom use and 48% reported never using condoms. In this study, males were nearly three times more likely to report consistent condom use than females were. In addition to gender, the study found that students with less past risk behavior were twice as likely as their risk taking peers to report consistent condom use. Among the sexually active students, three variables were found in this study to be predictive of

consistent condom use: intentions to use condoms, male gender, and history of past behavior.

A more recent study (Ku et al., 1994, 1993) collected data for a national survey of 1,676 adolescent males age 17-22 years. The National Survey of Adolescent Males was initiated in 1988 on 1,880 never-married, noninstitutionalized males with ages ranging from 15 to 19 years old. At that time the researchers found that condoms were not consistently used by the group. Only 35% of the sexually active adolescent males had always used a condom during the previous year, 43% had used them inconsistently, and 22% had not used condoms at all. Consistency of condom use declined with age and a "sawtooth hypothesis" was designed to illustrate the successive rise and fall of condom use. An explanation is that condom use is likely to be frequent at the beginning of the relationship and then decline as the partners are better acquainted and the relationship develops.

Ku et al. (1994, 1993) reinterviewed the participants ($N = 1,676$) thirty months later. Among those who had sex in the past 12 months, the number of young men who used a condom with their present partner declined from 53% the first time they had intercourse with that partner to 44% at the most recent time. However, use of another contraceptive method (pill, IUD, diaphragm, etc.) had increased from 29% at first intercourse to 48% at last intercourse. Some couples used the condom in combination with another method.

Exploration of reasons for condom use (Ku et al., 1994, 1993) revealed that 83% of the respondents said the main reason they had for using a condom the last time they had intercourse was to prevent pregnancy, 12% to prevent disease, 2% to prevent disease and pregnancy and 3% to satisfy a partner who had insisted on condom use. The results also showed that condom use declined during a relationship. Since many relationships are ongoing, the probability that the female partner is using another contraceptive method rises.

An unexpected and alarming finding was that if a respondent perceived his partner to be high risk for HIV, he was less likely to use a condom (Ku et al., 1994). This has serious implications, since it is particularly important to use a condom with a risky partner, but the researchers assumed that selecting a high-risk partner and not using a condom may indicate a "taste" for risk-taking in these men.

There is increasing need to understand patterns of condom use by adolescent women. Orr (1992) used a health belief model to identify factors associated with condom use in 390 sexually active female adolescents, ranging from 12 to 19 years of age. The participants were primarily Caucasian (56%) with the remainder being Black. All were in a lower to lower middle socioeconomic class. The participants were asked to complete a questionnaire asking about their participation in high risk activities and about their frequency of and reasons for condom use.

Findings showed (Orr et al., 1992) that 56% reported being sexually active for more than a year; 46% reported having had more than one sexual partner within the past year, and 4.5% had had more than five yearly partners. More than 50% of the participants reported having some experience with condoms, while 22% had used a condom at last coitus. Participants reported condom use for more than one reason. Twelve percent used condoms consistently for prevention of STDs, with 51% reporting intermittent use. Eleven percent always used condoms for protection from AIDS, 39% reported intermittent use. Twenty four percent always used condoms for contraception, and 44% reported occasional use. Thirty percent of those who used condoms for contraception had never used one for STD prevention, and 30% had never used one for AIDS protection. Other findings showed that participants reporting condom use to prevent AIDS were cognitively more mature than nonusers (Orr, 1992).

Selective use of condoms with different partners may increase the risks for the young woman and her partner. Two researchers (Plichta et al., 1992; Weisman et al., 1991) examined the same population and the same data. One author looked at partner-specific condom use over time among adolescent women and the other studied consistency of condom use for disease prevention among adolescent users of oral contraceptives. The participants consisted of 308 young women from Baltimore City (89% of participants), who were primarily Black (77%), and had an average age of 16 years. Forty-two percent reported having only one male sex partner throughout the study,

while thirty percent had sequential or multiple concurrent partners. Only 16% of the total participants were considered consistent condom users. Over 68% of the participants reported that they had asked a partner to use a condom because of concern about AIDS.

Women who were consistent oral contraceptive users were significantly less likely to be consistent condom users, and women who perceived that their partners prefer condoms are significantly more likely to be consistent condom users (Plichta et al., 1992; Weisman et al., 1991). Decreasing condom use due to use of oral contraceptives indicates that adolescent women were using condoms as a method of birth control rather than as a protection against STDs or AIDS. The only variable that increases the rate of consistent condom use is length of relationship: participants in shorter relationships were twice as likely to be consistent condom users.

Among South Carolina students surveyed in 1990 (Richert et al., 1993), 34% of all participants reported never having sexual intercourse and another 52% reported using a condom at last intercourse. In this study, females tended to report less condom use than males. Black males reported most frequent condom use, while white females reported least frequency at last intercourse. A pattern of declining condom use with an increasing number of partners was most evident for whites. White females showed the sharpest decline in condom use, 47% of those who reported one partner to 28% of those reporting four or more partners.

In summary, although abstinence is the most effective method of preventing pregnancy, STDs and HIV transmission, a large population of adolescents are sexually active. The percentage of adolescents ever having sexual intercourse and having sexual intercourse in the last three months increases with age. Adolescents are aware of the protective value of condoms, however, their condom use is low. Males tend to report more frequent use of condoms than females. Peer pressure is a major issue in influencing sexual activity and condom use. Although they have knowledge about STDs and HIV transmission, their risk behavior does not change.

Summary

To summarize, the literature indicates that STDs and HIV infection rates are increasing dramatically among adolescents and alcohol use seems to play a significant role in dividing the sexually active from the sexually inactive. Young women participate in a number of behaviors that put them at risk for STDs and HIV infection including early initiation of sexual intercourse, unprotected sex, alcohol and drug use, multiple and risky partners, and anal intercourse. The pattern of multiple sexual partners tends to continue through young adulthood. Very few studies explore participation in anal intercourse, but in the studies that do, few adolescents report this particular risk behavior.

The literature review has indicated that connections and relationships have been shown to be important in the development of self-esteem. Stress and tension are experienced as changes in appearance, hormones and relationships with their parents and

peers occur. Research indicates there is a decline in self-esteem among females during adolescence. Lower levels of self-esteem have been related to changes in social interactions, powerlessness and loss of control. If they are out of connection with themselves and do not view themselves as people of worth, they become confused. They are afraid to express their views. Depressive symptoms tend to increase as self-esteem levels decline. This can affect women's ability or desire to negotiate condom use with a partner. They become more concerned with the relationship than they are with acquiring STDs or HIV.

The literature also reports that adolescents have knowledge about AIDS but do not utilize this knowledge in protecting themselves. They perceive that it is impossible for them to get pregnant, or to acquire STDs or HIV infection. Although they know that condom use reduces their chance of acquiring STDs and HIV infection, they chose not to use condoms consistently. They practice serial monogamy and rely on non-barrier contraceptive methods to protect themselves, without realizing that the protection is only against pregnancy and not against STDs and HIV infection.

Current findings on condom use and the increasing rate of STDs among adolescent females verify that consistent and correct condom use is not a reality. Males tend to report more consistent use of condoms than females, but the consistency tends to decrease with age and with more stable relationships. Further complicating the adolescent's decision about consistent condom use is the greater availability and easy use

of non-barrier contraceptive methods (oral pills, Depo-Provera injections, and contraceptive implants). Because condoms are used frequently by adolescents for birth control, there is a decrease in frequency of condom use when other contraceptive methods are utilized.

For female adolescents, condom use decreases as the number of partners increases and in addition, the secondary partner of the adolescent female is often 5 or more years older than she is. For adolescent males condom use decreases with age and risky behavior increases. The behavior of both genders puts them at greater risk of becoming infected with HIV or STDs. The high prevalence of STDs and the low rates of condom use indicate that not enough has been done to promote condom use. Truly safe sex is abstinence followed by monogamy in a long-term relationship with a disease free, HIV negative partner. The reality is that a majority of adolescent women are sexually active, are not ready to make a long-term commitment and do not know the sexual history of their partner nor his STD or HIV status.

CHAPTER THREE

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

A predictive correlational research design was utilized to explore the relationships among self-esteem, depressive symptoms, AIDS-related knowledge, AIDS vulnerability, risk behaviors, contraceptive choice, sexually transmitted diseases and condom use among sexually active young women. Demographic variables, such as age, educational level, ethnicity, and socio-economic status were examined to determine if they were related to self-esteem, depressive symptoms, AIDS-related knowledge, AIDS vulnerability, risk behaviors, contraceptive choice and condom use. In addition, the design compared young women who were married and those who were not, to determine if there is a difference in self-esteem, depressive symptoms, AIDS-related knowledge, AIDS vulnerability, risk behaviors, contraceptive choice, condom use and sexually transmitted diseases. And, specifically, the design investigated whether the dependent variable, condom use, can be predicted by the independent variables: self-esteem, depressive symptoms, AIDS-related knowledge, AIDS vulnerability, risk behaviors, contraceptive choice, age, educational level, ethnicity, and marital status. This design addressed the purpose of the study which was to examine linear relationships between two or more variables and to determine the type and strength of the relationship. The design further fulfilled the purpose as it examined possible causal relationships among

variables. In addition the design further fulfilled the purpose as it predicted the value of one variable based on the obtained values of other variables (Burns & Grove, 1993).

Setting

Participants were recruited from two agencies which provided family planning and STD services in a large urban city (population approximately 500,000) and one community hospital in a small rural community (population 12,000) in the south-central United States. One of the agencies had five clinic sites in different areas of the city. This agency, established through federal grant funding, initially provided prenatal and gynecological care for low-income women. After two years, the funding from the grant ended but the clinics continued to provide care with a low cost fee for service. Each of the five sites scheduled a family planning and an STD clinic each week, with an average attendance of 5 to 15 scheduled clients per day. The staff consisted of a receptionist and an Advanced Registered Nurse Practitioner (ARNP). The clients were required to make an appointment for an annual assessment and cytological examination to receive contraceptives. Infections were treated, if present, and contraceptive and safe sex counseling were given to each client. Other women would drop in monthly or intermittently to pick up a supply of oral contraceptives or to receive a Depo-Provera injection. Condoms were available at minimal cost for use during infection or as a back-up method of birth control.

The second agency, located in a suburban area about 20 miles east of the city, provided medical services for all age groups, both male and female, with the cost based

on income. A van was available, upon request, for clients in need of transportation to and from the clinic. An ARNP provided care for clients seeking care for pregnancy, family planning, or STDs. Similar to the other clinics, the ARNP also provided counseling and education about contraception and safer sex practice. All of the clinics had similar standards to provide effective high quality care and patient education.

A rural hospital, 75 miles west of the city, was also selected for recruiting participants. The hospital had about 30 to 35 deliveries per month, with about 25% of the post-partum population being adolescents. The hospital provided services, not only for the private pay and insured population, but also for low-income and diverse ethnic groups, such as African Americans, Hispanics, and Native Americans. Prenatal care and family planning services were provided by the ARNP at the local health department. Clients with STDs were seen by appointment at the health department for diagnosis, treatment and counseling.

The family planning services, STD clinics and the hospital post-partum unit gave the investigator the advantage of recruiting participants for the study from the target population of sexually active young women who were seeking services for contraception or treatment of STDs. Arrangements were made at the various sites for the investigator to spend one day each week at one of the clinic sites to recruit participants and administer the questionnaire. At each site, an area was designated where the investigator was able to give instructions to the participant about completing and returning the questionnaire. The participant was also provided an out-of-the-way area to complete the questionnaire

without interruption. After completion of the questionnaire, the investigator was available to discuss the study and answer any questions. Informational STD and HIV/AIDS pamphlets were available to the participants after completion of the questionnaire.

Population and Sample

The target population consisted of sexually active young women, between ages 13 and 25 years, presenting themselves at the family planning clinic or hospital for childbirth, contraceptive purposes or treatment of sexually transmitted diseases. The participants for the study were obtained in a non-random, selective fashion to acquire a population who met the criteria, i.e., English speaking, between 13 and 25 years of age, sexually active and willing to complete the questionnaire. Convenience or selective sampling is the most common of the non-probability sampling methods and is used when the research population consists of people with specific traits who might be difficult to identify by ordinary means (Polit & Hungler, 1991).

One day each week was scheduled for the researcher to be at a clinic site to collect data. Approximately twenty clients each day were asked to participate in the study, and an average of 12 young women who met the criteria were willing to complete the questionnaire. Other clients chose not participate in the study for a variety of reasons. The most common were: (a) they were on a schedule and felt they did not have time, (b) they were under age and a parent was not available or would not provide consent, and (c)

they did not like responding to questions about their sexual activity. Many women who were over the age of 25 were willing to participate but were not eligible.

After an explanation of the study (including information about informed consent, confidentiality and anonymity), participants were given a packet containing all the instruments, and were instructed to place them back in the envelope after completion, seal the envelope, and return it to the investigator. Data collection took place over fifteen weeks. The investigator supervised all activities pertaining to data collection including informed consent, instructions for completing the instruments, and collection of completed questionnaires.

Protection of Human Subjects

The guidelines from the Texas Woman's University Human Subjects Review Committee (HRSC) were utilized in assuring the protection of the rights of the client (See Appendix B). After obtaining HRSC approval (Appendix A) to conduct the study, two health care agencies and the hospital were approached about obtaining a sample of clients for participation in the study. The study was reviewed and permission was received from the Institutional Review Board (IRB) of the two agencies and the hospital (Appendix E). Each health care agency received a copy of the proposal, the questionnaire, a letter explaining the data collection process, and the researcher's name and place of contact should any questions or concerns arise.

Participants who met the criteria for the study were asked by the investigator to participate in study. A verbal explanation was given to the participants about the purpose

of the study, the importance of their participation, the kinds of information that would be requested, and the methods of assuring confidentiality and anonymity. They were also given a letter providing the same information, along with the name and phone number of the investigator in case they had questions after leaving the clinic.

Participants were informed that they could withdraw from the study at any time and they did not have to answer any questions that made them feel concerned or uncomfortable. This was an important aspect of the study since the questionnaire involved sensitive material. If anyone did choose to withdraw, the investigator planned to collect the uncompleted questionnaire and destroy it away from the clinic site. Since no one withdrew from the study after beginning the questionnaire, the plan was not utilized. However, when the data was being prepared for analysis seven questionnaires were destroyed by shredding due to excessive omission of information or due to lack of completion.

Participation in the study was completely voluntary, and care at the clinics or the hospital was not affected in any way by their participation or nonparticipation. Each participant was asked to sign a consent form prior to completing the questionnaire, and she was informed that the consent form and the completed questionnaire would be stored separately to insure anonymity. Participants who were not of legal status, under the age of 18 and living at home or receiving parental support, were asked to obtain written consent from the parent or guardian.

Instruments

The instruments used in this study were the Rosenberg Self-Esteem Scale (RSE), the Center for Epidemiological Studies-Depression Scale (CES-D), and the AIDS-related Knowledge and Attitudes Scale (AKA). In addition, a General Information Questionnaire was developed for use in this study (Appendix C). The items were adapted, with permission, from an interview guide used in a previous study of 75 low-income mothers (Kashka, 1994).

Written permission to use the AKA was obtained from the authors (Appendix D) for use in this study. The RSE and the CES-D had become public domain documents and permission to use and reproduce the scales was previously granted by the authors (Blascovich & Tomaka, 1991; Shaver & Brennan, 1991).

Rosenberg Self-Esteem Scale

The Rosenberg Self-Esteem Scale (RSE) has been used extensively to measure self-esteem among adolescent populations. The RSE was developed by Morris Rosenberg and was designed to measure the self-acceptance aspect of self-esteem (Rosenberg, 1965). The RSE was originally developed as a ten-item Guttman scale, but has since been used as a Likert scale to give numerical value to the responses and to yield data which can be considered interval for analysis. Positive and negative items are presented alternately in order to reduce response set. The scale was designed to be self-administered and to take about 5 minutes to complete.

For this study the items were scored using a four-point Likert scale ranging from strongly agree to strongly disagree. Five items are phrased positively and five negatively stated to reduce acquiescent response set. A score of 1 to 4 is assigned to each statement, with reverse scoring on items 1, 3, 4, 7, and 10. The total score ranges from 10 to 40. The negatively worded items were recoded; thus a high score on the scale would indicate greater self-esteem and a low score would denote lower self-esteem.

Reliability. On the original Guttman scale, Rosenberg (1965, 1990) reported a coefficient of reproducibility at .92 - .93, and coefficient of scalability at .72 - .73. Further measures of reliability were determined by a two week interval test-retest reporting a coefficient of .85 (Silber and Tippet, 1965). Recently, studies have demonstrated Cronbach's alpha coefficients of .81 (Holland & Andre, 1994, Robinson & Frank, 1994), .77 (Rosenberg, 1990), and .70 (Woods et al., 1994).

Validity. Rosenberg (1965) demonstrated construct validity through correlations with other constructs such as depressive affect, gloom and disappointment. Of the participants with low self-esteem, 80% were reported "highly depressed", 50% "frequently disappointed", and 33% "often gloomy". Conversely, Among the participants with high self-esteem, 88% were "not depressed", 87% were not "frequently disappointed", and 91% were not "often gloomy" (Rosenberg, 1965). Silber and Tippet (1965) found the RSE to correlate with other measures of self-esteem, with r 's ranging

from .56 to .83. The RSE reported correlations of .59 and .60 with the Coopersmith Self-Esteem Inventory (Robinson & Shaver, 1973).

Reading level and ease. The Flesch Reading ease score computed for the RSE was 85.6 and the Flesch-Kincaid grade level was 3.6. The reading level of the selected population is often variable because of the age range and educational preparation. Therefore the instruments were evaluated for reading level and reading ease. The Flesch Reading Ease was used to compute readability based on the average number of syllables per word and the average number of words per sentence. Scores range from 0 to 100. Standard writing averages from 60 to 70. The higher the score, the greater the number of people who can readily understand the document.

The Flesch-Kincaid Grade level computes readability based on the average number of syllables per word and the average number of words per sentence. The score in this case indicates the grade-school level. For example, a score of 8.0 means that an eighth grader would understand the document. Standard writing according to this measure equates to the seventh-to-eighth grade level.

Center for Epidemiological Studies Depression Scale (CES-D)

The CES-D scale is one of the most widely used measures in general population surveys to assess current levels of depressive symptoms (Harvey & Spigner, 1995; Orr et al., 1994; Radloff, 1977). The CES-D was developed by the Center for Epidemiological Studies at the National Institute of Mental Health to study depressive symptoms in the

general population. However, it can be used to measure the presence of depressive attitudes and behaviors in an individual in a recent week.

This 20-item self-report asks respondents to indicate how frequently they have experienced each of the symptoms in the last week. A score of 0 indicates that a symptom occurred rarely or none of the time and a score of 3 means that the symptom occurred most or all of the time. Four items are worded in a positive direction to break tendencies toward response set and to assess positive affect. The potential scores range from 0 to 60 with a higher score representing more depressive symptomatology. Scores of 16 or above have been identified as indicators of heightened risk for depression. Some researchers have expressed concern about the extremely high scores reported for adolescents on the CES-D (Avison & McAlpine, 1992; Doerfler et al, 1988; Reis, 1988). However, it was noted by Doerfler (1988) that this measure assesses the frequency of depressive symptoms and not the severity of the symptoms. In accordance with this information, Doerfler (1988) cautioned the use of the well-known cutoff score of 16 to identify depression in adolescents, as it may overestimate the proportion of depressed participants in a sample. Gore also recognized the overestimation of the proportion of depressed participants and recommended the use of a cut-off score of 22 for adolescent males and a score of 24 for adolescent females. For this study the cut-off score of 16 was used for participants 18 years and older and a score of 24 for participants 17 years or younger.

Reliability. Test-retest correlations (Radloff, 1977) were in the moderate range (.45 to .70) and were larger for the shorter time intervals. The correlation of the CES-D score obtained at admission of psychiatric inpatients with the scores obtained after four weeks of treatment was .53. Internal consistency was measured at .85 in the general population, and, as expected, was higher in depressed patients, .90 (Radloff, 1977). The CES-D has been used with varying sociodemographic groups (Radloff, 1991) and has been shown to be valid with both Black and White groups (Jones-Webb & Snowden, 1993). It has demonstrated high internal consistency with Cronbach's alpha ranging from .88 to .92 (Avison, 1992; Hauenstein and Boyd, 1994; Reis, 1988; Woods et al., 1994).

Validity. Although the CES-D was not designed for clinical diagnosis, the CES-D scores discriminated well between psychiatric inpatients and general population samples. Seventy-seven percent of the depressed patients scored above the arbitrary cutoff score of 16, but only 21% of the general population was above 16. In the psychiatric inpatients, the correlation between the CES-D and ratings of severity of depression by psychiatric nurse clinicians was .56 (Radloff, 1977b). Criterion-oriented validity indicated that the CES-D correlated with other valid self report depression scales. The correlation of the CES-D with the Hamilton Clinician's Rating scale (.44) and the Raskin Rating scale (.54) were moderate at the time of admission, but after four weeks of treatment, the correlations were substantially higher (.69 and .75). In order to confirm adequate reliability and validity, the CES-D scale was repeated on three age groups (under 25, 25-64, and over 64 years), two sexes, two races (Black and White) and three

levels of education (less than high school, high school, and greater than high school). In all of the subgroups, coefficient alpha was .80 or above (Radloff, 1977b).

Reading level and ease. The Flesch Reading ease score computed for the CES-D was 86.9 and the Flesch-Kincaid grade level was 2.8. This reflects that the items were easy to read and an individual with a second to third grade reading ability would not have difficulty.

AIDS-related Knowledge and Attitudes Scale (AKA)

The AKA was developed by Flaskerud and Nyamathi (Nyamathi, Bennett, Leake, Lewis, & Flaskerud, 1993) and included knowledge items of symptoms, transmission, prevention and community resources. The questionnaire was revised (Nyamathi et al., 1993) for use among impoverished minority women. The revisions consisted of wording simplification and an addition to the original scale of four items reflecting misperceptions about HIV transmission. The questionnaire consists of 15 items, which are measured by a true/false response set. The numbers of correct answers are summed for a total score ranging from 0-15. An additional question has been added, "A person can be infected with the AIDS virus and not have the disease AIDS." Permission from the author was given for use of the instrument (Appendix D) and addition of the extra question.

Reliability. Cronbach's reliability coefficient for the first 15 items of the knowledge scale was reported to be .77 with $N = 1173$ (Nyamathi et al., 1993). The Cronbach's alpha coefficient for this study was .6285. The normal range of values is between 0.0 and + 1.00, and higher values reflect a higher degree of internal consistency.

A relationship of .20 or .30 describes a weak relationship. Reliability coefficients above .70 are considered satisfactory (Polit & Hungler, 1991). According to Polit and Hungler (1991) instruments with a reliability of .60 or below are risky to use. With a reliability coefficient of .6285, approximately 63% of the variability in obtained scores represents "true" individual differences, and 37% of the variability would reflect random, extraneous fluctuations (Polit and Hungler, 1991). Since this study is making group-level comparisons, the lower coefficient is probably sufficient (Polit & Hungler, 1991). However, caution was be used in utilizing the data.

Validity. The content validity of this instrument was established by an expert panel of AIDS researchers (Flaskerud & Nyamathi, 1989); however the validity of the scale was not reported in the publication.

Reading level and ease. The Flesch Reading Ease computed readability for the AKA at 68.9. The Flesch-Kincaid Grade level 6.1. Individuals with a sixth-grade reading level ability should be able to read the items on this scale without problems.

AIDS Vulnerability Assessment

Perceived risk of contracting AIDS was measured by item 40 on the GIQ: "Do you consider yourself at risk of acquiring HIV/AIDS?" Participants rated their responses on a four-point scale with 1 = no, no risk at all, 2 = yes, at low risk, 3 = yes, at moderate risk, and 4 = yes, at high risk. To simplify the analysis the responses were reduced to 3: 1 = no risk; 2 = some risk (responses 2 and 3 were combined); and 3 = high risk.

A second item asked the same question in a different form to validate the information. Item number 17 on the AKA reads, "How much do you worry that you could get AIDS?". Participants are to rate their response on a four- point scale with 1 = not at all, 2 = a little, 3 = some, and 4 = a lot. This item was also be reduced to three responses by combining 2 and 3 responses, and was, therefore, read 1= not al all, 2 = some, and 3 = a lot.

Reliability. The reliability reported for this study for the GIQ .65 and the AKA reliability for this study was reported as .64. Caution will be exercised when reporting the data.

Validity. The criterion of validity refers to the degree to which an instrument or an item measures what it is supposed to be measuring. There are no formulas or equations that can be easily applied to determine how well an instrument measures a concept (Polit & Hungler, 1991). By verifying some of the self-reported information in two different question forms, evidence of content validity was indicated.

Reading level and ease. The Flesch Reading Ease computed readability for the two items on AIDS vulnerability was 87.7 and the Flesch-Kincaid Grade level 3.8. These scores indicate that a person with a third-grade reading ability could understand this item.

Risk behavior

Risk behavior was measured by twelve items on the GIQ: Item 14, How old were you when you had sexual intercourse for the first time? Item 23, How many partners have you had sex with in the last three months? Item 24, How many partners have you

had sex with in your lifetime? Since becoming sexually active have you: Item 25, had sex with males? Item 26, used injected drugs? Item 27, had sex while using injected drugs? Item 28, had sex while under the influence of alcohol? Item 29, had sex with someone you didn't know very well? Item 30, had sex with a partner you knew was having sex with other people? Item 31, had sex with a man who had sex with another man? Item 32, had sex with a person with HIV/AIDS? and Item 33, had anal intercourse?

Items 25 to 33 were measured by a yes/no dichotomous response. Items 14, 23 and 24 yield continuous score and were addressed independently.

Reliability. The reliability of the data collected on risk behaviors is dependent on the reliability of the self-reported nature of the instruments. The sensitive nature of the information received from the participants is also of concern. Oetting and Beauvais (1990) reviewed numerous studies which collected data of a sensitive nature, and reported that self-report among adolescents is likely to be reasonably trustworthy. Some youth tend to exaggerate, but the rate is probably relatively low under typical surveying circumstances. Although adolescents can also be inconsistent, marking whimsically, or at random, or inaccurately because of poor reading skills, the proportion of inconsistent responders remains well under 10%.

Readability level and ease. The Flesch Reading Ease computed readability for the items on the Risk scale was 78.2 and the Flesch-Kincaid Grade level 4.8. An individual with a fourth grade reading ability could read these items readily.

General Information Questionnaire (GIQ)

The GIQ was developed for use in this study by the researcher. The items were adapted, with permission from the researcher, from an interview guide used in a previous study of 75 low-income mothers (Kashka, Keyser, Mashburn, 1991). Initially this form consisted of 52 questions regarding the client's family, education, income, previous pregnancies, sexual behavior, contraceptive practices, and demographic data. After completion of the pilot study, the items requesting information about the education and marital status of the mother and father were reexamined. To eliminate confusion and strengthen the questionnaire, eleven of the items were omitted.

Reliability. The GIQ was developed to gather demographic data by self-report and, according to Polit and Hungler (1991), is highly susceptible to errors of measurement. Oetting and Beauvais (1991) report, however, that adolescent participants tend to be reasonably truthful in self-report of data of a sensitive nature.

Reading level and ease. The Flesch Reading Ease computed readability for the items on the GIQ scale was 85.2 and the Flesch-Kincaid Grade level 3.1. The items in the GIQ are easily read and an individual with a third grade reading ability could read them without problems.

Pilot Study

The pilot study was completed to: (1) identify problems related to methodology and procedures, (2) evaluate the efficiency of the data collection process, (3) estimate reliability and validity of the instruments, and (4) determine support for the proposed

hypotheses. The pilot target population was sexually active young women between the ages of 13 and 25.

The researcher distributed the information and questionnaires to 23 select participants who met the criteria. Because the questionnaire addressed sensitive and personal topics, individual distribution of the forms was preferable. This permitted the researcher to establish rapport with the participant before the questionnaire was completed. A debriefing session with the participant was arranged after the data collection was completed. This process allowed the participant to ask questions about the study or to discuss any concerns or suggestions she may have had.

Participants were given an explanation about the study and assured that the information would be kept confidential. Participants of various ages 13 through 25 years were asked to complete the questionnaires. After completion of the questionnaires, the investigator asked each participant about the readability and clarity of the items, and the likelihood of young women in the South-central United States responding accurately and honestly.

Several participants were concerned about the questions asking about parents' education, marital status of the parents, and age of their mother when her first child was born. Almost half of the participants were from divorced families and thought these questions would be considered confusing in circumstances of remarriages of parents or adoption. Considering this feed-back from the pilot subjects, changes were considered and eleven items were deleted from the General Information Questionnaire.

Treatment of Data

The test packets were coded to maintain confidentiality and anonymity of the participants and the consent forms were stored in a separate file. Demographic data, risk behavior, contraceptive choice, and condom use data were analyzed by utilizing descriptive statistics. Descriptive data were analyzed for violations of assumptions, and exploratory data analysis was performed on RSE, CES-D, and AKA data. Reliability estimates were determined for the RSE, CES-D, and AKA scales using the Cronbach's alpha coefficient. To analyze the postulated relationships between AIDS-related knowledge and self-esteem, between AIDS-related knowledge and depressive symptoms, self-esteem and depressive symptoms, a crosstabulation of the variables was completed. The postulated relationships between AIDS-related knowledge and AIDS vulnerability, between AIDS-related knowledge and risk behaviors, between AIDS-related knowledge and contraceptive choice, and between AIDS-related knowledge and condom use were also analyzed using crosstabulations. In addition, crosstabulations were utilized to determine the relationships between AIDS vulnerability and self-esteem, between AIDS vulnerability and depressive symptoms, between AIDS vulnerability and risk behaviors, between AIDS vulnerability and contraceptive choice, and between AIDS vulnerability and condom use. Relationships were examined with crosstabulations between self-esteem and risk behaviors, between self-esteem and contraceptive choice, between self-esteem and condom use, between depressive symptoms and risk behaviors, between depressive symptoms and contraceptive choice, and between depressive symptoms and

condom use. And finally, relationships were analyzed between risk behaviors and contraceptive choice, between risk behaviors and condom use, and between contraceptive choice and condom use utilizing crosstabulations. The postulated relationships between and among demographic variables, contraceptive choice, risk behaviors and condom use were analyzed using crosstabulations and chi square. Logistics regression was used to determine if there is a difference in AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, risk behaviors, contraceptive choice, condom use, sexually transmitted diseases in women who are married and those who are not. The predicted influence of AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, risk behaviors, contraceptive choice, demographic data and marital status upon condom use was analyzed using logistics regression. The relationship between condom use and STDs was analyzed using the Pearson's product moment correlational technique.

In summary, a predictive correlational design was used to examine the relationships among the research variables: self-esteem, depressive symptoms, AIDS-related knowledge, AIDS vulnerability, risk behaviors, contraceptive choice, condom use, and sexually transmitted diseases. The design also compared young women who were married and those who were not and young women who used condoms and those who did not to determine if the relationships of the variables was different. In addition to describing the settings and the sample, the method of data collection was discussed.

Approval from the Protection of the Human Participants was obtained from TWU and from the clinical agencies. The instruments used in the study were presented , and the reliability and validity of each was discussed. Data analysis was completed using frequency distributions, measures of central tendency, Pearson's correlational coefficient, crosstabulations tables, and logistics regression.

CHAPTER FOUR

ANALYSIS OF DATA

A predictive correlational research method was utilized to explore the relationships among AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, risk behaviors, contraceptive choice, sexually transmitted diseases and condom use among sexually active young women. Data analysis for this study involved the use of frequency distributions, Pearson's product moment correlation, cross-tabulations, chi square analysis, and logistics regression. The analytical procedures and the results are described in this chapter. Each hypothesis was examined in relation to the research findings, and conclusions were developed.

Description of the Sample

The sample for the research study consisted of 178 young women between the ages of 13 and 25 years who were sexually active. The participants were women who were utilizing services from one of the five selected family planning or STD clinics (165 participants) or had just delivered a baby (13 participants) at a select rural community hospital. Obtaining parental permission for adolescent minors to participate in the study was very difficult. Twelve adolescents at the clinic completed the questionnaire and promised to return the parental permission form to the clinic or send it by mail. When the signed consent forms were not received, the twelve questionnaires were destroyed and the

data was not used in the study. When young adolescents had just delivered a baby, their parents were more available and willing to give consent for them to participate in the study. A total of 50 adolescents, between 13 and 18 years of age, participated in the study.

Five to ten clients would schedule an appointment each day and an additional 5 to fifteen clients would come to the clinic to pick up a monthly supply of contraceptives. On some clinic days, a few of the clients would not come in for their appointment. Of the 10-25 clients seen in the clinic each day, eight to twelve would meet the criteria and agree to complete the questionnaire for the study. Of the clients who chose not to participate, many stated that they did not have time to complete the questionnaire due to work or class schedules. A few of the women refused to participate in the study because they did not want to answer questions related to their sexual behavior and use of contraception.

Demographics

Of the 178 participants, 88% were between the ages of 16 and 24. Eight (4.5%) participants were between the ages of 13 and 15, and 13 (7%) participants were 25 years of age. This was a predominately Caucasian (72.5%) sample with African Americans comprising about 15.7% followed by Native Americans (6.2%). Over half (53.1%) of the young women reported they were single; however, 21% were married and another 17% reported that they were living with a partner. Thus 38% of the participants were in ongoing relationships with a husband or partner. Most of the sample (66%) had completed high school and 48.9% were presently in school. The estimated family income

was low as might be expected of clients obtaining contraceptive and health care from public agencies. Over half of the participants (56.7%) estimated their family income at less than \$20,000 per year. Only 14% reported an income exceeding \$35,000. A summary of the demographic findings is presented in Table 1.

Pregnancies and Number of Children

To further describe the sample, participants were also asked how old they were when they first became pregnant and also how old their mothers had been at the birth of their first child. Although the age at which participants had first become pregnant ranged from 12 to 24 years, the mean age was 18. In comparing the daughters to their mothers, the range for the mother's age at birth of first child was wider (12 to 32 years) than that of the participants, and the mean age of their mothers was 21 years, slightly older than the participants,

Over half (58%) of the participants had never been pregnant and of those that had experienced pregnancy, 21% had been pregnant once, 10% twice and 8% three times. Most (67%) reported that they had no children. Data related to pregnancy is also reported in Table 1. The questions eliciting this information can be found in Appendix C.

Table 1

Demographic Characteristics of the Sample

VARIABLE	Frequency	Percent	Cum. Percent
Age	N = 178		
13 - 15	8	4.5	4.5
16 - 18	42	23.6	28.1
19 - 21	51	28.7	56.8
22 - 24	64	36.0	92.8
25	13	7.0	99.8*
Ethnicity	N = 173		
Caucasian	129	72.5	72.5
African American	28	15.7	88.2
Hispanic	2	1.1	89.3
Asian	1	.6	89.9
Native American	11	6.2	96.1
Other	4	2.2	98.3
No Report	3	1.6	99.9*
Marital Status	N = 178		
Single	95	53.4	53.4
Married	37	20.8	74.2
Separated	5	2.8	77.0
Divorced	7	3.9	80.9
Living with Partner	30	16.9	97.8
No Report	4		100.
Highest Level of Education	N = 178		
7th Grade or Less	2	1.2	1.2
8th Grade	4	2.2	3.4
9th Grade	4	2.2	5.6
10th Grade	21	11.8	17.4
11th Grade	25	14.0	31.5
12th Grade	118	66.3	97.8
No Report	4	2.2	100.

(table continues)

Table 1 (continued)

VARIABLE	Frequency	Percent	Cum. Percent
Presently In School	N = 178		
No	86	48.3	48.3
Yes	87	48.9	97.2
No report	5	2.8	100
Estimated Family Income	N = 178		
Less than \$5,000	36	20.3	20.2
\$ 5 - 9,999	20	11.2	31.4
\$10 - 14,999	32	18.0	49.4
\$15 - 19,999	13	7.3	56.7
\$20 - 24,999	22	12.4	69.1
\$25 - 29,999	8	4.5	73.6
\$30 - 34,999	10	5.6	79.2
\$35,000 or More	25	14.0	93.2
No Report	12	6.7	99.9
How many times have you been pregnant?	N = 177		
None	103	58.2	58.2
Once	37	20.9	79.1
Twice	18	10.2	89.3
Three Times	14	7.9	97.2
Four Times	1	.6	97.8
Five or More	3	1.7	99.5
No Report	1	.6	100.1
How many children do you have?	N = 170		
None	113	66.5	66.5
One	28	16.5	83.0
Two	20	11.8	94.8
Three	5	2.9	97.7
Four	3	1.8	99.5
No Report	1	.6	100.1

Note. Percentages have been rounded and are, therefore, not entirely accurate.

Risk Behaviors

Participants were queried about the age at which they had initiated sexual intercourse, the number of partners during the last three months and the total number of sexual partners thus far. Four questions focused on specific risk behaviors that put young women at risk for STDs, including AIDS. These questions concern having sex while under the influence of alcohol, having sex with a stranger or someone they do not know well, having sex with someone known to be having sex with others, and anal intercourse. The participants were divided into two age groups in order to illustrate any potential differences in terms of risk behaviors. Group one included participants 17 years or less; group 2 included those who were 18 years or older.

All of the participants in the study were sexually active, and most (46%) had initiated sexual intercourse by age 15. More than half (65%) were sexually active by age 16 and were in a monogamous relationship (73.5%) during the three months prior to participation in this study. The reported number of lifetime sexual partners varied among the participants. Thirty percent reported having one or two lifetime partners, while 26.6% reported having 6-15 partners. A small number (7.1%) reported having more than fifteen partners. "Having had sex while under the influence of alcohol" was the most common risk behavior (61.9%) reported by the participants. Other risk behaviors reported were "having sex with someone she did not know well" (27.8%), and "having sex with someone who was having sex with another partner" (33.5%). Only 14.5% of the participants reported having "anal intercourse"; however, of the 25 who had participated

in anal intercourse, 9.3% were 17 years of age or less. Responses related to risk behaviors are presented in Tables 2 and 3.

Table 2

Age at First Intercourse

VARIABLE	Frequency	Percent	Cum. Percent
How old were you when you had sexual intercourse for the first time?	N = 171		
Less than 12 Years	4	2.3	2.3
12 Years	2	1.2	3.5
13 Years	9	5.3	8.8
14 Years	29	17.0	25.8
15 Years	36	20.1	45.9
16 Years	33	19.3	65.2
17 Years	28	16.4	81.6
18 Years or Older	30	17.5	99.1*

Table 3

Risk Behaviors and Age

VARIABLE	Frequency 17 Years or Younger	%	Frequency 18 Years or Older	%	% of Total
How many partners have you had sexual intercourse with in the last 3 months?	N = 30		N = 140		
None	7	23.3	7	5.0	8.2
One	15	50.0	110	78.6	73.5
Two	4	13.3	15	10.7	11.2
Three	3	10.0	5	3.6	4.7
Four	0	0	1	.7	.6
Five or More	1	3.3	2	1.4	1.8
Total	30	99.9	140	100	100

(table continues)

Table 3 (continued)

VARIABLE	Frequency 17 Years or Younger	%	Frequency 18 Years or Older	%	% of Total
How many partners have you had sexual intercourse with during your lifetime?	N = 31		N = 138		
One	12	38.7	21	15.2	19.5
Two	6	19.4	11	8.0	10.1
Three	3	9.7	15	10.9	10.7
Four	1	3.2	13	9.4	8.3
Five	4	12.9	26	18.9	17.7
Six to Nine	4	12.9	32	23.2	21.3
Ten to Fifteen	0	0	9	6.5	5.3
More than Fifteen	1	3.2	11	8.0	7.1
Total	31	100	138	100.1	100
Since becoming sexually active, have you had sex while under the influence of alcohol?	N = 32		N = 144		
No	23	71.9	44	30.6	38.1
Yes	9	28.1	100	69.4	61.9
Since becoming sexually active, have you had sex with someone you didn't know very well?	N = 32		N = 144		
No	26	81.3	101	70.1	72.1
Yes	6	18.7	43	29.9	27.8
Since becoming sexually active, have you had sex with a partner you knew was having sex with other people?	N = 32		N = 144		
No	25	78.1	92	63.9	66.5
Yes	7	21.9	52	36.1	33.5
Since becoming sexually active, have you had anal intercourse?	N = 32		N = 141		
No	29	90.6	119	84.4	85.6
Yes	3	9.3	22	15.6	14.5

When comparing age to risk behaviors, some interesting factors emerged. Of the 30 participants who were seventeen years of age or younger, 70.6% were single, 13.3% had had three or more partners in the last three months, and 41.9% had had three or more partners in their lifetimes. In addition, of those who were 17 years or younger, 28% had reported sex while under the influence of alcohol, 18.7% had reported sex with someone they did not know well, 21.9% had reported sex with someone who was having sex with other partners, and 9.3% had reported participation in anal sex. A comparison of age and risk behaviors is depicted in Tables 2 and 3.

Sexually Transmitted Diseases

Because discussing sexually transmitted diseases is a more sensitive topic than the previous questions, the participants were asked first if they had ever been told by a doctor or a nurse that they had a vaginal infection. Fifty one percent reported having been told they had a vaginal infection, but only 23.6% reported the infection as a sexually transmitted disease. Yeast infection, although not a sexually transmitted disease, was listed first to allow the participants to have a less threatening choice and to prevent omission of their answer. In addition to yeast infection, the sexually transmitted diseases reported were chlamydia trachomatis (18%), pelvic inflammatory disease (4.5%), human papillomavirus (4.1%), gonorrhea (3.4%), and herpes (2.2%). Six percent of the participants reported having had more than one STD. Interestingly, only twenty percent of the participants who reported having chlamydia were 17 years or younger. Of the 173 participants, the group of single/divorced participants (58.4%) was slightly higher in total

number than the group of married/living with a partner participants (41.6%). Almost half of the participants (48%) reported never having had a vaginal infection. Of the 101 single/divorced participants 36.7% reported having a STD, while only 24.8% of the 72 married/living with partner group reported having a STD. One participant reported having had an infection but did not know what kind, and one other participant did not respond to any of the questions about vaginal infections or STDs. The non-response and not knowing what kind of infection could be due to embarrassment and fear associated with revealing the presence of an STD or lack of information. Table 4 illustrates the frequency for sexually transmitted diseases in this study.

Table 4

Frequency of Sexually Transmitted Diseases by Marital Status

STD	Single/Divorced n = 101		Married/Living with Partner N = 72	
	Frequency	Percent	Frequency	Percent
Chlamydia	20	19.8	12	16.7
Trachomatis				
Pelvic Inflammatory Disease	6	5.9	2	2.8
Gonorrhea	6	5.9	0	0
Human Papillomavirus	4	4.0	3	4.2
Herpes	2	1.1	2	1.1
Total	38	36.7	19	24.8

Contraceptive Choice

The most common methods of contraception reported were oral contraceptives (51.7%), condoms (32.6%), and Depo-Provera injections (11.8%). Only 4.2% reported using the Norplant implant and 13% reported using no method of contraception. Two participants who reported "no method" of contraception use also reported "condom" use. Of the 58 (32%) participants who had selected condoms as a method of contraception, 20 (11%) had also reported the use of another method. Contraceptive choice by age is shown below in Table 5.

TABLE 5

Contraceptive Choice by Age

Variable	17 Years or Younger		18 Years or Older	
	Frequency	Percent	Frequency	Percent
Oral Contraceptives	9	26.5	83	57.6
Condom	*15	44.1	*43	29.9
Depo-Provera	4	11.8	17	11.8
Norplant	0	0	6	4.2
No Method	*8	23.5	*15	10.4
Total	*34		*144	

* Totals are not correct because more than one choice may have been selected.

When comparing age to method of contraceptive choice, of the participants who were 17 years or under, 26.5% reported using oral contraceptives, 44% reported condoms, 11.8% reported Depo-Provera. Twenty four percent reported using no method

of contraception. Of the single/divorced participants, 47% selected condoms as a contraceptive choice, while only 14% of the married/living-with-partner participants selected condoms. Marital status data will be discussed in greater detail under other findings. Based on response patterns, it was determined that, of the nine items of contraceptive choice, oral contraceptives would be used as the variable for analysis.

Condom Use

The dependent variable (condom use) was operationalized in this study by the single item included in the General Information Questionnaire (GIQ): "When you have sexual intercourse, how often would you say you use a condom?" Respondents were asked to respond on a four point scale: 4 = always, 3 = usually, 2 = occasionally, and 1 = never. In response to condom use frequency, 12.8% percent of the participants reported "always" and 32% reported "never". Nineteen percent of the participants who reported never using a condom were single/divorced. The responses related to condom use are shown in Table 6.

Condom use was also measured by two other questions: "The last time you had sexual intercourse, did you use a condom?" and "What contraceptive method are you presently using?" Reports from the participants showed that condom use was inconsistent. Thirty-three percent selected "condom use" as their present method of contraception; however, less than 1/4 of the participants (23.7%) reported using a condom at last sexual intercourse. Of those who did not use a condom the last time they had

sexual intercourse, 67.3% were single/divorced. Table 6 provides the frequency data related to responses on condom use by marital status.

Table 6

Responses Related to Condom Use and Marital Status

VARIABLE	Single/Divorced		Married/Living with Partner		Row Total
	Frequency	%	Frequency	%	%
When you have sexual intercourse, how often would you say you use a condom?	N = 172				
Never	19	18.8	36	50.7	32.0
Occasionally	39	38.6	24	33.8	36.6
Usually	25	24.8	7	9.8	18.6
Always	18	17.8	4	5.6	12.8
Total	101		71		100.0
The last time you had sexual intercourse did you use a condom?	N = 172				
No	68	67.3	62	87.3	75.6
Yes	33	32.7	9	12.7	24.4
Total	101		71		100.0

Psychometric Measurements

Three psychometric measures were used to measure self-esteem, depressive symptoms, and AIDS-related knowledge. Descriptive data and reliability for the three measures are shown in Table 7. The measurement scales can be found in Appendix C.

Self-Esteem

In this study, the Rosenberg Self-Esteem (RSE) Scale (Rosenberg, 1965) was used to measure the variable of self-esteem. The scores ranged from 13 to 40, with a mean of 32.09. A higher score notes higher self-esteem. Reliability analysis was conducted and the Cronbach's alpha coefficient for the RSE was .8468. This alpha is slightly higher, yet comparable to the alpha of .81 reported by Robinson and Frank, (1994) and Holland and Andre (1994), and .70 by Woods et al. (1994).

Depressive Symptoms

Depressive symptoms were measured by using the Center for Epidemiologic Studies - Depression (CES-D) Scale (Radloff, 1977). Although this scale was originally developed for use with adolescents, it has been used in numerous studies with adults and has high internal consistency in women from age 19-45 years (Woods et al., 1985 & 1993). In this study, the scores ranged from 1 to 52, with a mean score of 16.17. A score of 16 or greater has been identified as a "significant level of depressive symptomatology" (Orr, Celantano, Santelli, and Burwell, 1994). Seventy six (45%) of the participants in this study scored 16 or greater. For estimating the prevalence of depression in the adolescent population (Gore et al., 1992), a score of 24 has been indicated as a significant level of depressive symptoms for adolescent girls rather than the widely used score of 16. Fifty percent of the young women had scores of 16 or higher indicating they "have a significant level of symptomatology". However, when using both cut off scores to analyze the participants in this study, among the participants who were

19 years and older, 39% scored above 16; and among the participants who were 18 years or younger, 11.2% scored 24 or higher. The Cronbach's alpha coefficient for the CES-D in this study was .9048 and was comparable to the alpha's obtained in previous studies which ranges from .88 (Jones-Webb and Snowden, 1993), to .89, (Woods et al., 1994) and to .90 (Avison, 1992).

AIDS-related Knowledge and Attitudes

AIDS-related knowledge was measured by the AIDS-related Knowledge and Attitudes (AKA) Scale (Nyamathi et al., 1993). The reliability analysis was conducted for the AKA, and the Cronbach's alpha coefficient was .6285. This alpha was considerably lower than the .77 found by Nyamathi et al. (1993). Since group-level comparisons are being made, coefficients in the vicinity of .70 or even .60 are probably sufficient (Pollit & Hungler, 1991); however caution was exercised when utilizing the data.

Cronbach's coefficient was computed for each instrument. Table 7 shows the reliability and descriptive data for the RSE, CES-D, and AKA in this study.

Table 7

Descriptive Data and Reliability of the RSE, CES-D, and AKA

Scale	N	range	M	sd	alpha
RSE	175	13 - 40	32.09	5.20	.8468
CES-D	176	1 - 52	16.17	11.15	.9048
AKA	168	8 - 16	14.30	1.85	.6285

Sixteen of the 17 items on the AIDS-related Knowledge and Attitudes Scale were used to compute a knowledge score which reflected the participants' knowledge about AIDS and its transmission. The scores of the participants ranged from 8 to 16, with a mean of 14.3. Fifty-four percent of the participants responded correctly on fifteen or more of the items. The participants had the choice to answer the questions "true," "false," or "I don't know"; however some would leave the question blank rather than choose the "I don't know" response. Approximately 90% of the participants knew that AIDS is caused by a virus, that people with AIDS usually die, that AIDS can be passed from mother to newborn, and that a person can get AIDS from sharing needles and unprotected sex. Surprisingly, 32% believed a person can get AIDS from donating blood, 15% percent believed a person cannot protect oneself from getting AIDS and 12% believed a person can get AIDS from using a toilet used by a person with AIDS. Table 8 presents the frequency data related to knowledge about AIDS (in order of correct responses).

Table 8
Responses to AIDS-related Knowledge and Attitudes Scale.

VARIABLE	% Correct	% Wrong	% Missing
People get AIDS from sharing needles.	97.8	1.1	1.1
People get AIDS from unprotected sex.	97.2	1.7	1.1
People with AIDS usually die.	94.9	3.9	1.1
People get AIDS from sharing dirty needles.	94.4	2.8	2.8
People get AIDS from eating food prepared by a person with AIDS.	91.6	7.3	1.1

(table continues)

Table 8 (continued)

Cleaning needles with water is enough to kill the AIDS virus.	91.0	7.3	1.1
People get AIDS when sneezed on by a person with AIDS.	90.4	8.4	1.1
AIDS is caused by a virus.	88.8	8.4	2.8
AIDS is passed from mother to baby.	88.8	10.1	1.1
People get AIDS from a toilet used by a person with AIDS.	87.1	11.8	1.1
I know places where you can get tested.	86.0	12.9	1.1
Persons with AIDS lose weight.	84.8	13.5	1.7
People can protect themselves from AIDS by using condoms.	84.3	14.6	1.1
A person can be infected with the AIDS virus and not have the disease AIDS.	83.7	14.0	2.8
People with AIDS have fevers and infections.	81.5	16.9	1.7
People get AIDS from donating blood.	66.9	32.0	1.1

AIDS Vulnerability Data

AIDS vulnerability was measured by asking "Do you consider yourself at risk for acquiring HIV/AIDS infection?" The participants were asked to select one of four responses: 1, No, not at all; 2, Yes, low risk; 3, Yes, moderate risk; and 4, Yes, high risk. Approximately two thirds (59.9%) of the participants felt there was no risk that they would acquire HIV/AIDS and less than 10% (13 participants) felt they were at moderate

to high risk of acquiring HIV/AIDS. Two other items were included in the questionnaire in relation to the possibility of acquiring HIV/AIDS. The first item asked if the participants knew anyone who has had AIDS or HIV. Only 20% of the participants reported they had known someone who has HIV or AIDS infection. The second item, "How much do you worry that you could get AIDS?", had responses ranging from 1, not at all; 2, a little; 3 some; to 4, a lot. The AIDS vulnerability responses in relation to age are presented in Table 9.

Of the 176 participants who responded to the questions, three fourths of the participants had little or no worry about getting HIV/AIDS and 60% considered themselves to be of no risk for acquiring HIV/AIDS. In spite of their not being concerned, 40% of the participants had been tested for HIV/AIDS. Eighty percent of the participants had never known someone who had had HIV/AIDS, and perhaps this provided the basis for their lack of worry. The responses are shown in Table 9.

Table 9

Responses to Items Relating to AIDS Vulnerability and Age

Age	17 Years or Younger		18 Years or Older		% of
VARIABLE	Frequency	%	Frequency	%	Total
Do you know anyone who has had HIV/AIDS infection?	N = 172				
No	21	65.6	114	81.4	78.5
Yes	11	34.4	26	18.6	21.5
Total	32		140		100.0

(table continues)

Table 9 (continued)

Do you consider yourself at risk of acquiring HIV/AIDS infection?	N = 177				
No risk at all	22	66.7	84	58.3	59.9
Yes low risk	8	24.2	50	34.7	32.8
Yes moderate risk	2	6.1	8	5.6	5.6
Yes high risk	1	3.0	2	1.4	1.7
Total	33		144		100.0
How much do you worry that you could get HIV/AIDS?	N = 176				
No at all	16	47.1	43	30.3	33.5
A little	12	35.3	61	43.0	41.5
Some	2	5.9	27	19.0	16.5
A lot	4	11.8	11	7.7	8.5
Total	34		142		100.0
Have you been tested for HIV?	N = 173				
No	21	65.6	83	58.9	60.1
Yes	11	34.4	58	41.1	39.9
Total	32		141		100.0

Findings

The purpose of the study was to investigate the relationships among AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, risk behaviors, contraceptive choice, sexually transmitted diseases and condom use among sexually active young women. This section presents findings as they pertain to specific hypotheses developed for investigation.

Research Hypothesis One

Hypothesis one states: AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, risk behaviors, contraceptive choice, and condom use are related.

Condom use was measured by the participant's reported frequency of condoms use (always, usually, occasionally, and never.) In order to analyze these relationships, condom use was recoded so the four responses fell into three levels: always (3 = always), occasionally (2 = usually and occasionally), and never (1 = never). Contraceptive choice was represented by oral contraceptives, for this study, as it was the most commonly reported method of contraception utilized by the participants. The eleven risk behaviors were reduced to the six behaviors reported most often by the participants: number of sexual partners in the last three months, number of sexual partners during your lifetime, sex while under the influence of alcohol, sex with someone you did not know very well, sex with a partner you knew was having sex with other people, and anal intercourse. In order to analyze relationships with risk behaviors, contraceptive choice and condom use, AIDS-related knowledge was dichotomized as "knowledgeable" (15 or more items answered correctly) or "less knowledgeable" (less than 15 items answered correctly) as Nyamathi et al. (1993) had done in their study. The correlation coefficients for the eleven variables and condom use (always, occasionally, and never) are presented in Table 10.

Table 10 shows the relationships between frequency of condom use (always, occasionally, and never) and AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, six risk behaviors and oral contraceptives. Pearson's product moment correlation coefficient was calculated on the twelve variables: condom use, AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, number of partners in last three months, number of partners during lifetime, sex while under the

influence of alcohol, sex with partners they did not know well, sex with partners they knew were having sex with other partners, anal intercourse, and oral contraceptives.

Table 10

Correlation Between Condom Use and AIDS-related Knowledge, AIDS Vulnerability, Self-Esteem, Depressive Symptoms, Risk Behaviors and Oral Contraceptives

VARIABLE	r	p
AIDS-related Knowledge	-.0733	.345
AIDS Vulnerability	-.0624	.409
Self-Esteem	.0825	.278
Depressive Symptoms	-.0537	.488
Partners in Last Three Months	-.0889	.239
Partners in Lifetime	-.1724	.022*
Sex under Influence of Alcohol	.0969	.201
Sex with a Stranger	.0145	.848
Sex with Man with Other Partners	.0739	.330
Anal Sex	.023	.764
Oral contraceptives	-.1747	.020*

* $p \leq .05$

Of the eleven variables, only two variables were significantly related to condom use. These two variables are (in order of sig.) oral contraceptives ($r = -.1747$) and number of partners in lifetime ($r = -.1724$). Although the relationships were weak, they were significant at the .05 level. The negative relationship indicates that women who use

oral contraceptives are less likely to use condoms and the women who are less likely to use condoms are more likely to have a higher number of lifetime partners or they may have a higher number of partners because they are less likely to use condoms.

To recapitulate, hypothesis one postulated that there would be a relationship between AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, risk behaviors, contraceptive choice and condom use. Table 10 indicates that oral contraceptives and condom use and number of lifetime partners and condom use are positively related. Therefore, hypothesis one was partially supported. Some of the other relationships between the variables, however, were of great interest as they point to a disturbing profile of risk behaviors of this sample. These will be discussed under additional findings.

Research Hypothesis Two

The second hypothesis stated that age, educational level, ethnicity, socioeconomic level, contraceptive choice, and risk behaviors differ in women who report condom use and those who do not. This hypothesis was tested through crosstabulations and chi square analysis. The crosstabulations are useful for examining the association between variables and the chi square calculates the expected value for each cell and compares it to the actually observed values. The dependent variable, "With sexual intercourse, how often would you say you use a condom?", was trichotomized: always, occasionally, and never. To determine the highest grade completed by the respondents, the educational level was recoded so the responses fell into two levels: 1 = grade 11 or less and 2 = grade

12 or higher. Because of the small number of minority participants, ethnicity was dichotomized so the responses fell into two levels: Caucasian (1 = Caucasian) and non-Caucasian (2 = African American, Hispanic, Asian, and Native American).

Crosstabulations and Pearson's chi-square were then used to examine the associations between condom use and each of the variables. The resulting chi-square can have a broad range, and even though a significance level is included, it becomes difficult to assess the importance the relationship. To make the assessment easier, Cramer's V transformation of chi-square was used to standardize the number of cells in the crosstabulation table.

With Cramer's V, the range is 0.0 to 1.0 and is more robust to this study. The significance level of Cramer's V remains the same as the significance level of chi square (Hedderston, 1987). The crosstabulations, chi-square and Cramer's V statistics in Table 11 shows the relationship between condom use and age.

In Table 11, the count identifies the number of participants who reported frequency of condom use as never, occasionally or always. The first entry on the table indicates the frequency or the count in that cell (Norusis, 1990). Eight participants 17 years or younger reported that they never use a condom, 49 participants 18 years or older also reported that they never use a condom. The second entry in the cell is the row percentage. It shows the percentage of all the cases in a row that fall into a particular cell (never, occasionally or always). Of the 57 participants who never use a condom, 14% were 17 years or less and 86% were 18 years or older. The third item in each cell is the percentage of all participants in a column that occur in that cell.

Table 11
Crosstabulation of Condom Use by Age.

Condom Use		AGE	
Count			
Row Percent	17 Years or	18 Years or Older	Row Total
Col. Percent	Younger		
Total Percent			
Never	8	49	57
	14.0	86.0	32.9%
	23.5	34.0	
	4.5	27.5	
Occasionally	18	74	92
	17.6	80.4	53.2%
	52.9	51.4	
	10.1	41.6	
Always	7	17	24
	29.2	70.8	13.9%
	20.6	11.8	
	3.9	9.6	
Missing	1	4	5
	20.0	80.0	2.8%
	2.9	2.8	
	.6	2.2	
Column Total	34	144	178
	19.1%	80.9%	100.0%
Chi-square	Value	df	Significance
Pearson's	2.5357	3	.4689
Statistic	Value	Approx. Significance	
Cramer's V	.1194	.4689	

Of the participants who were 17 years or younger (in Table 11), 23.5% reported never using a condom when they have sexual intercourse, 52.9% reported using a condom occasionally, but only 20.6% reported always using a condom. The participants

who were 18 years or older showed similar responses, 34% reported never using a condom, 51.4% reported using a condom occasionally and only 11.8% reported that they always use a condom. Although the outcome was interesting, it is disturbing that nearly one fourth (23.5%) of the participants 17 years and under and one third (34%) of the participants 18 years and older never use a condom when they have sexual intercourse, and in addition 50% of both groups only use condoms occasionally. The Cramer's V statistic shows that not only was the relationship between condom use and age weak (Cramer's V = .1194), but it was also nonsignificant ($p = .4689$).

Table 12

Chi-square, Cramer's V and the Significance Level for Condom Use and Age, Educational Level, Ethnicity, Income, Contraceptive Choice, and Risk Behaviors.

VARIABLE	Chi-square	df	Sig.	Cramer's V	Sig.
Age	2.5257	3	.4687	.1194	.4687
Educational Level	3.0254	3	.3877	.1304	.3877
Ethnicity	10.4789	6	.1061	.2426	.1061
Income	65.9030	24	.00001	.6301	.00001***
Oral Contraceptive	8.5926	3	.0352	.2197	.0352*
Partners in the Last Three Months	23.1423	15	.0812	.3616	.0812
Partners in Lifetime	37.7495	24	.0368	.4631	.0368*
Sex under the Influence of Alcohol	1.7127	3	.6341	.0987	.6341
Sex with Strangers	2.2169	3	.5285	.1122	.5286

(table continues)

Table 12 (continued)

VARIABLE	Chi-square	df	Sig.	Cramer's V	Sig.
Sex with Partner Who Had Sex with Others	2.2569	3	.5208	.1132	.5208
Anal Sex	1.9844	3	.5757	.1071	.5757

* $p \leq .05$ *** $p \leq .001$

Crosstabulation tables and analysis were completed on frequency of condom use (always, occasionally and never) with age, educational level, ethnicity, income, oral contraceptives and six risk behaviors: number of partners in the last three months, number of partners during lifetime, sex while under the influence of alcohol, sex with someone she did not know well, sex with a partner known to have sex with other partners, and anal intercourse. The Chi-square analysis for condom use and each variable is shown in Table 12.

Table 12 shows positive relationships between condom use and age, educational level, ethnicity, income, oral contraceptives, partners in the last three months, partners in the lifetime, sex under the influence of alcohol, sex with strangers, sex with a partner who has sex with others, and anal sex. Of the eleven variables, only three variables emerged showing a significant relationship with frequency of condom use (always, occasionally and never). The three variables are (in order of significance): income (Cramer's $V = .6301$), oral contraceptives (Cramer's $V = .2197$), and number of lifetime partners (Cramer's $V = .4631$). Both oral contraceptives and number of lifetime partners exhibited a relationship with frequency of condom use at the .05 significance level; however there was a difference in the strength of the relationship. Oral contraceptives

(Cramer's $V = .2197$) was weakly related while number of lifetime partners (Cramer's $V = .4631$) displayed a moderate relationship with condom use. Income (Cramer's $V = .6301$) emerged with a strong relationship with condom use which was highly significant at the .00001 level. The three variables, income (39.7%), number of lifetime partners (21.5%) and oral contraceptives (4.8%), explain 66% of the variance in condom use. The crosstabulation and chi-square analysis of the relationship between income and condom use is shown in Table 13 and 14.

Of the 166 participants shown in Table 13, in the column total, the number who reported an annual income less than \$5,000 (21.7%) and those who reported \$30,000 or more (21.1%) was almost equal. However, more than half of the participants (60.8%) reported their income to be less than \$20,000. Of the 101 participants with less than \$20,000 income, 28.7% reported they never use a condom, 53.4% use a condom occasionally, and only 13.9% always use a condom. The 65 participants with more than \$20,000 income provided similar responses, 36.9% reported they never use a condom, 50.8% use a condom occasionally, and only 12.3 reported they always use a condom. Overall, consistent condom use was low, of the 166 participants only 13.3% reported they always use a condom. In the row totals, the number of participants who did not use condoms (31.9%) was more than twice that of those who did use condoms (13.3%).

Table 13
Crosstabulation of Condom Use by Income

Condom Use		Annual Income								Row Total
Count	0	Less than \$5000	5000 to 9,999	10000 to 14999	15000 to 19999	20000 to 24999	25000 to 29999	30000 to 34999	35000 or more	
Row Percent										
Col. Percent										
Total Percent										
Never	1	7	6	7	8	9	3	4	8	53
	1.9	13.2	11.3	13.2	15.1	17.0	5.7	7.5	15.1	31.9%
	12.5	25.0	30.0	21.9	61.5	40.9	37.5	40.0	32.0	
	.6	4.2	3.6	4.2	4.8	5.4	1.8	2.4	4.8	
Occasionally	4	19	10	16	5	11	5	4	13	87
	4.6	21.8	11.5	18.4	5.8	12.6	5.8	4.6	14.9	52.4%
	50.0	67.9	50.0	50.0	38.5	50.0	62.5	40.0	52.0	
	2.4	11.4	6.0	9.6	3.0	6.6	3.0	2.4	7.8	
Always	0	1	4	9	0	2	0	2	4	22
	0	4.5	18.2	40.9	0	9.1	0	9.1	18.2	13.3%
	0	3.6	20.0	28.1	0	9.1	0	20.0	16.0	
	0	.6	2.5	5.6	0	1.2	0	1.2	2.4	
Missing	3	1	0	0	0	0	0	0	0	4
	75.0	25.0	0	0	0	0	0	0	0	2.4
	37.5	3.6	0	0	0	0	0	0	0	
	1.8	.6	0	0	0	0	0	0	0	
Column	8	28	20	32	13	22	8	10	25	166
Total	4.8	16.9	12.0	19.3	7.8	13.3	4.8	6.0	15.1	100%

Table 14

Chi-Square Analysis of Income and Condom Use

Chi-Square	Value	df	Significance
Pearson	65.9030	24	.00001

Statistic	Value	Approx. Significance
Cramer's V	.6301	.00001

In Table 14, the significance level $\leq .001$ shows there was a difference in income in those who used condoms and those who did not. The relationship between condom use and income was strong (Cramer's $V = .6301$).

Number of partners in the lifetime was the second variable that showed a significant difference with condom use. Fifty six participants (32.4%) reported never using a condom and almost half (48%) of them had five or more lifetime partners. The 23 participants (13.0%) who always used condoms had fewer lifetime partners, as shown by only 26% reporting 5 or more lifetime partners. Sixty two percent of those who used condoms occasionally reported having 5 or more lifetime partners. Approximately 30% of the participants in each of the three groups reported only 1 to 2 lifetime partners. The Crosstabulations and chi-square analysis of condom use and number of lifetime partners is shown in Table 15 and 16.

Table 15

Crosstabulations of Condom Use by Number of Lifetime Partners

Condom Use	Number of Lifetime Partners									
Count	0	1	2	3	4	5	5 to 9	10 to 14	15 or More	Row Total
Row percent										
Col. percent										
Never	1	11	6	6	6	10	13	3	1	
	1.8	19.3	10.7	10.7	10.7	17.9	23.2	5.4	1.8	56
	100.0	31.4	33.3	33.3	42.9	33.3	36.1	30.0	7.1	32.4%
Occasionally	0	16	8	7	4	19	21	6	11	
	0	17.4	8.7	7.6	4.3	20.7	22.8	6.5	12.0	92
	0	51.6	44.4	38.9	28.6	63.3	58.3	60.0	78.6	52.3%
Always	0	4	4	5	4	1	2	1	2	
	0	17.4	17.4	21.7	17.4	4.3	8.7	4.3	8.7	23
	0	12.9	22.2	27.8	28.6	3.3	5.6	10.0	14.3	13.0%
Missing	0	4	0	0	0	0	0	0	0	4
	0	100.0	0	0	0	0	0	0	0	2.3%
	0		0	0	0	0	0	0	0	
Column Total	1	31	18	18	14	30	36	10	14	171
	.6	18.1	10.5	10.5	8.2	17.5	21.1	5.8	8.2	100%

Table 16

Chi-Square Analysis of Condom Use by Number of Lifetime Partners

Chi-square	Value	df	Significance
Pearson	37.7494	24	.0368*

Statistic	Value	Approx. Significance
Cramer's V	.4631	.0368*

* $p \leq .05$

Number of lifetime partners emerged with a moderate significant relationship with condom use. The third variable that emerged with a significant relationship with condom use was oral contraceptives. Table 17 shows the Crosstabulation Table of condom use with oral contraceptives.

In Table 17, the correlation between condom use and oral contraceptives is displayed. More than half (51.7%) of the participants used oral contraceptives. Of the participants who used oral contraceptives, one third (37.4%) reported that they never used a condom, half (54.9%) used a condom occasionally and 7.7% reported they always used a condom. Of those who did not use oral contraceptives (48.3%), condom use was a little higher with participants reporting: 26.7% never, 48.8% occasionally and 19.8% always.

Table 17

Crosstabulations of Condom Use by Oral Contraceptives

Condom Use by		Oral Contraceptives		
Count				
Row Percent		No, Orals	Yes, Orals	Row Total
Col. Percent				
Never		23	34	
		40.4	59.6	57
		26.7	37.4	32.0%
Occasionally		42	50	
		45.7	54.3	92
		48.8	54.9	51.7%
Always		17	7	
		70.8	29.2	24
		19.8	7.7	13.5%
Missing		4	1	5
		80.0	20.0	2.8
		4.7	1.1	
Column Total		86	92	178
		48.3%	51.7%	100.0%
Chi-Square	Value	df	Significance	
Pearson	8.5926	3	.0352*	
Statistic	Value	Approx. Significance		
Cramer's V	.2197	.0352*		

The column totals showed little difference in the two groups (48.3% vs. 51.7%); however the row totals of participants who never use condoms (32%) were more than twice that of those who always used condoms (13.5%). The Cramer's V shows a weak relationship, but it was significant at the .05 level.

In summary, three of the eleven variables showed a significant positive relationship with condom use. With all three variables the row totals of those who did not use condoms was twice that of those who did use condoms. Those who did not use condoms reported lower income, reported a higher number of lifetime partners and reported the use oral contraceptives. Thus the relationship between income, number of partners in the lifetime, and oral contraceptives partially supported the postulated difference of hypothesis two.

Research Hypothesis Three

Hypothesis three reads: AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, risk behaviors, contraceptive choice, condom use and STDs differ in women who are married and those who are not. Logistics regression was used to estimate the probability of the variables being different in women who were married and those who were single. Marital status was analyzed using two groups, a single/divorced group and a married/living with partner group. Table 18 shows that, of the women who were single/divorced, 81.6% were correctly classified as single. Of the women who were married or cohabiting, 59.7% of were correctly classified, and only 41 (27.51%) of the 149 women were incorrectly classified.

Table 18

Logistic Regression Classification Table of Predicted and Observed Marital Status

Observed	Predicted		% Correct
	Single	Married	
SINGLE	71	16	81.61%
MARRIED	25	37	59.68%
Correct Overall			72.48%

The test of whether there is a difference is based on the Wald statistic, which has a chi-square distribution. When a variable has one degree of freedom, the Wald statistic is the square of the ratio of the coefficient to its standard error (Norusis, 1990). When the Wald statistic for categorical variables is used, the degrees of freedom equal one less than the number of categories. AIDS vulnerability was -.7823 and its standard error was .2958. The Wald statistic is $(-0.7823/0.2958)$ squared or 6.9952. The significance level of the Wald statistic for AIDS-vulnerability was .0082. In this hypothesis, the coefficients for AIDS vulnerability, self-esteem, and depressive symptoms appear to be different in the two groups, using a significance level of 0.05. The results of the logistic regression analysis are presented in Tables 18 & 19.

The contribution of individual variables in logistics regression is difficult to determine. The contribution of each variable depends on all of the other variables in the model. The R statistic is a measure of the partial correlation between the dependent variable and each of the other variables (Norusis, 1990). R can range from -1 to +1. A negative value indicates that as the variable increases the likelihood of a difference in marital status decreases. Small values for R indicate that the variable has a small partial

contribution to the prediction. The resulting R values, although significant, were small and negative indicating that there was a small difference in marital status with AIDS-related knowledge, self-esteem and depressive symptoms.

Table 19

Logistic Regression Coefficients of Marital Status by AIDS Vulnerability, Self-esteem and Depressive Symptoms

Variable	B	SE	Wald	df	Sig.	R	Exp(B)
AIDS vulnerability	-.7823	.2958	6.9952	1	.0082**	-.1571	.4574
Self-Esteem	-.1038	.0480	4.6815	1	.0305*	-.1151	.9014
Depressive symptoms	-.0497	.0233	4.5609	1	.0327*	-.1125	.9515
Constant	8.1985	2.5910	10.0118	1	.0016*		

* $p \leq .05$ ** $p \leq .01$

The Exp(B) column provides the odds ratio. For example in Table 19, the Exp(B) for AIDS vulnerability is .4574. This indicates that the odds are approximately $\frac{1}{2}$ as great for low vulnerability to be associated with marriage as for high vulnerability. If vulnerability changes from 0 (low vulnerability) to 1 (high vulnerability), and all the other independent variables remain unchanged, the odds are approximately twice as great for high vulnerability to be associated with being single as for low vulnerability (Polit, 1996).

The Exp(B) for self-esteem is .9014. As Exp(B) approaches 1, the odds are decreased. In this study, the odds are almost equal for low self-esteem and high self-esteem to be associated with being married.

Table 20

Chi-Square Analysis of Age with AIDS-Related Knowledge, AIDS Vulnerability, Self-Esteem, Depressive Symptoms, Contraceptive Choice and Risk Behaviors by Marital Status

Variable	Single/Divorced				
	Chi-Square	df	sig.	Cramer's V	Sig.
AIDS-Related Knowledge	9.8149	1	.0017**	.3198	.0017**
AIDS Vulnerability	14.3226	3	.0025**	.3766	.0025**
Self-Esteem	.3089	1	.5784	.0556	.5784
Depressive Symptoms	8.4402	1	.0037**	.2935	.0037**
Oral Contraceptives	2.2822	1	.1309	.1479	.1309
No Method of Contraception	.0960	1	.7567	.0307	.7567
Sex under the Influence of Alcohol	13.2786	1	.0003***	.3626	.0003***
Sex with a Stranger	1.6186	1	.2033	.1266	.2033
Partners in last 3 Months	2.9709	4	.5627	.1715	.5627
Partners in Lifetime	22.2405	8	.0045**	.4716	.0045**

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

To further determine if the variables differed in women who were married and those who were not, crosstabulation tables and chi-square analysis was calculated with

age and AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, condoms use, contraceptive choice and risk behaviors the. Marital status was comprised of two groups: single/divorced and married/living with partner. The chi-square analysis are displayed in Table 20

In Table 20, the single/divorced group showed a significant difference between age (at the .01 level) and AIDS-related knowledge, AIDS vulnerability, depressive symptoms, and number of partners in the lifetime. Almost two thirds of the group (60%) scored 15 or more on the AIDS-related knowledge scale and yet, sixty-nine percent of this group had little or no worry of acquiring HIV/AIDS. Fifty percent of the group had 16 or more depressive symptoms and 56% had five or more partners in their lifetime. A significance of less than .001 was found in the single/divorced group between age and sex while under the influence of alcohol. Sixty-six percent of this group had sexual encounters while being under the influence of alcohol, 11% were 17 years or younger and 88% were 18 years or older.

The married/with partner group (shown in Table 21) displayed a significance (at the .001 level) between age between age and oral contraceptives, between age and no method of contraception and between age and number of partners in the last three months. A significance level of .01 was found among the married/living with partner group between age and ethnicity, between age and oral contraceptives, between age and no method of contraception and between age and number of partners in the last three months. Of the 72 married/living with partner participants, seventy-six percent were

Caucasian and 84% reported using no method of contraception. Interestingly in addition, however, 55% of the total group reported using oral contraceptives. Ninety-three percent of this group reported having only one partner in the last three months. Thirty-eight percent had more than 16 depressive symptoms.

Table 21

Chi-Square Analysis of Age with AIDS-Related Knowledge, AIDS Vulnerability, Self-Esteem, Depressive Symptoms, Oral Contraceptives and Risk Behaviors by Marital Status

Variable	Married/Living with Partner				
	Chi-Square	df	sig.	Cramer's V	Sig.
AIDS-Related Knowledge	2.3506	1	.1253	.1859	.1253
AIDS Vulnerability	2.1302	3	.5458	.1732	.5458
Self-esteem	.4636	1	.4959	.0808	.4959
Depressive Symptoms	5.5023	1	.0190*	.2866	.0190*
Oral Contraceptives	9.6923	1	.0019**	.3669	.0019**
No Method of Contraception	10.4994	1	.0012**	.3819	.0012**
Sex under the Influence of Alcohol	5.7551	1	.0164*	.2827	.0164*
Sex with a Stranger	.2016	1	.6535	.0529	.6535
Partners in last 3 Months	17.8375	4	.0013**	.4977	.0013**
Partners in Lifetime	6.3771	7	.4965	.2976	.4965

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

To further examine differences in those who are married and those who are not, the three measures of condom use were compared with the two levels of marital status (depicted in Table 22). The married/living with partner group had a high percentage of not using condoms in all three groups: condom use, never 52.1%; condom not used with last sexual intercourse, 87.3%; and condom not selected as a contraceptive choice, 86.1%.

Table 22

Frequency of Marital Status and Three Condom Use Questions

Variable	Single/Divorced		Married/Living with Partner		N
	Frequency	%	Frequency	%	
When you have sexual intercourse, how often would you say you use a condom?					
never	19	19.0	36	52.1	
occasionally	38	38.0	22	31.9	
usually	25	25.0	7	10.2	
always	18	18.0	4	5.8	
total	100		69		169
The last time you had sexual intercourse, did you use a condom?					
no	68	67.3	62	87.3	
yes	33	32.7	9	12.7	
total	101		71		172
Condom, as a contraceptive choice					
no	54	52.9	62	86.1	
yes	48	47.1	10	13.9	
total	102		72		174

The three condom use variables, as shown in Table 23, (condom use, condom use with last sexual intercourse, and condoms as a contraceptive choice) resulted in highly significant outcomes ($p \leq .00082$, $.00295$, and $.00001$ respectively). Two of the relationships with marital status were weak: condom use with last sexual intercourse (Cramer's $V = .25806$) and condoms as a contraceptive choice (Cramer's $V = .36038$). Condom use emerged as a moderately strong relationship with marital status (Cramer's $V = .43603$) and there was a significant difference in marital status.

Table 23

Cramer's V Statistical Analysis of Marital Status with Condom Use, Condom Use with Last Sexual Intercourse, and Condom Use as a Contraceptive Choice

Variable	Chi-square	df	Value	Cramer's V	Sig.
When you have sexual intercourse, how often would you say you use a condom?				.43603	.00082***
The last time you had sexual intercourse, did you use a condom?				.25806	.00295**
Condom, as a contraceptive choice				.36038	.00001***

** $p \leq .01$ *** $p \leq .001$

To reiterate, the third hypothesis predicted a difference in women who were married and those who were not in relation to AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, risk behaviors, contraceptive choice, condom use and STDs. Small significant positive relationships emerged between marital

status and AIDS vulnerability, self-esteem and depressive symptoms indicating there was a difference with marital status. Crosstabulations tables and Chi-square analysis were also completed indicating that AIDS-related knowledge, AIDS vulnerability, depressive symptoms, oral contraceptives, no method of contraception, sex under the influence of alcohol, number of partners in the last three months, number of partners in the lifetime, condoms as a contraceptive choice, condom use, and condom use with last sexual intercourse differed in the two marital groups and, overall, the variables emerged with significant positive relationships with marital status. These variables provided a contribution to the prediction of a difference in marital status; thus, hypothesis three was partially supported.

Research Hypothesis Four

Research hypothesis four stated that AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, risk behaviors, contraceptive choice, age, educational level, ethnicity, socioeconomic status and marital status are predictors of condom use. The dependent variable, condom use, was measured by asking "With sexual intercourse, how often would you say you use a condom?" In order to analyze these relationships and to predict or explain as much of the variance in the value of the dependent variable as possible, condom use was dichotomized. Dichotomizing directed the maximum number of responses to fall into one of two groups of condom use: an "always" group and a "not always" group. The items were recoded so that a lower score (one) indicated a less positive or less desirable response (not always), and a higher score

(two) indicated a more positive, or a preferred (always) response in terms of ideal behavior. To make the independent variables meaningful for logistic regression, the variables were recoded to have only two categories. AIDS-related knowledge had already been recoded as 1 = score of less than 15, 2 = 15 or more. Self-Esteem was recoded using the median score as the dividing score: 1 = 25 or lower and 2 = 26 or higher. Depressive symptoms was recoded using the suggested adolescent cut off score of 24: 1 = 23 or less and 2 = 24 or greater. Age had already been recoded with 1 = 17 years or less and 2 = 18 years older. Due to the small number of minorities, ethnicity was recoded as 1 = Caucasian and 2 = non-Caucasian. Income was recoded using the mean income: 1 = \$19,999 or less and 2 = \$20,000 or greater. The risk behaviors and contraceptive choice variables were already in a dichotomized form as 1 = no and 2 = yes. Logistic regression with a forward stepwise procedure was then utilized to determine the effects of the sixteen variables on condom use to measure strength of association and to allow continuous as well as categorical independent variables to be used. Table 23 shows the coefficients for logistic regression of condom use with AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, risk behaviors, contraceptive choice, demographic data and marital status.

In forward stepwise regression, the model starts out with only the constant. At each step the variable with the smallest significance level for the statistic is entered into the model. For the total sample, as shown in Table 24, income and oral contraceptives were the only significant predictors of condom use, using a significance level of 0.05. If

the R statistic is used to look at the partial correlation between income, oral contraceptives, income, and condom use, the resulting R values were small indicating that the variables provide only a small contribution to the model and did not predict condom use in this study. AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, and risk behaviors did not predict condom use in this study, therefore, hypothesis four was not supported.

Table 24

Logistic Regression Condom Use with AIDS Vulnerability, Risk Behaviors, Oral Contraceptives, and Income

Variable	Variables in the Equation					R	Exp(B)
	B	S.E.	Wald	df	Sig.		
AIDS Vulnerability	.9084	.4857	3.4987	1	.0614	.1123	1.6273
Partners in Life-time	.3730	.2330	2.5643	1	.1093	.0689	1.4522
Sex under the Influence of Alcohol	-1.1120	.6860	2.6279	1	.1050	-.0727	.3289
Oral Contraceptives	-1.2813	.5974	4.6043	1	.0319*	-.1480	.2775
Income	.2889	.1203	5.7626	1	.0164*	.1779	1.3850
Constant	-15.5528	75.3915	.0426	1	.8366		

* $p \leq .05$

Research Hypothesis Five

The fifth hypothesis, there is a negative relationship between self-reported condom use and STDs, was tested by calculation of the Pearson's product moment correlation coefficient. In order to analyze the relationship, the twelve sexually transmitted diseases were reduced to the one, Chlamydia Trichomonas(18%), the most commonly reported vaginal infection. Although a weak negative relationship did emerge ($r = -.0665$, $p = .385$), it was not significant. In addition, Table 25 shows the correlation between condoms as a contraceptive, condom use with last sex, condom use and chlamydia was examined.

Table 25

Correlation Between Condoms as a Contraceptive Choice, Condom Use with Last Sexual Intercourse, Condom Use and Chlamydia Trichomonas

Variable	Condom Use with Last Sexual Intercourse	Condoms as a Contraceptive Choice	Condom Use	Chlamydia Trichomonas
Condom Use with Last Sexual Intercourse	1.000			
Condoms as a Contraceptive Choice	.4874 $p = .000^{***}$	1.000		
Condom Use	.5490 $p = .000^{***}$.3647 $p = .000^{***}$	1.000	
Chlamydia Trichomonas	-.1055 $p = .166$	-.0778 $p = .304$	-.0583 $p = .443$	1.000

*** $p \leq .001$

The Pearson's Product Moment Correlation (shown in Table 25) was also calculated on Chlamydia Trichomonas, and the three self-reported condom use variables: condoms, as a contraceptive choice; condom use with last sexual intercourse; and condom use (never, occasionally, and always). A strong significant relationship was found among the three self-reported condom use variables. As expected, a negative relationship emerged between Chlamydia Trichomonas and the three self-reported condom use variables; however the relationships were not significant..

Table 26

Crosstabulation and Chi-Square Analysis of Chlamydia Infection and Condom Use

Condom Use by		Chlamydia Infection	
Count			
Row Percent	No, Chlamydia	Yes, Chlamydia	Row Total
Col. Percent			
Never	46	11	
	80.7%	19.3%	56
	31.7%	34.4%	32.2%
Occasionally	74	18	
	80.4%	19.6%	92
	51.0%	56.3%	52.0%
Always	21	2	
	91.3%	8.7%	23
	14.5%	6.3%	13.0%
Missing	4	1	5
	80.0%	20.0	2.8%
	2.8	3.1	
Column Total	145	32	177
	81.9%	18.1%	100.0%

(table continues)

Table 26 (continued)

Chi-Square	Value	df	Significance
Pearson	1.57420	3	.66525

Statistic	Value	Approx. Significance
Cramer's V	.09431	.66525

A crosstabulation and chi-square analysis of chlamydia and condom use was completed. The results are shown in Table 26.

The nonsignificant findings in Table 25 shows there is no difference condom use among those who report chlamydia and those who do not. However chlamydia infections had been reported in all three areas of condom use. From the crosstabulation, a risk ratio was determined to compare the risk of chlamydia in those who use condoms and those who do not. The formulas are as follows:

$$\text{Risk of chlamydia among condom nonusers} = a/a+b = 11/57 = .193$$

$$\text{Risk of chlamydia among occasional condom users} = c/c+d = 18/92 = .196$$

$$\text{Risk of chlamydia among condom users} = e/e+f = 2/23 = .087$$

The risk of chlamydia in young women is greater (19.6%) among those who use condoms occasionally than those who never use condoms (19.3%). The women who always use condoms have only a .087 or 8.7% risk of having chlamydia. Condoms provide protection against STDs, therefore, the women, who reported they always using condoms and also having chlamydia, may have acquired chlamydia prior to condom use or they had condom use failures due to breakage or slippage.

In summary, negative nonsignificant relationships emerged between the three condom use reports and chlamydia. The chi-square analysis also emerged with nonsignificant results indicating there is no difference in condom use among the women who report chlamydia infections. The fifth hypothesis, therefore, was not supported.

Additional Findings

After the hypotheses of the study were tested, the data were further analyzed to explore what other relationships might exist among the variables. These additional findings further illustrate the complexity of the variables investigated in this study.

General and Specific Condom Use

Hypothesis one investigated the relationship between the participant's reported condom use (always, occasionally, never) and the variables of interest. Another question asked if the participants had actually used a condom at their most recent sexual encounter: "The last time you had sexual intercourse, did you use a condom?" This question was clearly more specific than the more general reported condom use. To determine if reported condom use would be verified by reports of condom use with last sexual encounter, a crosstabulation was used to examine the relationship between the two variables. Table 27 shows the analysis.

Table 27

Crosstabulations of Condom Use (always, occasionally, never) and Condom Use with Last Sex

Condom Use by		Condom Use with Last Sexual Intercourse		
Count				
Row Percent		No, Condom	Yes, Condom	Row Total
Col. Percent				
Never		54	2	
		96.4%	3.6%	56
		41.2%	4.5%	32.0%
Occasionally		71	21	
		77.2%	22.8%	92
		54.2%	47.7%	52.6%
Always		2	21	
		8.7%	91.3%	23
		1.5%	47.7%	13.1%
Missing		4	0	4
		3.1%	0	2.3%
Column Total		131	44	175
		74.9%	25.1%	100.0%
Chi-Square	Value	df	Significance	
Pearson	68.9432	3	.00000	
Statistic	Value	Approx. Significance		
Cramer's V	.62766	.00000		

Table 27 shows a strong significant relationship between the two condom use questions. Of the 175 participants, 56 (32%) reported they never used a condom with sexual intercourse and 54 (96.4%) of them reported that they indeed did not use a condom at last sexual intercourse. Ninety two (52.6%) participants reported condom use

occasionally, but most of them (77.2%) did not use a condom with the last sexual encounter. Of the 23 (13.1%) who reported they always used a condom, 21 (91.3%) report that they actually used a condom at last sexual intercourse. Of the 175 participants, 131 (74.9%) reported they did not use a condom with the last sexual encounter and only 44 (25%) did use a condom. In the column totals, the number of those who did not use condoms (74.9%) was almost three times the number of those who did (25%). The row totals revealed that those who never used condoms (32%) were more than twice as many as those who always used condoms (13%). The relationship was strong ($r = .62766$) and highly significant ($p = .00000$) indicating a difference in those who use condoms and those who do not. Condom use (always, occasionally, never) explains 39% of the variance in condom use at last sexual intercourse. Thus condom use at last sexual encounter does verify self-reported condom use.

One other item asked the participants "What contraceptive method are you presently using?" Condom was one of the choices the participants could select. Table 28 provides the results of the crosstabulation and chi-square analysis of the relationship between condom use (never, occasionally and always) and condoms as a contraceptive choice. Of the 57 women who never used a condom (shown in Table 28), 52 (91%) did not select condoms as a contraceptive choice. Of the 24 who always used condoms, 16 women (66.7%) did select condoms as a contraceptive choice. The relationship between condoms as a contraceptive choice and condom use (never, occasionally, and always) (Cramer's $V = .42572$) was not as strong as the relationship between condom use (never,

occasionally, and always) and condom use with last sexual encounter (Cramer's V = .62766) shown in Table 25, but it was also significant at the .00000 level.

Table 28

Crosstabulation Table with Chi-square Analysis of Condom Use and Condoms, as a Contraceptive Choice:

Condom Use with Sexual Intercourse		Condoms as Contraceptive Choice		
Count				
Row Percent	No Condoms	Yes Condoms		Row Total
Col. Percent				
Never	52	5		57
	91.2%	8.8%		
	43.3%	8.6%		32.9%
Occasionally	55	37		92
	59.8%	40.2%		
	45.8%	63.8%		53.2%
Always	8	16		24
	33.3%	66.7%		
	6.7%	27.6%		13.9%
Missing	5	0		5
	100.0	0		2.8
	4.2	0		
Column Total	120	58		178
	67.4%	33.6%		100.0%
Chi-Square	Value	df	Significance	
Pearson	32.2631	3	.00000***	
Statistic	Value	Approx. Significance		
Cramer's V	.4257	.00000***		

***p ≤ .001

Women who are in a stable relationship tend to become more relaxed about condom use, and their main concern is pregnancy prevention. In Table 27 the crosstabulation shows the relationship of the three condom use questions with marital status. Overall, there was a greater number of single participants than married and their reports of condom use were higher: 19% reported condom use as never, 38% occasionally, 25% usually, 18% always. Of those who were single, 67.3% did not use a condom with their last sexual experience, and 52.9% did not select condoms as a contraceptive choice. Even though the condom use rates were higher in the single/divorced group, only half (47%) reported condoms as a contraceptive choice, one third (32%) reported using a condom with the last sexual encounter, and less than one fifth (18%) indicated that they always use a condom. As expected, the participants who were married or living with a partner reported low condom use rates: 52.2% reported never, 31.9% occasionally, 10.1% usually and only 5.8% always. In addition, of the 71 participants who were married or living with a partner, 87.3% did not use a condom with last sexual intercourse, and 86% of this same group did not select condoms as a contraceptive choice. The frequencies of the responses for the three condom use questions are shown in Table 29 and the Cramer's V and significance levels are shown in Table 30.

Table 29

Crosstabulation of Condom Use (never, occasionally, usually, always), Condom Use with Last Sexual Intercourse, Condom Use as a Contraceptive Choice by Marital Status

Variable	Single/Divorced		Married/Living with Partner		
	Frequency	%	Frequency	%	Cum. %
When you have sexual intercourse, how often would you say you use a condom?					
never	19	19.0	36	52.2	32.5
occasionally	38	38.0	22	31.9	35.5
usually	25	25.0	7	10.1	18.9
always	18	18.0	4	5.8	13.0
total	100		69		169
					99.9%
The last time you had sexual intercourse, did you use a condom?					
no	68	67.3	62	87.3	75.6
yes	33	32.7	9	12.7	24.4
total	101		71		172
					100%
Condom, as a contraceptive choice					
no	54	52.9	62	86.1	66.7
yes	48	47.1	10	13.9	33.3
	102		72		174
					100%

It is logical that the relationship between the three condom use variables and marital status would be highly significant (shown in Table 30). The relationships between condom use with last sexual intercourse and marital status (Cramer's $V = .25806$), and condom as a contraceptive choice and marital status (Cramer's $V = .36038$)

were weak, while the relationship between condom use and marital status (Cramer's $V = .43603$) was moderate. The three variables together account for 38.7% of the variance of marital status. However, with condom use reports being low among those who are married or living with a partner and only slightly higher among those who are not married or divorced, one wonders if use of another contraceptive method may contribute to the difference. Table 31 and 32 show the crosstabulations of condom use with last sexual intercourse by oral contraceptives controlling for marital status.

Table 30

Cramer's V Statistics for Condom Use, Condom with Last Sexual Intercourse, and Condom, as a Contraceptive Choice

Variable	Cramer's V	Sig
When you have sexual intercourse, how often would you say you use a condom?	.43603	.00082***
The last time you had sexual intercourse, did you use a condom?	.25806	.00295**
Condom, as a contraceptive choice	.36038	.00001***
** $p \leq .01$ *** $p \leq .001$		

In Table 31, among the single/divorced participants who did not use a condom with last sexual intercourse, there was little difference in those who used oral contraceptives (51.5%) and those who did not (48.5%). The relationship between

condom use with last sexual intercourse and oral contraceptives (.16854) was not only weak but not significant (.09031).

Table 31

Crosstabulations of Condom Use with Last Sexual Intercourse by Oral Contraceptives Controlling for Marital Status

Controlling for Marital Status = Single/Divorced

Condom Use with Last Sexual Intercourse		Oral Contraceptives	
Count			
Row Percent	No, Did Not Use	Yes, Used Orals	Row
Col. Percent	Orals Contraceptives	Contraceptives	Total
No, Did Not Use Condom	29 42.6 59.2	39 57.4 75.0	68 67.3%
Yes, Used Condom	20 60.6 40.8	13 39.4 25.0	33 32.7%
Column Total	49 48.54	52 51.5	101 100
Chi-Square	Value	df	Significance
Pearson	2.8689	1	.09031
Statistic	Value	Approx. Significance	
Cramer's V	.16854	.09031	

However, Table 32 shows a significant relationship among the participants who did not use a condom with last sexual intercourse and are married/living-with-partner. The difference between those who used oral contraceptives (56.3%) and those who do not (43.7%) was very similar to the single or divorced group. Although the overall differences in oral contraceptives was close, 51.5% for the single/divorced group (in

Table 31) and 56.3% for married/living with partner group (in Table 32), the difference in those who did not use a condom with last sexual encounter (67.3% and 87.3% respectively) was greater. Only 12.7% of the married/with partner group used a condom with last sexual encounter, while 32.7% of the single/divorced group used a condom with last sexual encounter. Almost two thirds of the single or divorced participants did not use condoms and are, therefore, at risk for acquiring STDs and HIV infection.

Table 32

Crosstabulations of Condom Use with Last Sexual Intercourse by Oral Contraceptives Controlling for Marital Status

Controlling for Marital Status = Married/Living with Partner

Condom Use with Last Sexual Intercourse	Oral Contraceptives		
	Count		
	Row Percent	No, Did Not Use	Yes, Used Orals
	Col. Percent	Orals Contraceptives	Contraceptives
No, Did Not Use Condom		24	38
		38.7	61.3
		77.4	95.0
Yes, Used Condom		7	2
		77.8	22.2
		22.6	5.0
Column Total		31	40
		43.7	56.3
Row Total			71
			100

(table continues)

Chi-Square	Value	df	Significance
Pearson	4.8766	1	.02722
Statistics	Value	Approx. Significance	
Cramer's V	.26208	.02722*	

* $p \leq .05$

AIDS Vulnerability

Of great concern is the potential of young women to HIV infection. If young women are to take measures to protect themselves from HIV infection they must, first of all, believe that they are vulnerable to HIV. For that reason the participants in this study were asked "Do you consider yourself at risk for acquiring AIDS/HIV infection?" The response choices were: no risk at all, yes, low risk, yes, moderate risk, and yes, high risk.

The relationships between AIDS vulnerability and AIDS-related knowledge, self-esteem, depressive symptoms, and risk behaviors are depicted in Table 33. Interestingly, AIDS vulnerability displayed a weak negative but highly significant relationship with self-esteem. AIDS vulnerability also exhibited a weak positive relationship with depressive symptoms and sex with strangers and a moderate significant relationship with number of lifetime partners. The four variables were significantly related to AIDS vulnerability at the .001 level. Two other variables, sex while under the influence of alcohol and sex with a man who has sex with other partners, were significantly related to AIDS vulnerability at the .05 and the .01 level respectively. The women who felt vulnerable were depressed, they had low self-esteem, and they have had sex with many men, some of whom they did not know well or were strangers. They also were likely to have sex while under the influence of alcohol and to have sex with men they knew had other sexual partners. The correlations are shown in Table 33.

Table 33

Correlation Between AIDS Vulnerability and AIDS-Related Knowledge, Self-Esteem, Depressive Symptoms, and Risk Behaviors

VARIABLE	CORRELATION WITH AIDS VULNERABILITY		
	r	p	n
AIDS-Related Knowledge	.0109	.889	167
Self-Esteem	-.2601	.0005***	174
Depressive Symptoms	.2783	.0002***	169
Sex under Influence of Alcohol	.1618	.032*	175
Sex with Stranger	.3173	.0000***	175
Sex with Man with Other Partners	.2064	.006**	175
Partners in Last Three Months	.0663	.381	176
Partners in Life-time	.4021	.0000***	175

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

Risk Behaviors

Ultimately, it is their feelings about themselves and the behaviors of young women that place them at actual risk of becoming infected with HIV. The correlation coefficients between AIDS-vulnerability, self-esteem, depressive symptoms, number of partners in the last three months, number of partners in the lifetime, sex while under the influence of alcohol, sex with a stranger or a person not know well, sex with a man who is having sex with other partners and anal sex are displayed in Table 34.

Feelings of vulnerability to AIDS were strongly related to self-esteem, depressive symptoms and all of the risk behaviors and was previously discussed. However, the relationship between feelings of vulnerability and the other variables amplify the complexity of the problem. The participants who felt vulnerable to HIV/AIDS had lower self-esteem and more depressive symptoms. Because of their feelings of inadequacy, they may have been likely to have sex with men they did not know well and men they knew were having sex with other partners. As a result of their behavior, they had an increased number of partners in their lifetime and were more likely to have their sexual encounters while under the influence of alcohol.

The participants who had a higher number of partners in their lifetime not only had low self-esteem and felt very vulnerable to HIV/AIDS, but they were also more likely to have sex with a stranger and a man who has other sexual partners. They were also more likely to have their sexual encounters while they were under the influence of alcohol and to have a higher number of partners in the last three months.

The women who had sexual encounters while under the influence of alcohol had lower self-esteem and felt only slightly vulnerable. However, they were very apt to have sex with men they did not know well, with men who had sex with other partners and with more men during the last three months. This also indicates that women who have been using alcohol longer are more likely to have the greatest number of partners during their lifetime. Although questions were not asked about partners, it is possible that her partners could have the same qualities.

The participants who had sex with strangers felt very vulnerable of acquiring HIV/AIDS, and justifiably so, because they reported sex while under the influence of alcohol with men known to have other sexual partners. They were very likely to have reported a greater number of partners, not only in the last three months, but also during their lifetime and they were more likely to report participation in anal sex.

And finally, the participants who reported having sex with men who had other sexual partners were most likely to report they had sex while under the influence of alcohol, had sex with strangers and have had a large number of partners during their lifetime. They had lower self-esteem scores and reported they felt vulnerable, and had a higher number of partners in the last three months than women who had not reported they had sex with men who had other sexual partners.. The Correlation coefficients are shown in Table 34.

Table 34

Correlation Coefficients for AIDS vulnerability, Self-Esteem, depressive symptoms, and risk behaviors

Variable	AIDS Vulnerability	Self- Esteem	Depressive symptoms	Partners in last 3 months	Lifetime partners	Sex with Alcohol	Sex with strangers	Sex with man & others	Anal sex
AIDS vulnerability	--								
Self-Esteem	-.261***	--							
Depressive symptoms	.278***	-.663***	--						
Partners in the last 3 months	.066	-.022	.007	--					
Partners in lifetime	.402***	-.201**	.102	.271***	--				
Sex under influence of alcohol	.162*	-.166*	.113	.149*	.509***	--			
Sex with stranger	.317***	-.199**	.124	.267***	.557***	.304***	--		
Sex with man with other partners	.206**	-.236**	.015	.152*	.455***	.259***	.526***	--	
Anal sex	.051	.010	.057	.025	.072	.221**	.143	-.013	--
* $p \leq .05$	** $p \leq .01$	*** $p \leq .001$							

Age

Although patterns of risk behaviors are forming, it is important to examine the relationship of age with AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, risk behaviors, contraceptive choice and condom use.

Crosstabulations and chi-square analysis were utilized to determine the relationships. In order to examine the relationships more fully, age was recoded into three groups: 13 to 17 years, 18 to 21 years and 22 to 25 years. Table 35 provides the results of the crosstabulations and Cramer's V analysis of age with AIDS vulnerability. The relationship was weak and not significant, but it does show that the participants of all three age groups perceived they had minimal or no risk of acquiring HIV/AIDS. A large percentage (91%) of the middle group (18 to 21 years) perceived themselves to be invulnerable to AIDS, with the older group (22 to 25 years) close behind (89.6%), and the younger group (13 to 17 years) slightly lower (84.8%). Only 7.3% of the 177 participants thought they were at moderate to high risk of acquiring AIDS. Of the participants who felt they were at moderate risk of acquiring HIV/AIDS, the 18-21 year old group was again the highest (50%) and the 13-17 year old group was the lowest (20%). Table 35 has the crosstabulation of age with AIDS vulnerability.

Table 35

Crosstabulation and Cramer's V Analysis of Age with AIDS Vulnerability

Count						
Row Percent						
Col. Percent	Risk for Acquiring HIV/AIDS					
	No Response	No Risk At All	Yes Low Risk	Yes Moderate Risk	Yes High Risk	Row Total
AGE						
13 - 17 Years	2	20	8	2	1	33
	6.1	60.6	24.2	6.1	3.0	18.6
	33.3	20.0	13.8	20.0	33.3	
18 - 21 Years	1	35	26	5	0	67
	1.5	52.2	38.8	7.5	0	37.9
	16.7	35.0	44.8	50.0	0	
22 - 25 Years	3	45	24	3	2	77
	3.9	58.4	31.2	3.9	2.6	43.5
	50.0	45.0	41.4	30.0	66.7	
Column Total	6	100	58	10	3	177
Total	3.4%	56.5%	32.8%	5.6%	1.7%	100%
Chi-Square	Value	df	Significance			
Pearson	6.0384	8	.6429			
Statistic	Value	Approx. Significance				
Cramer's V	.1306	.6429				

Table 36 provides the results of the crosstabulations and Cramer's V analysis of age with ethnicity, AIDS-related knowledge, depressive symptoms, risk behaviors and HIV testing. A significant relationship ($p \leq .001$) emerged between age and sex while under the influence of alcohol. Among the 176 participants in the study, 109 (62%) reported having sex while under the influence of alcohol. The 18 -21 year old group had

the highest incidence (70%), followed closely by the 22 - 25 year old participants (68.8%). The youngest age group, 13 - 17 years of age, reported having the lowest rate of alcohol use with sexual encounters (28.1%). Two more variables, AIDS-related knowledge and depressive symptoms, were significantly related to age at the .01 level. More than half (57%) of the 168 participants answered all 15 of the AIDS-related knowledge and attitudes questions correctly: 59.5% of the 22 - 25 year old group, 67.7% of the 18 - 21 year group, and 31.3% of the 13 - 17 year olds. Depressive symptoms tended to decrease with age. One third (38.7%) of the 13 - 17 year olds reported 16 or more depressive symptoms, while only 18.8% of the 18 - 21 year old group and 13.5% of those 22 - 25 years old reported 16 or more depressive symptoms. Ethnicity was weakly related to age at the .05 level. The sample was predominantly Caucasian and both the 18-21 year old group (80.6%) and the 22-25 year old group (74%) exhibited this same characteristic; however only half (52%) of the 13-17 year old group was Caucasian.

Although the relationships of these factors with age were not significant, sex with strangers, sex with a man who has sex with other partners, anal sex, condom use with last sexual intercourse, and HIV testing provided valuable information about the participants. Two risk behaviors, sex with strangers and sex with a man who has other partners, tend to increase with age while condom use decreases. The findings are provided in Table 36.

Table 36

Relationship Between Age and AIDS-related knowledge, Depressive Symptoms, Risk Behaviors,
Condom use with last sexual encounter, and HIV Testing

	Ethnicity = Caucasian	AIDS-related Knowledge of score 15	Depressive Symptoms score of 16 or more	Sex under Alcohol	Sex with Stranger	Sex with Man & Other Partners	Anal Sex	Condom with last sex	HIV Test
	N = 178	N = 168	N = 169	N = 176	N = 176	N = 176	N = 173	N = 175	N = 173
AGE									
13 to 17 years	52.9%	31.3%	38.7%	28.1%	18.8%	21.9%	9.4%	34.4%	34.4%
18 to 21 years	80.6%	67.7%	18.8%	70.1%	23.9%	29.9%	21.5%	21.2%	37.9%
22 to 25 years	74.4%	59.5%	13.5%	68.8%	35.1%	41.6%	10.5%	24.7%	42.7%
Cramer's V	.1781	.2646	.2275	.3284	.1477	.1614	.1568	.1069	.0826
Sig.	.0235*	.0027**	.0126*	.0008***	.1466	.1010	.1191	.3679	.6754
*p = .05 **p = .01 ***p = .001									

The younger age group has the lowest percentages for the risk behaviors, but their habits are now forming. And although most of the participants reported little to no concern about acquiring HIV/AIDS, their actions (HIV testing) indicate otherwise. Three other risk behaviors were significantly related to age: age at first-time sexual intercourse, number of sexual partners in last three months and number of sexual partners in the lifetime. The Cramer's V analysis and significance levels for the three variables are shown in Table 37.

Table 37

Cramer's V and Significance for Age at First-time Sex, Number of Partners in Last 3 Months, and Number of Partners in Lifetime

Variable	Cramer's V	Approx. Significance
Age at First-time Sex	.3803	.00002***
Number of Partners in last Three Months	.2266	.0522
Number of Partners in the Life-time	.3115	.0052**

p = .0 *p = .001

As shown in Table 37, age at first-time sexual intercourse had the strongest ($r = .3803$) and the most significant relationship with age ($p = .00002$). It was followed by number of partners in the lifetime (Cramer's $V = .3115$, $p = .0053$) and number of partners in the last three months ($r = .2266$, $p \leq .0522$). The three variables displayed a weak relationship with age but do account for 29.3% of the variance. The analysis of the three variables will be discussed in more detail to show the significance of age and these

risk behaviors. Figure 2 depicts the relationship of age with age at first-time sexual intercourse.

Figure 2

Age with Age at First Sexual Intercourse

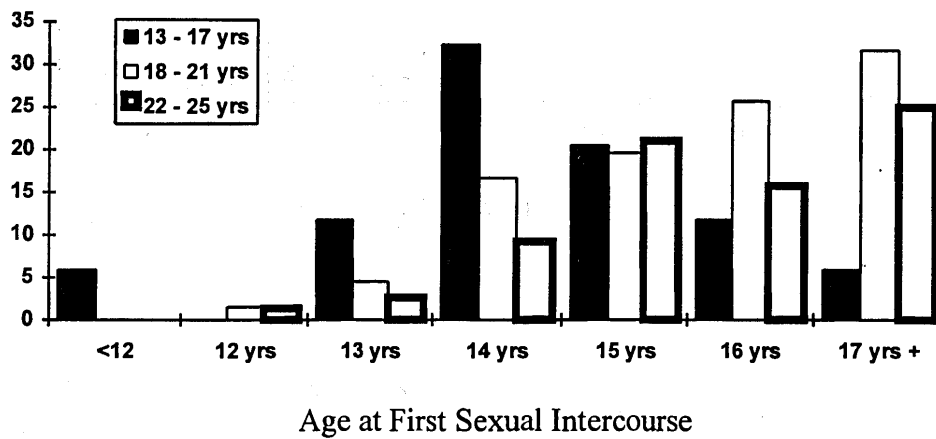


Figure 2 shows that younger girls are having sexual intercourse at an earlier age. The participants were asked "How old were you when you had sexual intercourse for the first time?" The 13 - 17 year old group is the smallest in total number, but they had the highest percentage of participants having their first-time sexual experience by age fourteen (56%), followed by the 18 - 21 year old group (22.7%) and then the 22 - 25 year old group (13.1%). Another 20% of each group had their first sexual intercourse experience at age 15. The relationship of age with age at first-time sex was weak (Cramer's $V = .3803$) but highly significant ($p = .00002$).

Figure 3

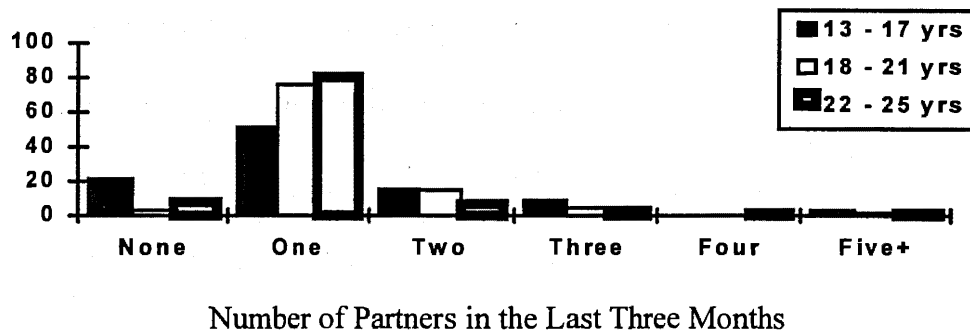
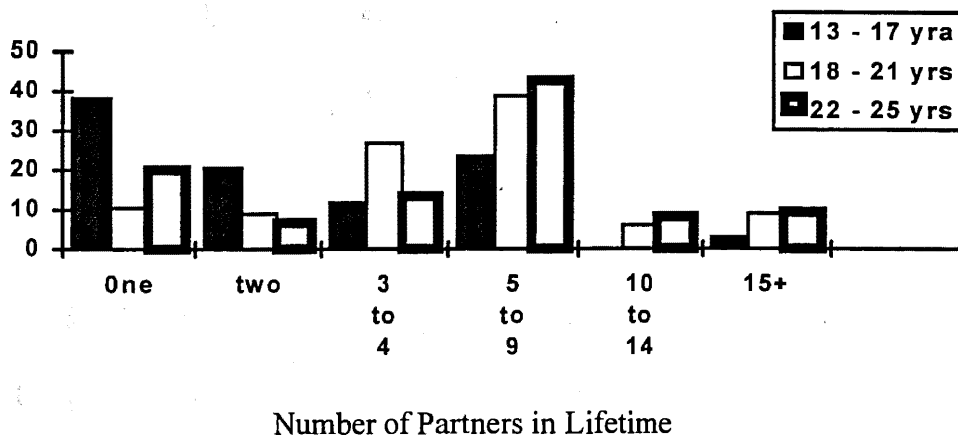
Age with Number of Partners in the Last Three Months

Figure 4

Age with Number of Partners in the Lifetime

Figures 3 and 4 display the relationship of age with number of partners in the last three months and number of partners in the lifetime. Information about the number of partners the participants had sexual intercourse with in the last three months and in their

lifetime was obtained by straightforward questions, "How many partners have you had sexual intercourse with in the last three months?" and "How many partners have you had sexual intercourse with in your lifetime?" Approximately three-fourths of the participants (73.4%) reported they had only one partner during the last three months, another 8.5% reported not having a sexual partner during that same time frame. Half (51.5%) of the younger group (13 to 17 years) reported having only one partner in the last three months, while three fourths of the 18 to 21 year old group (76%) and the 22 to 25 year old group reported the same.

The percentages were greatly reduced when the number of lifetime partners were analyzed (shown in Table 35). Only 10.4% of the 18 to 21 year old group and 20% of the 22 to 25 year old group claimed to have only one lifetime sexual partner. Of particular interest is that thirty-eight percent of the 13 to 17 year old group was in a monogamous relationship during the last three months, however the number of lifetime partners increases with age. Twenty-six percent of the 13 to 17 year old group reported having more than five partners in their lifetime, while twice as many participants 18 to 21 years of age (53.8%) and 22 to 25 years of age (59%) gave the same report. Twenty percent of the 176 participants had 15 or more lifetime partners. Of the younger teenagers, 2.9% had 15 or more partners, and 9% of each of the other two groups had a similar amount.

From the findings of this study, a profile of a young woman at risk of HIV was developed. She is a young, single woman, with lower self-esteem and some feelings of depression. She had her first sexual encounter at 15 years of age and has been in and out

of serial monogamous relationships. She is taking oral contraceptives to prevent pregnancy and uses a condom occasionally. She often has sex while under the influence of alcohol, and this is when she has sex with men she does not know well and with men she knows are having sex with other partners. She has knowledge about HIV but has never known anyone who has been diagnosed with HIV or AIDS. She feels she has a moderate risk of acquiring HIV because she has had from five to nine lifetime partners and this concern has stimulated her to be tested for HIV. The description may mirror that of other young women in our society and they are all at high risk of acquiring HIV.

Summary

The data analysis of the research produced interesting results. Examination of the frequency distributions revealed six risk behaviors, three contraceptive choices, and one STD for analysis. Reliability analysis of the instruments confirmed alphas of .8468 for the RSE and .9048 for the CES-D, and revealed a lower alpha of .6285 for the AKA.

Hypotheses were tested through Pearson's product moment correlation; crosstabulation correlation, chi-square, and Cramer's V analysis; and Logistics Regression. Hypotheses one, two and three were partially supported, and hypotheses four and five were not supported. Additional findings were reported and a profile of the young woman at risk of HIV was developed.

CHAPTER FIVE

SUMMARY OF THE STUDY

The problem under study involved the relationships among AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, contraceptive choice, and risk behaviors, and proposed that these variables are predictive of condom use. The purpose of the study was to investigate a model of condom use among young women, and to examine the contraceptive choices and risk behaviors in this population. Five hypotheses were proposed and were analyzed by Pearson's product moment correlation, crosstabulation tables and chi square analysis, and logistics regression analysis. The first hypothesis predicted a relationship between AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, risk behaviors, contraceptive choice, and condom use and was partially supported. The second hypothesis stated that age, educational level, ethnicity, socioeconomic level, contraceptive choice, and risk behaviors differ in women who report condom use and those who do not. This hypothesis was partially supported. The third hypothesis predicted that AIDS-related knowledge, AIDS vulnerability, self-esteem depressive symptoms, risk behaviors, contraceptive choice, condom use and STDs differ in women who are married and those who are single. The third hypothesis was partially supported. The fourth hypothesis stated that AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive

symptoms, risk behaviors, contraceptive choice, demographic data, and marital status are predictors of condom use. The fourth hypothesis was not supported. The fifth hypothesis, proposing that there is a negative relationship between self-reported condom use and STDs, was not supported. This chapter summarizes and discusses the findings of the study. Conclusions, implications, and recommendations for future studies are presented.

Summary of Findings

A predictive correlational design was used to study the relationships among demographic variables, self-esteem, depressive symptoms, AIDS-related knowledge, AIDS vulnerability, risk behaviors, contraceptive choice, sexually transmitted diseases, and condom use among sexually active young women. The conceptual framework of the study was based on the physical characteristics of adolescent development that make adolescent girls and young women more at risk for acquiring STDs and HIV. The risks for these subjects are identified by self-esteem, depressive symptoms, risk behaviors, contraceptive use, AIDS-related knowledge, AIDS vulnerability and condom use. The Rosenberg Self-Esteem Scale (1965), the Center for Epidemiologic Studies - Depression Scale (Radloff, 1977), the AIDS-Related Knowledge and Attitudes Scale (Nyamathi et al., 1993), and the General Information Questionnaire (Kashka et al., 1991) was used for data collection.

One-hundred-seventy-eight young women participated in the study and the data were collected one day each week over a four month-period. Approximately two thirds

of the participants who were asked to participate in the study did so after being individually informed, both verbally and in writing, of the purpose and the voluntary confidential nature of the study. The main reason given for not participating in the study was lack of time due to class or work schedules. Nineteen questionnaires were withdrawn from the study and destroyed due to lack of completion or absence of parental permission.

The participants were young women who were utilizing services of a family planning or STD clinic or rural hospital maternity unit. The typical participant was a single, Caucasian female, 20.5 years of age, with a high school diploma. She was presently in school and described herself as an above average student. She was employed and earned \$15-20,000 a year.

The data from the questionnaires were coded, entered into a data set, and statistically analyzed using SPSS computer programs for frequencies, correlations, crosstabulations, and logistic regression. Reliability analysis yielded alpha correlations coefficients of .9048 for the Center for Epidemiologic Studies - Depression Scale (CES-D), .8468 for the Rosenberg Self-Esteem Scale (RSE), and .6285 for the AIDS-Related Knowledge and Attitudes Scale (AKA).

Hypothesis one was partially supported, as was hypothesis two. The third hypothesis was supported and the fourth and fifth hypotheses were not supported.

Discussion of the Findings

The findings are discussed relative to each of the five hypotheses. Additional findings are also reported and discussed, and a profile of the young woman at risk of HIV was developed.

Research Hypothesis One

Hypothesis one predicted a relationship between AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, risk behaviors, contraceptive choice and condom use. Two of the variables were negatively related to condom use; therefore this hypothesis was partially supported. The data revealed significant negative correlations (at the .05 level of significance) between oral contraceptives (Cramer's $V = -.1747$) and condom use, and between number of life-time partners (Cramer's $V = -.1724$) and condom use. The remaining nine of the variables that did not yield significant relationships with condom use are AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, and five of the risk behaviors.

The nonsignificant findings do, however, lend support for studies by Koniak-Griffin & Brecht (1995), Langer et al. (1994), Walker (1992), DiClemente (1991), Holtzman (1991) who suggested that AIDS-related knowledge had no significant relationship with condom use among adolescents.

These significant findings lend partial support to past research which examined condom use for disease prevention among adolescents who were users of oral contraceptives. Plichta et al. (1992), Orr et al., (1992) and Weisman et al. (1991) found

that, among unmarried adolescents, those who were consistent oral contraceptive users were less likely to be consistent condom users.

The findings of this study also lend partial support for Peterson, Catania, Dolcini, Faigles (1993) and Catania et al., (1992) who reported that as number of partners increased there was a significant decline in condom use. Both of these studies were conducted with adult participants. However, Richert, Valois, McKeown, and Vincent (1993) also found a pattern, among adolescents, of declining condom use with increasing number of partners.

The low condom use reported in the study and the nonsignificant relationships between condom use (never, occasionally, & always) and nine of the eleven variables give rise to specific questions about the assessment of condom use. First, was the question about condom use asked in a way that would elicit accurate and truthful information? Second, would condom use at last sexual encounter exhibit a significant relationships with the variables? Third, would more accurate and useful data be obtained if the participants were asked about the number of times a condom had been used with sexual intercourse in the last three months or six months? While the limitations of the study addressed the possibility that the sensitive nature of the questions may not draw accurate and truthful information, the opposite may be true. A crosstabulation and Cramer's V analysis of the two condom use variables, frequency of condom use and condom use with last sex showed they were independent variables with a strong positive relationship (Cramer's $V = .72788$, $p = 00000$).

The study did have some limitations, in particular, the low number of minorities represented. It may be that since the majority of the participants in this study were Caucasian they felt less at risk for HIV; and therefore less of a need for condom use. Another possibility may be that since a large number of the participants were in school, they may hold stronger beliefs regarding the importance of pregnancy prevention. The question on condom use frequency (never, occasionally, & always) was selected to elicit information from the participants, rather than condom use with last sex, for two reasons. First, condom use with last sex is basing the participants behavior only on one act. Second, frequency of condom use (never, occasionally, & always) provides the participant to give an estimated report of their general condom use behavior.

Research Hypothesis Two

The second hypothesis predicted that age, educational level, ethnicity, socioeconomic level, contraceptive choice, and risk behaviors would differ in women who report condom use and those who do not. Significant findings for only three variables resulted in a difference with condom use. The data revealed a significant positive relationship (at the .00001 level of significance) between condom use and socioeconomic level. The remaining two significant positive relationships (at the .05 level) were those between condom use and oral contraceptives, and between condom use and number of lifetime partners. Nonsignificant relationships resulted between condom use and age, educational level, ethnicity, number of partners in the last three months, sex

under the influence of alcohol, sex with strangers, sex with partner who has sex with other partners, and anal sex. The nonsignificance indicates no difference in condom use.

These findings partially support Mosher & Pratt's (1993) report that women whose income was below the poverty level were more likely to be consistent condom users. Another more recent study was in contrast. Anderson, Brackbill, & Mosher (1996) found in a national survey that condom use was more common in unmarried women with highest incomes. Both of these studies utilized an adult population. It may be that women with extreme incomes, very low or the highest, are more willing to report condom use.

As discussed in hypothesis one, these findings partially support the previous research by Anderson et al. (1996), Plichta (1992), Orr (1991), and Weisman (1991) suggesting a significant negative relationship between oral contraceptives and condom use. Women who were oral contraceptive users were less likely to use condoms; they feel comfortable knowing they are protected from pregnancy. However, Anderson et al. (1996) found that condom use was more common in unmarried women who were not using oral contraceptives and who had intercourse infrequently.

The findings of this study partially support previous research findings which suggest that condom use is low in participants with multiple partners (Dolcini et al., 1993; Peterson et al., 1993; Richert et al., 1993; and Catania et al., 1992). The study by Dolcini included participants from 12 to 44 years; however, Peterson, Richert and Catania utilized adolescent populations.

One of the assumptions of the study was that women wanted to protect themselves from pregnancy and disease. It may be possible that because the majority of participants (73%) reported being in a monogamous relationship during the last three months, use of a condom is viewed as unnecessary. They do not consider themselves to be at risk for HIV; therefore they may not view their behavior as risky. The results of this study point to areas in which the adolescent and young adult female population are at risk and may call for intervention strategies that differ in emphasis.

A limitation could have been that condom use is self-reported and under- and over-reporting may have occurred, despite assurance of confidentiality and anonymity of participants. However, with respect to the validity nature of the data, the prevalence rates of behavior are not unlike those reported in other studies (Catania, 1992; Hingson et al., 1992; Dolcini et al., 1993; Richert et al., 1993).

Research Hypothesis Three

Hypothesis three predicted that AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, risk behaviors, contraceptive choice, condom use and STDs would differ in women who are married and those who are not. Several relationships were significant and all were positive; therefore this hypothesis was supported. The data revealed significant positive relationships (at the .001 level of significance) between marital status and sex under the influence of alcohol, condom use, and condom use as a contraceptive choice. The remaining seven significant positive relationships (at the .01 level) were those between marital status and AIDS-related

knowledge, AIDS vulnerability, depressive symptoms, oral contraceptives, number of partners in the last three months, number of partners in the lifetime and condom use with last sexual intercourse.

These findings lend partial support to past research which found significant relationships between marital status and multiple partners (Binson, 1993; Dolcini, 1993; Nyamathi et al., 1993; Peterson et al., 1993; and Sabogal, Faigeles and Catania, 1993). Nyamathi et al. (1993) found a significant relationship (at the .001 level) between marital status (being widowed, divorced, unmarried) and multiple partners and drug use. Dolcini, Nyamathi and Sabogal all utilized adult participants.

Previous studies have shown evidence that the pattern of multiple sexual partners tend to continue through adulthood, and yet few studies have examined marital status in relation to risk behaviors in adolescents. This study lends partial support to previous studies; however, it is important to recognize that the data of this study is not representative of the general population and cannot be generalized, even in the same age ranges, because of the convenience sampling. Furthermore, differences may occur, not only as a result of marital status, but also as a result of the characteristics measured being different for the in-school and out-of-school populations.

Research Hypothesis Four

AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, risk behaviors, contraceptive choice, age, educational level, ethnicity, socioeconomic status and marital status are predictors of condom use. Sixteen variables were considered

as possible predictors of condom use, and fourteen variables exhibited nonsignificant findings. These variables were AIDS-related knowledge, AIDS vulnerability, self-esteem, depressive symptoms, age, educational level, ethnicity, marital status, and the five risk behaviors (sex while under the influence of alcohol, sex with stranger, sex with men who had other partners, number of partners in the last three months and number of partners in lifetime). The only two that emerged as significant predictors of condom use were income (.1779) and oral contraceptives (-.1480). Although relationships of most of the variables were nonsignificant, the relationships produced very interesting outcomes as patterns of low condom use behaviors emerged to form a profile of the participant who is at high risk for STDs and especially for HIV.

These nonsignificant findings partially support previous research. Catania et al. (1992) also reported nonsignificant predictors of condom use and susceptibility and AIDS-anxiety. Nyamathi et al. (1993) indicated that greater AIDS knowledge was not related to safer behavior (such as using condoms and needle-cleaning strategies).

A number of studies have attempted to find variables that would predict condom use. Some of the possible predictors that were identified were a correlation between condom use and current pregnancy (Koniak-Griffin and Brecht., 1996), condom use with gender, ethnicity and condom use attitudes (Campbell et al., 1992), condom use with age and race (Hingson et al., 1990), condom use with greater enjoyment of condoms and greater willingness to request partners use (Catania et al., 1992). The findings of the

current study did not support significant findings of these previous studies; however, this study may give support for re-examining risk behaviors as predictors of condom use.

An unacknowledged assumption was that condom use could be predicted. The assumption that condom use could be predicted gave rise to the development of a model to link relationships between predictive variables and condom use and STDs. Further examination of the three condom use variables is needed to determine if one response item is more representative of the condom use behavior of the participants and then further investigation to determine if the remaining variables have enough influence to predict condom use. Respecification of the model should continue.

Research Hypothesis Five

Hypothesis five predicted a negative relationship between self-reported condom use and STDs. A weak negative correlation was exhibited, but it was not significant. The relationship between condom use and STDs was disappointing, as a strong significant negative relationship was expected. Condom use has been accepted by the general public as protection against STDs for quite some time. The results of this study did show that participants who were less likely to use condoms were more likely to have Chlamydial infections. Both condom use and STD incidence were low in this study and that may have been the reason for the weak insignificant relationship. In addition, the low representation of minorities may have contributed to a lower incidence of condom use and STDs. Thirty four percent of the of the single/divorced participants used a condom at last sexual intercourse. This is almost half the proportion that the 2000 health

risk reduction objectives would like to have by the year 2000. The 2000 health objective is for 60% of the sexually active unmarried people to use a condom at last sexual intercourse (USDHHS, 1991).

Additional Findings

Exploration of the data revealed interesting outcomes related to general condom use, AIDS vulnerability, and age. Self-reported condom use was more consistent than exhibited earlier in the study. Condom use at last sexual intercourse validated condom use by showing that 96.4% of those who "never" use a condom did not use a condom at last sexual encounter, and 91.3% of those who "always" use condoms did actually use a condom at last sexual encounter. The validation of condoms as a contraceptive choice by condom use was not as strong; however 91.2% of those who "never" use condoms did not select condoms as a contraceptive choice. This indicates that those who do not use condoms are very consistent in self-reporting. Only 66.7% of those who always use condoms selected condoms as a contraceptive choice; the implication is that these women probably selected either oral contraceptives or Depo-Provera as their present method of contraception.

The relationship among the three condom use variables and marital status was also explored. Significant relationships emerged between all three condom use variables and marital status. Condom use reports were higher among the single participants. These results support previous research between condom use and marital status (Anderson et al., 1996). However, 67% of the single participants in this study did not use a condom at last

sexual encounter. Serial monogamy may play a role in subject's condom use behavior, and yet the risk of STDs and HIV acquisition remains high.

The findings of this study partially support the study by CDC (1991) in which they found that because of the increasing sexual activity among adolescents, STDs were increasing and 25% of the female Chlamydial and Gonorrheal infections were found to occur in women younger than 20 years of age. This study found 20% of the participants who reported having Chlamydia were under 17 years of age and that twice as many single/divorced women reported having STDs as women who were married/living with a partner.

Currently, there is a gap between the behavior of adolescents and the year 2000 national health objectives for adolescent sexual behavior (USDHHS, 1991). The national health objective was to increase condom use at last sexual intercourse to 50% in the unmarried, sexually active people. Thirty three percent of the single/divorced participants in this study used a condom with last sex. Efforts to reduce risk behaviors, by improving the effectiveness of HIV education and promoting abstinence programs, should continue.

Although adolescents demonstrate an awareness of STD and HIV risk, their behavior with regards to condom use remains unchanged. They have a false sense of security, a sense that bad things, like STDs and HIV, only happen to others. While 17% of the participants in this study had some worry of acquiring HIV, only 9% worried a lot.

Though several studies have reported adolescents' perceived vulnerability, worry or risk of acquiring the HIV infection (Nyamathi et al., 1993; Campbell et al., 1992; DuRant et al., 1992; Vicenzi and Thiel, 1992; and Rickert, 1989), little information is available about their beliefs concerning their current potential for HIV infection. Campbell did find gender related to vulnerability - women worry about acquiring HIV more than men.

In this study significant positive relationships emerged between AIDS vulnerability and five of the variables: depressive symptoms, sex with strangers and number of lifetime partners (at the .001 level of significance); sex while under the influence of alcohol (at the .05 level) and sex with a man who has sex with other partners (at the .01 level). A significant negative relationship emerged between AIDS vulnerability and self-esteem.

The significant findings of this study partially support Nyamathi et al. (1993) who examined risky behaviors and selected demographic characteristics. The results showed significant relationships ($p < .005$) between Latina women, who were older, unemployed, more likely to be widowed, divorce or unmarried, IV drug users, with multiple partners and perceived themselves to have a high chance of being infected with HIV. Perceiving oneself to be high risk for HIV, being African American, being under 35 years of age, and being unemployed were associated (at the .01 level) with having more than one partner.

Although Barone et al. (1996) did not test for AIDS vulnerability, the findings of this study partially support Barone's reports of adolescent risk behaviors such as early

initiation of sexual intercourse, multiple partners, the steady increase of partners over time, and reports of low condom use.

Conclusions

Based on the results of the study, the following conclusions were developed.

First, there was a high relationship between sexual activity, alcohol use, multiple partners and low condom use at last sexual encounter. The low rates of condom use among unmarried sexually active young women indicate that not enough has been done to promote condom use. A combination of interventions and prevention is needed to provide anticipatory guidance regarding alcohol use and sexual behavior to all ages of adolescents. Recent studies (Koniak-Griffin and Brecht, 1996; DiClemente, 1991; Walker, 1991) suggest that intervention programs addressing peer pressure, hedonistic concerns about condom use, negotiating skills, and methods of condom use application can positively effect adolescents' intentions to use condoms and increase their confidence (and self-esteem).

Second, the relationship between depressive symptoms, lower self-esteem, sex with strangers, sex with men known to have other partners and multiple partners may be predictors of condom use. This study gives additional support to the idea that self-esteem may be an important contributor to communication with partners about past sexual activity, STD history, and requests for them to use condoms. The study also supports the idea that depressive symptoms may be responsible for lack of condom use, for alcohol use and increased sexual risk behaviors. Interventions directed to increasing

male support, or a combined support from the partner for condom use, may have a more powerful impact on condom use than just focusing on women alone. The study results suggest that interventions to increase women's self-esteem and decrease depressive symptoms could increase their efforts to use condoms or to refuse unwanted sexual encounters.

Fourth, the relationship between use of oral contraceptives (and Depo-Provera) and low condom use suggests that women are more concerned with preventing pregnancy rather than protecting themselves from STDs and HIV. AIDS risk reduction interventions are generally focused on increasing knowledge about HIV/AIDS while stressing the importance of prevention through condom use. The findings of this study suggest that perhaps HIV/AIDS risk-reduction interventions should be incorporated with family planning or pregnancy prevention education to bridge the gap between the importance of preventing pregnancy and the importance of preventing HIV/AIDS.

Fifth, the initiation of sexual activity is occurring at earlier ages. Engaging in one risk behavior significantly increases the risk of engaging in other risk behaviors. Each of the risk behaviors carries with it additional physiological and psychosocial risks. Twenty-five percent of the participants in the present study were sexually active by age 14, and by age 16, sixty-eight percent were participating in sexual intercourse. The findings of this study emphasize the importance of educating youth about AIDS, abstinence, and safer sexual practices at an early age, before they become sexually active. Sex education programs should be provided for parents, in addition to youth, so they will

know what their children are being taught and can support and reinforce the information. Simultaneous but separate education of both parents and children may increase their ability to communicate with each other about sexual issues.

Sixth, multiple partners during lifetime, sex while under the influence of alcohol, sex with strangers and sex with man who has other partners are all prevalent among young women. The findings of this study point to the importance of further scrutiny of the role of alcohol in particular in potentiating the occurrence of failure to use condoms and having sex with multiple and risky partners.

Implications for Nursing

In this study, there was a relationship between years of education and AIDS-related knowledge. Participants with more years of education had higher AIDS-related knowledge scores. Schools have a major responsibility in providing AIDS education programs. However, knowledge alone is not enough to change behavior. School nurses, Family Nurse Practitioners, pediatric nurses, and family planning nurses can play an important role in these programs by helping to develop condom use negotiation role playing, condom application practice sessions and general discussions on condom use, monogamy and abstinence. At the same time, reinforcing that prevention of pregnancy, STDs, and HIV/AIDS is the responsibility of both males and females.

Both high schools and colleges could develop support group models (Butler, 1994) to allow peer and professional counseling for students struggling with decisions about behavior. Focus should be on developing communication skills first, to delay

initiation of sexual activity until bodies become mature and defense mechanisms are developed; second, to determine previous sexual activity and STD history of a partner, third; to negotiate condom use, and fourth; to discuss long term consequences of risk behaviors.

Recommendations for Future Research

The following recommendations for further research were identified:

1. Because of the homogeneity of the sample, this study needs to be replicated with a larger, more diverse sample to include a broader representation of ethnic groups, adolescents, and educational levels. This study could be replicated with college and high school students to determine differences between males and females, between sexually active and nonsexually active adolescents and young college students, and between populations with high risk behavior and low risk behavior
2. Because of the strong relationships between alcohol use, low condom use, and sexual risk behaviors, additional studies are essential to compare the existing HIV education and sexual abstinence programs and to examine their effectiveness in changing behavior. Furthermore, developing hypotheses which identify specific risk behaviors would facilitate the data analysis and interpretation of the results.
3. The need to develop and deploy effective programs to prevent HIV and other STDs is becoming widely recognized. Due to the increasing number of adolescents, the increase in sexual activity, and the increase in STDs and HIV, there is an urgent need, to not only examine the present programs, but to develop intervention programs addressing

peer pressure, hedonistic concerns about condom use, negotiating skills, and methods of condom application. Furthermore, evaluation of adolescents intentions to use condoms and self-esteem levels pre- and post-program may give direction about the needs of the adolescents.

4. The need to promote and deploy effective sex education programs for fourth- and fifth-grade levels (before girls become sexually active) to emphasize the importance of abstinence and the development of self-esteem is critical. Incorporated into this program could be communication and negotiation skills. Longitudinal follow-up of these girls would indicated the program's ultimate success or failure.

5. Because condom use could not be predicted in this study, several questions need to be answered. First, is it possible to predict condom use? Second, is self-reported condom use assessed better by asking about condom use at last sexual experience, or by asking about frequency of condom use in the last 6 month, or by asking about frequency of condom use in general (always, occasionally, never)? Third, is there a better way to examine condom use? These may be addressed by further examination.

6. There is an urgency to examine the meaning of health for adolescents (Butler, 1994). The availability family planning and STD services and health care facilities for adolescents is essential. Given that the number of adolescents is increasing, that initiation of sexually activity is occurring at younger ages, that STDs can often be asymptomatic and go untreated for long periods of time, and adolescent pregnancies are only stabilizing, there is an urgent need to redefine adolescent health care.

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APPENDIX A

[REDACTED]

TEXAS WOMAN'S
UNIVERSITY
DENTON DALLAS HOUSTON

HUMAN SUBJECTS
REVIEW COMMITTEE
P.O. BOX 22939
Denton, TX 76204-0939
Phone: 817/898-3377

May 5, 1996

LaJuana Reichmann
1421 Pine Avenue
Weatherford, OK 73096

Dear LaJuana Reichmann: [REDACTED]

Your study entitled "Predictors of Condom Use among Young Women: Self-Esteem, Depression, AIDS Related Knowledge, AIDS Vulnerability, Contraceptive Choice, and Risk Behaviors" has been reviewed by a committee of the Human Subjects Review Committee and appears to meet our requirements in regard to protection of individuals' rights.

Be reminded that both the University and the Department of Health and Human Services (HHS) regulations typically require that agency approval letters and signatures indicating informed consent be obtained from all human subjects in your study. These are to be filed with the Human Subjects Review Committee. Any exception to this requirement is noted below. This approval is valid one year from the date of this letter. Furthermore, according to HHS regulations, another review by the Committee is required if your project changes.

Special provisions pertaining to your study are noted below:

- ☐ The filing of signatures of subjects with the Human Subjects Review Committee is not required.
- ☐ Other:
- ☒ No special provisions apply.

Sincerely,

John Engelbrecht

Chair
Human Subjects Review Committee - Denton

cc: Graduate School
Dr. Maisie Kashka, Nursing
Dr. Carolyn Gunning, Nursing

TEXAS WOMAN'S
UNIVERSITY

DENTON, TEXAS 76204

REVISED COPY

May 5, 1995

HUMAN SUBJECTS
REVIEW COMMITTEE
P.O. BOX 22939
Denton, TX 76204-0939
Phone: 817.898-3377

LaJuana Reichmann
1421 Pine Avenue
Weatherford, OK 73096

Dear LaJuana Reichmann:

Your study entitled "Predictors of Condom Use among Young Women: Self-Esteem, Depression, AIDS Related Knowledge, AIDS Vulnerability, Contraceptive Choice, and Risk Behaviors" has been reviewed by a committee of the Human Subjects Review Committee and appears to meet our requirements in regard to protection of individuals' rights.

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Special provisions pertaining to your study are noted below:

- ☐ The filing of signatures of subjects with the Human Subjects Review Committee is not required.
- ☐ Other:
- ☒ No special provisions apply.

Sincerely,



Chair
Human Subjects Review Committee - Denton

cc: Graduate School
Dr. Maisie Kashka, Nursing
Dr. Carolyn Gunning, Nursing

Patti Hamilton, RN, PhD.
Human Subjects Review Committee
Texas Woman's University
Denton, Texas 76204-0939

Dear Dr. Hamilton,

In Dec. 1994, I received approval from the TWU Human Subjects Review Committee to complete the pilot study on PREDICTORS OF RISK BEHAVIORS IN YOUNG WOMEN: Social Resources, Psychological Resources and Risk Perception. After completion of the pilot study I changed the name of the study and deleted some of the items on the General Information Questionnaire (GIQ) that were not significant to the study. This reduced the number of items on the GIQ from 51 to 40. Also some of the items have been restated for better clarity. The revision will be easier for the participant to read and will take less time for completion.

I have enclosed a copy of the original HSRC application packet and a new revised request. The areas of change have been high-lighted on the original forms.

I submitted Agency Permission for Conducting the Study in February to use four Family Planning Clinics at the Oklahoma State Health Department and one at the Mary Mahoney Memorial Health Center. I talked with Dr. Donna Thomas at the Mary Mahoney Memorial Health Center about the status of my request and was told that it had been accepted by the administration at the clinic but still needed to go to their Board of Directors in their April meeting. Due to the bomb explosion in Oklahoma City the meeting was cancelled. The same situation existed with the State Health Department. I decided to go ahead and submit the request to you at this time, but I will not proceed without permission from the HSRC of each agency.

If you have any questions I can be reached at (405) 774-3262 during the day or (405) 772-7345 in the evening. Thank you for all your support.

Sincerely,



Lu Reichmann
Doctoral Candidate
College of Nursing

May 5, 1995

LaJuana Reichmann
1421 Pine Avenue
Weatherford, OK 73096

Dear LaJuana Reichmann:

Your study entitled "Development of Attitudinal Scale to Measure Perspective Transformation in Pregnant Adolescents" has been reviewed by a committee of the Human Subjects Review Committee and appears to meet our requirements in regard to protection of individuals' rights.

Be reminded that both the University and the Department of Health and Human Services (HHS) regulations typically require that agency approval letters and signatures indicating informed consent be obtained from all human subjects in your study. These are to be filed with the Human Subjects Review Committee. Any exception to this requirement is noted below. This approval is valid one year from the date of this letter. Furthermore, according to HHS regulations, another review by the Committee is required if your project changes.

Special provisions pertaining to your study are noted below:

- ☐ The filing of signatures of subjects with the Human Subjects Review Committee is not required.
- ☐ Other:
- ☒ No special provisions apply.

Sincerely,

John Hammond

Chair
Human Subjects Review Committee - Denton

cc: Graduate School
Dr. Maisie Kashka, Nursing
Dr. Carolyn Gunning, Nursing

APPENDIX B

PREDICTORS OF CONDOM USE IN YOUNG WOMEN

Dear Participant,

As a doctoral student at Texas Woman's University and a professional nurse I am concerned with increasing the understanding we have of young women and their beliefs and values about sexuality and preventing pregnancy and infections. In order to increase this understanding, I am asking you to participate in a study.

You will be asked to complete a questionnaire which will take about 45 minutes of your time. The questions will ask about your feelings about yourself, about your sexual behavior and about the method of contraception you are using. If you have any questions or concerns about the questions you are being asked, I will be glad to answer them.

Participation in the study is voluntary and all personal information will be kept confidential. Only you and the nurse-researcher will know about your responses. After you complete the questionnaire, the information you gave will become a part of a large amount of information from other young women who participate in the study. No one will be able to identify your own personal responses and there are no right or wrong answers. You have a choice to answer or not answer any of the questions if you find them difficult or uncomfortable. You also have the right to stop at any time or to complete as many or as few of the questions as you wish. If you refuse to participate there is no penalty or loss of benefits to which you are entitled.

This research is being done as part of a doctoral dissertation at Texas Woman's University. Efforts will be made to prevent any complication that could result from this research. Medical services and compensation for injuries incurred as result of your participation in the research are not available. The investigators is prepared to advise you in case of adverse effects, which you should report to them promptly. Phone numbers where the investigator may be reached are listed at the bottom of this form.

If you have any questions about the research or about your rights as a subject, we want you to ask us. If you have questions later, or if you wish to report a research-related complication (in addition to notifying the investigator), you may call the Office of Research & Grants Administration during office hours at (817) 898-3375.

You will receive a copy of the dated and signed consent form to keep. Thank you for helping with the study.

Lu Reichmann, RN.

My phone number is (405) 774-3262. Please call if you have any questions or concerns.

**Texas Woman's University
Human Subjects Review Committee***

Consent to Act as a Subject for Research and Investigation:

The following information is to be read to or read by the participant.

1. I hereby authorize _____ to perform the following investigation:

The questionnaire will ask for information about my health, education, personal and family background. I will also be asked questions about my attitudes, beliefs and behaviors about myself and my life. In addition I will be asked questions about my contraceptive and safe sex practices. This information will be added to information gathered from other young women.

2. (a) I understand the investigation described above involves the following risks or discomforts:

I may feel uncomfortable because the nurse researcher will know about the personal and sensitive information gathered on the questionnaire. This may cause me to feel sad, angry, or anxious. I understand that I may talk with a person who could help me with these feelings, if I find this necessary.

- (b) I understand that the study described in paragraph 1 has the following benefits to myself and/or others:

As a result of the information gathered from this study, I will have the opportunity to discuss my questions with the nurse-researcher. If there are possible health problems that have not come up before in my care at the clinic, I can be referred to counseling services for help.

3. As a result of the information gathered from this study, other young women considering what kind of birth control to use may have more information than was known when I made my decision. Also, nurses and other health care workers will gain understanding of things that influence the kind of birth control young women choose.
4. An offer to answer all my questions regarding the study has been made. A description of the possible discomforts and risks that are reasonable to expect have been discussed with me. I understand that I do not have to answer any questions that cause me to feel uncomfortable and I may terminate my participation in the study at any time.
5. I understand that no medical service or financial compensation is provided to the subjects by the Texas Woman's University as a result of injury from participation in the study.

Signature of participant

Date _____

If the participant is a minor, or otherwise unable to sign, complete the following:

PREDICTORS OF CONDOM USE IN YOUNG WOMEN
CONSENT FORM

I, _____, certify that the category check below accurately describes me:

- ☐ I am 18 years old or older.
☐ I am under 18 years old and am now, or have been, married.
☐ I am under 18 years of age and have never been married.

☐ I live with my parent(s).
☐ I do not live with my parent(s).
☐ I live with my husband.
☐ I live with my boyfriend.
☐ I live with a girl friend.
☐ I live with a relative.
☐ I live by myself.

Signature of Participant

Date

Name of Participant: _____

Participant is a minor: (age) _____, and must have parent/guardian consent because:

Signature (one required):

Father/Mother/Guardian

Date

*Adapted from permission form developed by M. Kashka (TWU).

APPENDIX C

18. If you have had a vaginal infection or STD, which of the following have you had?
- | | |
|--|--|
| <input type="checkbox"/> yeast | <input type="checkbox"/> candida |
| <input type="checkbox"/> herpes | <input type="checkbox"/> (HPV) H. papillomavirus |
| <input type="checkbox"/> chlamydia trichomonas | <input type="checkbox"/> lice (pediculosis) |
| <input type="checkbox"/> gonorrhea | <input type="checkbox"/> (CMV) cytomegalovirus |
| <input type="checkbox"/> syphilis | <input type="checkbox"/> other (specify) _____ |
| <input type="checkbox"/> HIV | <input type="checkbox"/> I don't know |
| <input type="checkbox"/> (PID) pelvic inflammatory disease | |
19. What age was your mother when her first child was born? _____
20. How many times have you been pregnant?
- | | | |
|-------------------------------|--------------------------------------|---|
| <input type="checkbox"/> none | <input type="checkbox"/> two times | <input type="checkbox"/> four times |
| <input type="checkbox"/> once | <input type="checkbox"/> three times | <input type="checkbox"/> five or more times |
21. How old were you when you first became pregnant? _____
22. How many children do you have?
- | | | |
|-------------------------------|--------------------------------|---------------------------------------|
| <input type="checkbox"/> none | <input type="checkbox"/> two | <input type="checkbox"/> four |
| <input type="checkbox"/> one | <input type="checkbox"/> three | <input type="checkbox"/> five or more |
23. How many partners have you had sexual intercourse with in the last three months?
- | | |
|---|--|
| <input type="checkbox"/> none | <input type="checkbox"/> four partners |
| <input type="checkbox"/> one partner | <input type="checkbox"/> five partners |
| <input type="checkbox"/> two partners | <input type="checkbox"/> more than five partners |
| <input type="checkbox"/> three partners | |
24. How many partners have you had sexual intercourse with during your life time?
- | | |
|---|---|
| <input type="checkbox"/> one partner | <input type="checkbox"/> five partners |
| <input type="checkbox"/> two partners | <input type="checkbox"/> five to nine partners |
| <input type="checkbox"/> three partners | <input type="checkbox"/> ten to fifteen partners |
| <input type="checkbox"/> four partners | <input type="checkbox"/> more than fifteen partners |
- Since becoming sexually active, have you (check all that apply):
25. Had sex with males..... ☐ Yes ☐ No
26. Used injected drugs ☐ Yes ☐ No
27. Had sex while using injected drugs ☐ Yes ☐ No
28. Had sex while under the influence of alcohol ☐ Yes ☐ No.
29. Had sex with someone you didn't know very well ☐ Yes ☐ No
30. Had sex with a partner you knew was having sex
with other people ☐ Yes ☐ No
31. Had sex with a man who had sex with another man... ☐ Yes ☐ No
32. Had sex with a person with HIV/AIDS..... ☐ Yes ☐ No
33. Had anal intercourse..... ☐ Yes ☐ No
34. Been tested for HIV/AIDS..... ☐ Yes ☐ No
35. When you have sexual intercourse, how often would you say you use a condom?
- | | | | |
|---------------------------------|----------------------------------|---------------------------------------|--------------------------------|
| <input type="checkbox"/> Always | <input type="checkbox"/> Usually | <input type="checkbox"/> Occasionally | <input type="checkbox"/> Never |
|---------------------------------|----------------------------------|---------------------------------------|--------------------------------|
36. Are you presently working outside the home? ☐ Yes ☐ No

37. What is your present source of income? (Check all that apply)
- | | |
|---|--|
| <input type="checkbox"/> my job | <input type="checkbox"/> my husband/partners job |
| <input type="checkbox"/> I get child support | <input type="checkbox"/> my parents |
| <input type="checkbox"/> my husband's/partner's parents | <input type="checkbox"/> other relatives |
| <input type="checkbox"/> Welfare | <input type="checkbox"/> WIC |
| <input type="checkbox"/> AFDC | <input type="checkbox"/> other, please specify _____ |
38. What would you estimate your family income is?
- | | |
|--|--|
| <input type="checkbox"/> less than \$ 5,000 per year | <input type="checkbox"/> \$20 - 24,999 per year |
| <input type="checkbox"/> \$ 5 - 9,999 per year | <input type="checkbox"/> \$25 - 29,999 per year |
| <input type="checkbox"/> \$10 - 14,999 per year | <input type="checkbox"/> \$30 - 34,999 per year |
| <input type="checkbox"/> \$15 - 19,999 per year | <input type="checkbox"/> more than \$35,000 per year |
39. Do you know anyone who has AIDS or the HIV infection? ☐ Yes ☐ No
40. Do you consider yourself at risk of acquiring AIDS/HIV infection?
- | | |
|---|--|
| <input type="checkbox"/> No, no risk at all | <input type="checkbox"/> Yes, at moderate risk |
| <input type="checkbox"/> Yes, at low risk | <input type="checkbox"/> Yes, at high risk |

RSE Scale

Below is a list of statements dealing with your general feelings about yourself. If you agree with the statement, circle A. If you strongly agree, circle SA. If you disagree, circle D. If you strongly disagree, circle SD.

		1	2	3	4
		Strongly Agree	Agree	Disagree	Strongly Disagree
1.	On the whole, I am satisfied with myself.	SA	A	D	SD
2.	At times I think I am no good at all.	SA	A	D	SD
3.	I feel that I have a number of good qualities.	SA	A	D	SD
4.	I am able to do things as well as most other people.	SA	A	D	SD
5.	I feel I do not have much to be proud of.	SA	A	D	SD
6.	I certainly feel useless as times.	SA	A	D	SD
7.	I feel that I'm a person of worth, at least on equal plane with others.	SA	A	D	SD
8.	I wish I could have more respect for myself.	SA	A	D	SD
9.	All in all, I am inclined to feel that I am a failure.	SA	A	D	SD
10.	I take a positive attitude toward myself.	SA	A	D	SD

CES-D SCALE

Circle the number for each statement which best describes how often you felt or behaved this way.
...DURING THE PAST WEEK.

	Less than 1 day	1-2 days	3-4 days	5-7 days
1. I was bothered by things that usually don't bother me.	0	1	2	3
2. I don't feel like eating; my appetite is poor.	0	1	2	3
3. I felt that I could not shake off the blues even with help from my family or friends.	0	1	2	3
4. I felt that I was just as good as other people.	0	1	2	3
5. I had trouble keeping my mind on what I was doing.	0	1	2	3
6. I felt depressed.	0	1	2	3
7. I felt that everything I did was an effort.	0	1	2	3
8. I felt hopeful about the future.	0	1	2	3
9. I thought my life had been a failure.	0	1	2	3
10. I felt fearful.	0	1	2	3
11. My sleep was restless.	0	1	2	3
12. I was happy.	0	1	2	3
13. I talked less than usual.	0	1	2	3
14. I felt lonely.	0	1	2	3
15. People were unfriendly.	0	1	2	3
16. I enjoyed life.	0	1	2	3
17. I had crying spells.	0	1	2	3
18. I felt sad.	0	1	2	3
19. I felt that people disliked me.	0	1	2	3
20. I could not get going.	0	1	2	3

AKA Scale

After you read each statement, tell me whether you think the statement is true or false or if you don't know if it is true or false (Circle each response).

	True	False	Don't Know
1. AIDS is caused by a virus	True	False	Don't Know
2. People with AIDS usually die.	True	False	Don't Know
3. People get AIDS from sharing needles	True	False	Don't Know
4. AIDS is passed from mother to baby.	True	False	Don't Know
5. Persons with AIDS lose weight.	True	False	Don't Know
6. I know places where you can get tested for AIDS.	True	False	Don't Know
7. People get AIDS from unprotected sex.	True	False	Don't Know
8. People with AIDS have fevers and infections.	True	False	Don't Know
9. People get AIDS from donating blood.	True	False	Don't Know
10. People can protect themselves from AIDS by using condoms.	True	False	Don't Know
11. People get AIDS from eating food prepared by a person with AIDS.	True	False	Don't Know
12. People get AIDS when sneezed on by persons with AIDS.	True	False	Don't Know
13. People get AIDS from a toilet used by a person with AIDS.	True	False	Don't Know
14. Cleaning needles or works with water is enough to kill the AIDS virus.	True	False	Don't Know
15. People get AIDS from sharing dirty needles or works for drug use with someone with AIDS.	True	False	Don't Know
16. A person can be infected with the AIDS virus and not have the disease AIDS.	True	False	Don't Know
17. How much do you worry that you could get AIDS?	not at all	a little	some a lot

APPENDIX D

UNIVERSITY OF CALIFORNIA, LOS ANGELES

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SANTA BARBARA • SANTA CRUZ

OFFICE OF THE DEAN
SCHOOL OF NURSING
CENTER FOR THE HEALTH SCIENCES
LOS ANGELES, CALIFORNIA 90024

August 31, 1995

Lu Reichmann, RN, MS
Southwestern Oklahoma
State University
100 Campus Drive
Weatherford, Oklahoma 73096-3098

Dear Ms. Reichmann:

Please find the enclosed copy of the revised questionnaire. This letter serves as approval to use the questionnaire in your study. I would be interested in your findings associated with the AIDS questionnaire. If you have any questions, feel free to contact me at the UCLA School of Nursing at (310) 825-8609. Best of luck in your doctoral studies.

Sincerely,

Adeline Nyamathi
Adeline Nyamathi, RN, PhD

APPENDIX E

TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING

AGENCY PERMISSION FOR CONDUCTING STUDY

THE Clinton Regional Hospital

GRANTS TO Lu Reichmann

a student enrolled in a program of nursing leading to a Master's/Doctoral Degree at Texas Woman's University, the privilege of its facilities in order to study the following problem:

Predictors of condom use among young women: Self-esteem, depressive symptoms, AIDS-related knowledge, AIDS vulnerability, risk behaviors, and contraceptive choice.

The conditions mutually agreed upon are as follows:

1. The agency (may) (may not) be identified in the final report.
2. The names of consultative or administrative personnel in the agency (may) (may not) be identified in the final report.
3. The agency (wants) (does not want) a conference with the student when the report is completed.
4. The agency is (willing) (unwilling) to allow the completed report to be circulated through interlibrary loan.
5. Other _____

Date: 7-14-95

Norma Harder, CNO
Signature of Agency Personnel

Lu Reichmann
Signature of Student

Signature of Faculty Advisor

*Fill out and sign three copies to be distributed as follows: Original - Student; First copy - Agency; Second copy - TWU College of Nursing.

TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING

AGENCY PERMISSION FOR CONDUCTING STUDY

THE Planned Parenthood Clinics

GRANTS TO Lu Reichmann

a student enrolled in a program of nursing leading to a Master's/Doctoral Degree at Texas Woman's University, the privilege of its facilities in order to study the following problem:

Predictors of condom use among young women: Self-esteem, depressive symptoms, AIDS-related knowledge, AIDS vulnerability, risk behaviors, and contraceptive choice.

The conditions mutually agreed upon are as follows:

1. The agency (may) (may not) be identified in the final report.
2. The names of consultative or administrative personnel in the agency (may) (may not) be identified in the final report.
3. The agency (wants) (does not want) a conference with the student when the report is completed.
4. The agency is (willing) (unwilling) to allow the completed report to be circulated through interlibrary loan.
5. Other _____

Date: 6-30-95

Louise - Foster RUF
Signature of Agency Personnel

Lu Reichmann
Signature of Student

Signature of Faculty Advisor

*Fill out and sign three copies to be distributed as follows: Original - Student; First copy - Agency; Second copy - TWU College of Nursing.

TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING

AGENCY PERMISSION FOR CONDUCTING STUDY

THE Mary Mahoney Memorial Health Center
GRANTS TO Lajuana Reichmann
a student enrolled in a program of nursing leading to a Master's/Doctoral Degree at Texas Woman's University, the privilege of its facilities in order to study the following problem.

Predictors of condom use among young women: Self-esteem, depressive symptoms, AIDS-related knowledge, AIDS vulnerability, risk behaviors, and contraceptive choice.

The conditions mutually agreed upon are as follows:

1. The agency (may) (~~may not~~) be identified in the final report.
2. The names of consultative or administrative personnel in the agency (~~may~~) (may not) be identified in the final report.
3. The agency (wants) (~~does not want~~) a conference with the student when the report is completed.
4. The agency is (willing) (~~unwilling~~) to allow the completed report to be circulated through interlibrary loan.
5. Other Written informed consent must be obtained from every subject
And in case of minors, parental/guardian consent must be obtained.

Date: 2-13-95


Signature of Agency Personnel


Signature of Student

Signature of Faculty Advisor

*Fill out and sign three copies to be distributed as follows: Original - Student; First copy - Agency; Second copy - TWU College of Nursing.