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Title: Knowledge and Attitudes About Genital Herpes and Acquired Immunodeficiency Syndrome Among Future Teachers.

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This study measured knowledge and attitudes about genital herpes and human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) in a sample of future teachers from the College of Education at Oregon State University. The objectives of the study were 1) to determine if students possess accurate knowledge about the two diseases; 2) to measure attitudes toward people with the two diseases; 3) to assess the relationship, if any, between knowledge and attitudes; 4) to compare knowledge and attitudes about genital herpes with knowledge and attitudes about HIV/AIDS; and 5) to compare knowledge and attitudes about genital herpes in 1990 to data from a similar study conducted in 1984.

A convenience sample of 150 students was obtained from undergraduate classes in the College of Education during Spring Term 1990. Subjects completed self-administered questionnaires about either genital herpes or HIV/AIDS during class time. Data were gathered using four instruments: A knowledge test, two attitude measures, and a demographic data questionnaire. Statistical tests used for data analysis were chi square,

Pearson's correlation coefficient, Student's t-test, two-way analysis of variance (ANOVA), and repeated measures ANOVA. The significance level was .05.

Knowledge scores on the HIV/AIDS test were quite high (mean score 88% correct), while the mean genital herpes knowledge score was relatively low (62% correct). Attitudes toward people with both genital herpes and HIV/AIDS were relatively accepting, but subjects were significantly more accepting toward people with genital herpes. The least accepting responses toward people with either disease occurred in regard to potentially sexual situations (e.g. dating, marriage). There was no gender difference in attitudes toward people with either disease. Attitudes were more positive in response to a vignette of a college student followed by a questionnaire, compared to responses made to a questionnaire only. Correlations were found between more knowledge and more accepting attitudes about both diseases. Finally, genital herpes knowledge scores were higher (mean score 62% correct) than scores from a similar study of genital herpes conducted in 1984 (mean score 57% correct). Attitudes toward people with genital herpes were more accepting in the 1990 sample than were attitudes in the 1984 sample. All findings reported here are statistically significant.

Recommendations for future research and education among future teachers concerning sexually transmitted diseases (STD's) include 1) development of methods to transmit accurate information about STD's by personalizing these diseases and relating them to college students' experiences; 2) a research focus upon attitudes and perceptions about STD's among future teachers, including the issue of homophobia, and how these relate to behavior; and 3) thorough teacher preparation about STD's,

focusing on accurate knowledge and impartial attitudes that allow this topic to be addressed effectively in the classroom.

Future research among the general college student population should address 1) the relationship between knowledge, attitudes, perceptions, and behavior concerning STD's; 2) potential differences in responses made to a vignette followed by a questionnaire, compared to a questionnaire only; 3) students' source(s) of information about STD's, and level of trust in "scientific authority"; 4) possible interactions between religious influence and attitudes about STD's; 5) the existence of a stereotype of HIV/AIDS as a gay, male disease, and how this might affect attitudes and perceptions; 6) differences between males and females in terms of attitudes, especially with regard to homophobia; 7) the effectiveness of personalizing STD education to increase knowledge about and perceived susceptibility to STD's; 8) the interaction between societal values and personal values, and their effect on attitudes about STD's and sexual behavior.

Knowledge and Attitudes About Genital Herpes and Acquired Immunodeficiency Syndrome Among Future Teachers

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CHAPTER I

INTRODUCTION

Background of the Problem

Sexually transmitted diseases (STD's) continue to be a nationwide public health problem. This is in spite of prevention programs, and for many of the STD's, the availability of effective treatment. In 1980, the Surgeon General recognized that the problem of STD's in the U.S. was growing in both scope and complexity. As part of "Promoting Health/Preventing Disease: Objectives for the Nation," eleven national health objectives were identified with respect to controlling STD's. The Centers for Disease Control (CDC) issued a report on progress through December 1988 on those objectives. Although the incidence of gonorrhea has declined since 1980, rates of other STD's, such as syphilis, genital herpes and acquired immunodeficiency syndrome (AIDS) are increasing. Noting another disconcerting trend, the report states that in 1988 a larger percentage of teenagers initiated sexual intercourse at younger ages than in 1982 (CDC, 1990a).

Hepatitis B has been identified as a sexually transmitted disease of increasing significance among heterosexuals, with the prevalence correlated with the number of lifetime sexual partners (Collins, 1989). Genital chlamydia infection, thought to be the most common STD in the U.S., causes over 4 million infections each year. This disease is implicated as a major cause of infertility, and causes serious infections in newborns (Lee, 1989). Cases of genital human papilloma virus (HPV) have increased by 500% in the U.S. in the

last fifteen years. The prevalence of genital HPV is estimated at 12 million cases. This sexually transmitted disease is believed to infect 10% of sexually active females, and is a strongly suspected co-factor in cervical neoplasia. The majority of cases occur in the 15-29 year age group (Lynch, 1989). Genital herpes infection and HIV/AIDS are among the many other STD's that impact sexually active college students, as will be detailed below.

Though federal funding for the CDC's work on sexually transmitted diseases has gradually increased in the 1980's, many believe that it has not kept pace with the rising incidence of these diseases. In addition, critics argue that the push to control the HIV/AIDS epidemic has drained resources away from work on other more prevalent STD's. The American Social Health Association estimates that an effective STD control program will require $183 million dollars for FY 1991, but only $81 million has been requested by the current administration (The Helper, Spring 1990a). In light of these facts, new approaches to the problem of STD's are sorely needed.

In 1987, the U.S. Public Health Service developed "The Year 2000 Objectives for the Nation." This document's purpose is to update the above-mentioned national public health agenda first proposed in 1980. One of the objectives on the agenda addresses student awareness and prevention of sexually transmitted diseases (CDC, 1990b). This target group is identified as being at risk for contracting STD's. Reasons for this risk status among college students include the fact that they may have many sexual partners, and are often reluctant to communicate openly about sexual issues (Bruce & Bullins, 1989). Alcohol use that may impair sexual decision-making is prevalent in this population, and experimentation with illicit drugs is common. In addition, the popular media send mixed messages about sexuality to a developmentally vulnerable age group (Keeling, 1989). Further, college students may believe

that STD's happen only to other people, whom they imagine to be different from themselves (Fisher & Misovich, 1990; Gray & Saracino, 1989).

College and university students number more than 12 million people, or greater than 5% of the U.S. population (Guyton et al., 1989). The majority are single, sexually active individuals (Bruce, Shrum, Trefethen, & Slovik, 1990; Fennell, 1990; Gray & Saracino, 1989; Henry & Bradford, 1990). The prevalence of sexually transmitted diseases among adolescents is estimated at 1 in 7 (Paxton & Susky, 1988), and among college students may be 1 in 10 (Rolnick, 1987). Recent studies of STD's have found a 6.9% (Lee, 1990) to 7.8% (Felts & White, 1990) prevalence of genital chlamydia infection among asymptomatic female college students. Among male college students without symptoms or a history of untreated exposure to STD, the prevalence of chlamydia was found to be 7% (Kaplan, Meyer, & Navin, 1989). In the 15-24 year age group, the CDC reported 1396/100,000 cases of gonorrhea, and 83/100,000 cases of syphilis for 1989 (Blount, 1990).

Clearly, college students are among those groups at risk for contracting STD's, including genital herpes and AIDS. As of December 31, 1990, there were 161,073 reported cases of AIDS in the United States, of which 100,813 (63%) have proved fatal. The age group 20-29 years accounted for 20% of the total reported cases (Taylor, 1991). Since ten years or more may elapse between contracting human immunodeficiency virus (HIV) which causes AIDS, and the onset of symptoms, asymptomatic individuals can spread the virus for many years without knowing that they are infected (CDC, 1989a). A representative sample of colleges and universities in the U.S. recently revealed an HIV seroprevalence of 0.2% in this population (First Survey, 1989).

Genital herpes is caused by the HSV-II virus (Gurevich, 1990). Because it is not a notifiable disease, prevalence is difficult to determine. Based on serologic antibody assays, a national probability sample of Americans taken from 1976 to 1980 estimates that 16.4% of the population between 15 and 74 years of age is infected with HSV-II (Johnson et al. 1989). This figure represents 25.4 million Americans. Prevalence in the 15-29 year age group was 6.9% in this sample. The annual incidence in the U.S. by one estimate may be between 270,000 and 600,000 cases (Peck, 1986). Though not a fatal disease, genital herpes can have lifelong debilitating effects. These include frequent recurrences of painful genital lesions, and a strong association between HSV-II and cervical cancer (Gurevich, 1990). Negative psychological sequelae are reported in people who are diagnosed with the disease, including feelings of isolation, loneliness and anger (Luby & Gillespie, 1981), and frustration, depression, and fear of impaired sexuality (Anderson & McNair, 1983). STD's, especially those that cause genital ulcers, may also facilitate the transmission of HIV (World Health Organization, 1989).

Though STD's are a significant public health problem, it is not clear that college students are convinced they can contract an STD. Studies of this population provide conflicting results. Students in McDonnell's survey (1989) reported increased use of condoms and fewer sexual partners because of AIDS. In another study, similar groups of students were surveyed over a three year period (1986-88) to track trends in knowledge, attitudes, and behaviors concerning the HIV/AIDS epidemic. Students on average reported being moderately fearful of AIDS, were increasingly likely to discuss "safer sex" with a potential sex partner, and believed that AIDS-preventive behavior (i.e. "safer sex") could reduce their risk of contracting HIV. However, these same students also reported overall increases in risky sexual behavior, including an

increase in the percentage who were sexually active, an increase in the number of sex partners, and more frequent unprotected intercourse. In addition, alcohol use was correlated with several indicators of AIDS risk. Finally, students' perceptions of other's vulnerability to AIDS (but not their own) increased over the three year period (Fisher & Misovich, 1990).

In one study of never-married college students, the majority of subjects rated fear of venereal disease as the least important of four perceived restraints on premarital coitus (Jedlicka & Robinson, 1987). Other studies find a majority of students expressing little personal concern about contracting AIDS (Gray & Saracino, 1989; Simkins & Eberhage, 1984; Spreadbury, 1988), or genital herpes (Simkins & Eberhage, 1984; Simkins & Kushner, 1986). Aral, Cates and Jenkins (1985) found that although the majority of their sample of Americans ages 18-29 were aware of increasing rates of STD's, they did not perceive themselves to be at risk for contracting genital herpes.

This optimism among many college students concerning the risk of contracting STD's is not universally shared. At the annual meeting of the American College Health Association in 1987, medical professionals, health educators, and residence hall staff testified about key health issues facing students in higher education for the period 1987-2000. Ninety percent of this professional group identified sexual health as one of the primary issues facing college students. They specifically targeted STD's, and especially AIDS as a focus of concern (Guyton et.al., 1989).

The role that knowledge and attitudes play in affecting sexual behavior demands further study. Specifically, attitudes toward people with STD's requires a clearer understanding, because various studies have provided conflicting results. Negative attitudes were found among college students toward both AIDS patients and homosexuals (St. Lawrence, Husfeldt, Kelly,

Hood & Smith, 1990). Another study found that while college students were relatively positive toward patients with AIDS, they were more positive if the same individual had leukemia (Poling, Redmon & Burnette, 1990). Negative attitudes toward people with genital herpes have also been documented (Bruce & Bullins, 1989; Gray, 1985). In 1989, Gray & Saracino found that perceived personal vulnerability to AIDS was an important factor in changing college students' sexual behavior, though knowledge was not. A study by DiClemente, Forrest & Mickler (1989) also found a strong association between perceived risk of HIV infection and an increase in "safer sex" behaviors.

Though most studies of college students document fairly accurate knowledge about HIV/AIDS, misinformation regarding various aspects of the disease is apparent, and varies depending on the sample studied (Fennell, 1990). The few genital herpes surveys done among this population reveal lack of knowledge about this disease (Bruce & Bullins, 1989; Bruce & McLaughlin, 1986; Gray, 1985).

It is important to study knowledge and attitudes about STD's, to understand how these factors affect transmission of these serious diseases. Knowledge levels must be assessed often, to adjust content in educational programs. Attitudes that serve to perpetuate the epidemic of STD's must be documented, so that educators can focus their efforts to effect desired change.

Objectives of the Study

This study has five objectives. The first is to determine if future teachers at Oregon State University (OSU) possess accurate knowledge about genital herpes and HIV/AIDS. The second is to measure attitudes toward people with these diseases. The third is to assess the relationship, if any, between knowledge and attitudes about the two diseases. The fourth is to compare

knowledge and attitudes about genital herpes with knowledge and attitudes about HIV/AIDS. Finally, knowledge and attitudes about genital herpes from this study will be compared to data from a similar study of genital herpes conducted in 1984, to determine changes over the six year period.

Hypotheses and Research Questions

Based on previous research, the following null hypotheses and research questions were formulated.

Research Questions

1. What level of knowledge about genital herpes and HIV/AIDS exists among future teachers at OSU?
2. Can demographic characteristics be identified within this sample that are related to knowledge about genital herpes and HIV/AIDS?
3. What attitudes exist toward people with genital herpes and HIV/AIDS among future teachers at OSU?
4. Can demographic characteristics be identified within this sample that are related to attitudes toward people with genital herpes and HIV/AIDS?

Null Hypotheses

1. There is no statistically significant difference between genital herpes knowledge scores and HIV/AIDS knowledge scores among future teachers at OSU.
2. There is no statistically significant difference between attitudes toward people with genital herpes and people with HIV/AIDS among future teachers at OSU.
3. There is no correlation between genital herpes knowledge scores and attitude scores among future teachers at OSU.

4. There is no correlation between HIV/AIDS knowledge scores and attitude scores among future teachers at OSU.
5. There is no statistically significant difference between genital herpes knowledge scores from this study, and knowledge scores from a 1984 study of genital herpes.
6. There is no statistically significant difference between genital herpes attitude scores from this study, and attitude scores from a 1984 study of genital herpes.

Study Population

This was a convenience sample of 150 future teachers from the OSU College of Education during Spring Term 1990. These subjects were surveyed concerning knowledge and attitudes about genital herpes and HIV/AIDS during class time. Participation was voluntary, anonymous, and confidential. The survey included all College of Education courses (400 level or below) that met on campus during the term. A total of 12 classes were surveyed.

The sample for comparison with the genital herpes portion of this study consisted of 150 students from the Departments of Education and Sociology at Washington State University (WSU). Gray (1985) surveyed this group of students concerning knowledge and attitudes about genital herpes during Spring Term 1984. As with the present study, participation was voluntary, anonymous and confidential. A convenience sample of 16 courses were chosen, from which all students were asked to participate in the study.

Definition of Terms

1. Future Teachers - Students who were enrolled in courses in the College of Education at OSU during Spring Term 1990.
2. HIV - Human Immunodeficiency Virus, the cause of AIDS.

3. AIDS - Acquired Immunodeficiency Syndrome, a late manifestation of infection with HIV. This is a potentially fatal disease that is transmitted in one of three ways: Sexual contact or sharing of needles with an HIV positive individual, or by transmission from an infected woman to her fetus, during pregnancy or at birth.
4. HSV - herpes simplex virus, which is one of a family of viruses that infect humans. HSV is found in two forms. HSV-I most commonly causes "cold sores" around the mouth, while HSV-II usually causes genital herpes.
5. Genital herpes - presently an incurable sexually transmitted disease whose prevalence is estimated at 25.4 million US cases at this point in time.

Limitations of the Study

The following limitations are recognized:

1. The sample of students surveyed for this study is non-random. Generalizations beyond this group of subjects must take this fact into consideration.
2. The data collected for this study relies on self-administered surveys. As such, answers supplied by respondents may be influenced by a variety of factors not under the researcher's control.
3. The comparison sample from the 1984 study of genital herpes was obtained at a university in another state. However, there are many similarities between OSU and WSU. Both are land grant universities with a student population of approximately 16,000. Both are located in rural, agricultural areas in two neighboring states. Over 80% of the student body at both universities are undergraduates, and both samples were drawn from education courses.

Justification for the Study

Though genital herpes and HIV/AIDS are a significant threat to sexually active individuals, there is limited information available on knowledge and attitudes about these diseases among the college student population. Past studies provide conflicting results. Only one other study assesses knowledge and attitudes among future teachers about genital herpes (Gray, 1985). By partial replication of that study, changes in knowledge and attitudes about this disease over the six-year period can be assessed. Other studies addressing knowledge and attitudes about HIV/AIDS specifically among future teachers have not been done.

These data can be used to focus programs for teacher preparation on those areas where accurate knowledge may be lacking, or attitudes may exist that block effective teaching and learning of this subject matter. In addition, these data can be used to address attitudes that may be detrimental to STD control efforts among the college student population.

Summary

Herek & Glunt (1988) have created the phrase "AIDS-related stigma" to describe "...a socially constructed reaction to a lethal illness that has been most prevalent among groups that already were targets of prejudice." They point out that this stigma not only imposes additional suffering upon its victims, but ultimately creates a social climate that precludes effective prevention and treatment of the disease.

College students may perceive themselves to be very different from people with genital herpes or AIDS. By attaching a stigma to others, these students may be falsely optimistic in their personal risk assessment (Gray & Saracino, 1989). Students who believe they are invulnerable to contracting these STD's actually may be at increased risk, if they are not practicing "safer

sex" behaviors. This study examines attitudes, in an effort to identify whether stigmatization of those with genital herpes or HIV/AIDS occurs among college students.

This study is important because it will target knowledge and attitudes about genital herpes and HIV/AIDS among future teachers. Future educators such as those in this study must have accurate knowledge about STD's. This is necessary for their own benefit, as well as for the benefit of those students they will be charged with teaching. OAR (Oregon Administrative Rule) 581-22-412 requires that age-appropriate instruction about infectious diseases including HIV/AIDS take place in Oregon public schools at the elementary, middle, and senior grade levels. Accurate knowledge lays the groundwork for this mandated instruction.

Attitudes among future teachers must also be understood, because they may affect how teachers present this information to their students. Teachers must be aware of their own attitudes, and how they influence the teaching and learning that goes on in their classrooms. Additionally, since attitudes may influence behavior by allowing a false sense of invulnerability to STD's, it is important to understand how college students think about people with these serious diseases. Only with this understanding can educators help future teachers transmit accurate information and non-judgmental attitudes, and to develop a realistic assessment of their own risk for STD's.

CHAPTER II

LITERATURE REVIEW

This chapter reviews literature pertinent to the subject of knowledge and attitudes about genital herpes and HIV/AIDS among college students. An overview of the medical and psychological aspects, prevalence, and incidence of the two diseases is presented first.

Medical Aspects of Genital Herpes

Genital herpes is caused by herpes simplex virus type 2 (HSV-II), one of five different herpes viruses that affect humans. The other types are herpes simplex virus type 1 (HSV-I), the cause of "cold sores" or "fever blisters"; cytomegalovirus (CMV), which causes serious disease in newborns or immunocompromised individuals; varicella zoster virus (VZV), the cause of chicken pox and shingles; and Epstein-Barr virus (EBV), which causes mononucleosis (Gunn & Stenzel-Poore, 1987). Not a new disease, genital herpes was studied and described by the ancient Greeks, who gave the disease its name, which means "to creep" (Glover, 1984).

Genital herpes is highly contagious, incurable, and is transmitted primarily by sexual contact. Approximately 85% of genital herpes cases are due to HSV-II, with the remainder caused by HSV-I (Reinke, 1982). Either virus can infect the central nervous system, eyes, lungs, liver, skin, and mucous membranes. However, type 1 is usually the culprit in lesions above the waist, while infections below the waist are caused primarily by type 2 (Gurevich, 1990). In situations where contact involves oral-genital sex, HSV-I can be transmitted via a cold sore on the mouth to the genitals of one's partner. Transmission can also occur through autoinnoculation, whereby a person may touch an oral lesion and then transfer the virus via his or her hand to the genitals (Gunn & Stenzel-Poore, 1987).

Once the virus makes contact with a mucous membrane or a break in the skin, there is an incubation period of 3-10 days before symptoms appear. This period may be followed by a prodrome of itching, tingling, numbness or burning at the site of the developing lesion, and fever, chills, malaise, and swollen lymph nodes. Vesicles then appear, and can be found on the external genitalia, in the urethra, or around the anus. These may be quite painful. Herpes lesions can also develop on the cervix or in the vagina, but here they are usually painless (Gurevich, 1990). The vesicles open and drain, eventually crusting over, and then heal without scarring. These symptoms peak after 10-14 days, and usually subside after 3 weeks. The virus then retreats along the sacral nerve fibers, to lie dormant in the sacral ganglia at the base of the spine. (Reinke, 1982). Though HSV-II triggers an immune response, the response is not potent enough to wipe out the virus (The Helper, Summer 1990a). Thus, once a person is infected, the virus remains in the body for life.

Recurrences of the disease are highly individual, and may be as seldom as once a year or as often as twice a month. One third of those with an initial herpes infection never have another occurrence. Recurrences may be triggered by stress, fatigue, menstruation, trauma (as in vigorous sexual intercourse), and poor nutrition. One theory suggests that the virus is continually travelling down the nerve fibers but is usually kept at bay by the immune system. Hormonal changes or imbalances in the immune system may trigger an outbreak. Recurrences tend to decrease in frequency, severity, and duration over time, and are not as severe as the initial attack. About 50% of infected individuals report a prodromal phase of itching, numbness, or a tingling sensation at the site of the developing outbreak for 24-48 hours prior to a recurrence (Gunn & Stenzel-Poore, 1987).

A person is contagious from the time of the prodrome or just prior to the appearance of lesions, until complete healing has taken place. A small number of individuals have been shown to shed the virus even after the lesions have healed (Reinke, 1982). To avoid infecting a partner, contact of any kind involving the infected area must be avoided during an outbreak. Latex condoms and a spermicide containing nonoxynol-9 provide the best protection against spreading the virus between outbreaks (The Helper, Fall 1990). HSV-II may be able to survive outside of the body, at least until the bodily fluid containing it has dried. For this reason, careful handwashing after contact with the infected area is essential. Towels and other personal care items should not be shared during an outbreak. Washing items with soap and water will prevent spread of the virus (Glover, 1984).

Genital herpes is treated with the drug acyclovir. The first outbreak may be managed with acyclovir ointment, which can shorten the duration of lesions and reduce viral shedding (Gunn & Stenzel-Poore, 1987). To reduce recurrences and lessen their severity, oral acyclovir may be taken in 400 milligram doses twice daily. After one year, it should be discontinued so that individual recurrence patterns can be reassessed (The Helper, Spring 1990b). Another approach, for the person with a well-defined prodrome, is to start a 5-day course of oral acyclovir at the first symptom. This may prevent an outbreak. For seriously ill patients and newborns, intravenous therapy with acyclovir is needed to combat a herpes outbreak (Gurevich, 1990). Due to the lack of information on adverse effects, acyclovir is not used during pregnancy, except in life-threatening HSV infections (American Family Physician, 1990).

Also important to outbreak prevention is the development of a healthy lifestyle, including stress reduction, adequate rest and good nutrition (Gurevich, 1990). In addition, a recent controlled study documented a significant reduction

in frequency, duration, and severity of outbreaks with psychosocial intervention. This approach provided HSV-II information, encouraged group sharing of feelings about having genital herpes, and provided relaxation training, stress management instruction, and imagery techniques (Longo, Clum & Yaeger, 1988).

Vaccine research for HSV has been under way for 40 years. Though Lupidon has been available as a vaccine in Europe since the 1960's, no scientific study has ever shown it to be effective. The litigious climate of the 1980's has resulted in fewer companies that are willing to continue the expensive research necessary for a vaccine that could theoretically result in unforeseen medical problems. But AIDS research has resulted indirectly in renewed research on HSV vaccines. The central question to current research is how to combine the potency of a live-virus vaccine with the safety of one that contains no viral material. Several researchers feel that it is only a matter of time before a vaccine becomes a reality, but also state that it is not possible to predict when this will happen (The Helper, Summer 1990b). Both laser and interferon therapies are also under investigation for treatment of genital herpes (Gurevich, 1990).

In addition to coping with genital herpes, affected individuals must also face potential complications for their newborns. If a woman is experiencing a primary genital infection during the second or third trimester, the risk of perinatal transmission is 50% if the baby is delivered vaginally. With a recurrent infection the risk drops to 5%. Herpes infections in the neonate, before 1 month of age, can result in permanent neurological damage and even death. In addition, a primary infection in the third trimester carries a 30% risk of fetal growth retardation and premature labor. The risk to the fetus drops to 3-4% if the mother is experiencing a recurrent infection. To prevent transmission to the

newborn, women must pay close attention to their symptoms, and must be followed closely by a nurse-midwife or physician, to detect an outbreak (The Helper, Winter 1989). At the onset of labor, **all** women should be examined for lesions and carefully questioned about possible symptoms of the disease. If no signs or symptoms are found, the woman may proceed with a vaginal birth. Otherwise, cesarean delivery is indicated. Until recently, cultures were routinely done weekly during the last month of pregnancy for those women with a history of genital herpes, and if positive, a cesarean section was performed to prevent contact with the virus. However, because women may shed the virus asymptomatically at any time during pregnancy, and because cultures often fail to detect HSV in the absence of a lesion, routine cultures are no longer recommended (American Family Physician, 1990).

An additional concern about genital herpes infection is the link to cervical cancer. Though not a cause and effect relationship, there is a strong statistical association between HSV-II and cancer of the cervix. Eighty percent of women in the U.S. who have cervical cancer also have antibodies to HSV-II. In several studies done in this country, cervical cancer has been shown to be 2-3 times more prevalent in women who have genital herpes (Glover, 1984). It is known that HSV-II is capable of changing a normal cell into a cell with malignant properties in some species. Also, genetic material from the herpes virus has been found in cervical tumor cells. As a result of these findings, the current recommendation for women with genital herpes is a pap smear every 6-12 months, from which cervical cell changes can be readily detected (Gunn & Stenzel-Poore, 1987).

Psychological Aspects of Genital Herpes

There are several factors documented above that may lead to negative reactions to a diagnosis of genital herpes. These include the sexually

transmitted nature of the disease, its sometimes unpredictable course, the possible effect on future offspring, its association with malignancy, and the lack of a cure (Hillard, Kitchell, Turner, Keeling & Shank, 1984).

Though psychological adjustment is individual, there are many reports of negative reactions on the part of sufferers. The Herpes Resource Center (cited in Connor-Green, 1986) conducted a nationwide study of its members with genital herpes in 1981 to assess problems perceived to be a consequence of the disease. Episodes of depression were reported by 84% of respondents; 70% cited feelings of isolation; 40% reported decreased work performance due to lowered self esteem; decreased sexual desire was cited by 35%; twenty-five percent identified self-destructive thoughts; and 18% identified herpes as a factor in the termination of a long-term relationship or marriage. Anderson and McNair (1983) report that a diagnosis of genital herpes is frequently greeted with anger, disbelief, and fear. Fears of being unable to function normally in sexual relationships, along with feelings of vulnerability, frustration, isolation, helplessness, and depression are also reported (Bierman, 1982). In another study, the majority of college students with genital herpes reported fear, anger, guilt, and feelings of being "damaged" (Mirotznik, Shapiro, Steinhart, & Gillespie, 1987).

Herpes attained the media spotlight in the late seventies and early eighties, and was dubbed the "Love-Virus" (Rae, 1985), "The New Scarlet Letter", "The VD of the Ivy League", "Jerry Falwell's Revenge" (Leo, 1982), and "The VD of the '80's" (Clark, 1982). As a result of this sensational coverage, a social stigma was created in the popular press, which may contribute to the psychological suffering cited above. This negative approach implies that genital herpes is a punishment for the sexually active, which may exacerbate an

individual's feelings of guilt and self-reproach, leading to maladaptive coping (Connor-Greene, 1986).

Prevalence and Incidence of Genital Herpes

Because it is not a notifiable disease, prevalence has been difficult to determine. Based on 4201 serologic antibody assays from a national probability sample of Americans taken from 1976 to 1980, it is estimated that 16.4% of the population ages 15 to 74 years of age, have been infected with HSV-II, for a total of 25.4 million Americans. Seroprevalence varied widely as a function of age and race in this study. For the 15-29 year age group, prevalence was 6.9%, increasing to 20.2% for 30-44 year olds. Only slight increases were found after age 44 years. After controlling for all significant demographic variables, multivariate analysis revealed a significant association between the presence of HSV-II antibody and both race and gender. In Blacks as compared to whites, the odds ratio was 3.2 for men, and 6.1 for women. Speculatively, these differences may be due to biological susceptibility mediated by anatomical or hormonal differences by gender, or to social factors such as sexual behavior (e.g. number of partners, frequency of intercourse, or use of barrier contraceptives) (Johnson et al., 1989).

Because signs and symptoms of genital herpes are present in less than 40% of those infections detectable by blood tests for HSV-II antibody, the frequency of infection is probably greatly underestimated (Johnson et al., 1989). One estimate of the annual incidence of genital herpes in the US is between 270,000 and 600,000 cases (Peck, 1986). The estimated number of physician-patient consultations for genital herpes between 1966 and 1984 increased fifteen-fold, from 29,560 to 450,570. First office visits increased almost nine-fold, and are considered a likely indicator of new infections. During this same

time period, individuals 20-29 years of age accounted for the largest proportion of consultations (CDC, 1986).

Knowledge and Attitudes about Genital Herpes

There are few studies of knowledge and attitudes about genital herpes among college and university students. In 1984, Gray measured the genital herpes knowledge level of college students in education and sociology classes. In her pre-intervention data, she found a lack of accurate information in this group. The mean score on the multiple choice knowledge test was 57% correct. When attitudes were measured, she found that students were relatively unaccepting of people with genital herpes, in both potentially sexual and non-sexual situations. She also found a weakly positive, but statistically significant relationship between accurate knowledge and accepting attitudes toward people with genital herpes. This is the only study reviewed for this chapter whose sample included a group of future teachers.

In another 1984 study of college students, the knowledge level was higher. Students answered 75% of the true/false questions correctly, although the authors point out that by chance alone one would expect 50% correct responses. Negative attitudes toward people with the disease were documented, especially concerning societal stigma of those infected, and embarrassment about having the disease. But subjects were also fairly optimistic that individuals could cope positively with the disease (Hillard, Kitchell, Turner, Keeling & Shank, 1984).

Bruce and McLaughlin (1986) found a lack of accurate knowledge about genital herpes among college undergraduates (mean score 64% correct), as well as negative attitudes toward people with the disease. In situations involving potential intimate contact with a person who has HSV-II, attitudes were especially negative. Prevalent attitudes in this group included concern about

how others would perceive someone with the disease, as well as personal feelings of uncleanliness, shame and embarrassment if one were to contract the disease. Using the same genital herpes knowledge and attitude instruments as in the Bruce & McLaughlin study above, Bruce and Bullins (1989) found that knowledge among college undergraduates was generally poor (mean score 52% correct), and attitudes were somewhat negative. They found that subjects were significantly more knowledgeable of and tolerant toward people with genital herpes if they knew someone with the disease. They found that their subjects were not interested in potentially intimate situations involving someone with genital herpes, and that subjects expected to have feelings of guilt, uncleanliness, and shame if they ever contracted the disease. Societal stigma of people with genital herpes was cited as a reality by the large majority of subjects in this study.

Medical Aspects of HIV and AIDS

Acquired Immunodeficiency Syndrome (AIDS) was first identified in the U.S. in June of 1981 in homosexual males (CDC, 1989b). It is an end-stage disease caused by infection with Human Immunodeficiency Virus (HIV). A period of a few months to 10 years or more may pass between the time a person is infected with the virus, and symptoms of the disease appear.

HIV is transmitted in one of three ways: 1) sexual contact with an HIV-infected person; 2) any form of needle and/or syringe sharing with an HIV-positive person; and 3) perinatally, from an infected mother to her fetus. Prior to 1985, some people who received blood transfusions or blood products were infected with the virus. A screening test performed on all donated blood has virtually eliminated this as a route of transmission. The screening test for antibodies to HIV is the ELISA, or enzyme-linked immunosorbent assay test. If ELISA results are positive, confirmation must be made, usually with the Western

blot test (Roth, 1989). Though antibodies to HIV usually appear within three months of infection, up to six months may pass before a positive antibody test occurs (CDC, 1989a).

Theoretically, any direct contact between an infected person's blood, semen, vaginal secretions, saliva, tears, breast milk or other body fluids, and an uninfected person's blood or mucous membrane could result in an infection. This is because HIV is found in the lymphocytes in these bodily fluids, with the concentration proportional to the number of lymphocytes present. Blood and semen have by far the highest concentration of HIV-infected cells, with the remaining fluids containing much smaller concentrations. HIV infection has been documented only after exposure to blood, semen, or vaginal secretions. Precautions are nonetheless taken to protect oneself when handling any of these bodily fluids in the case of health care workers (Wiley & Grohar, 1988). Infected mothers should not breastfeed their infants. Donated sperm for artificial insemination, and organs donated for transplant should be screened prior to use. It is important to note that HIV has not been shown to infect persons living with or having casual contact with an HIV-positive individual. Casual contact is **not** a mode of transmission of the virus (Green & McCreaner, 1989; Roth, 1989).

After HIV enters the body, it attacks the immune system and eventually renders it ineffective against diseases which would not normally occur. It does this by targeting a special lymphocyte called a CD-4 or T-4 cell. Without these cells, an effective immune response to a variety of organisms cannot take place. Opportunistic infections are usually the cause of death, rather than HIV itself. A form of pneumonia caused by the organism Pneumocystis carinii is the most common of these infections among AIDS patients in Europe and the U.S.. Others include tuberculosis, infection with cytomegalovirus (CMV), and severe

herpes simplex (HSV-I or II) infections. Another cause of death is a rare but rapidly spreading cancer called Kaposi's sarcoma. HIV also spreads throughout the body via another type of white blood cell, the macrophage. In this way, the central nervous system, including the brain and spinal cord, the skin, lung, intestine, or heart may be infected, sometimes fatally (Green & McCreaner, 1989; Roth, 1990).

In order for a diagnosis of AIDS to be made, a person must demonstrate a damaged immune system, as well as one or more of the characteristic cancers or infections, some of which are described above (Roth, 1989). It should be noted that there is currently no evidence suggesting that **all** HIV-positive individuals will eventually develop AIDS. In fact, some people who contracted the virus early in the 1980's remain healthy today (Green & McCreaner, 1989). However, the case-fatality rate is currently 63% of total diagnosed AIDS cases (Taylor, 1991), and approaches 100% within five years of diagnosis of the syndrome (CDC, 1989a).

Another facet to this disease is ARC, or AIDS-Related Complex. This disease may be found in HIV-positive persons who do not have AIDS, but may display some immune dysfunction, anemia, fever, weight loss, and malaise, and possibly dementia due to central nervous system involvement. ARC may be viewed as one point along the path to end stage disease, though the time-line is quite variable among individuals, with periods of relative health possible. At this time, not all individuals with ARC have gone on to develop AIDS (Green & McCreaner, 1989).

Infection with HIV is permanent. Therefore, treatment is symptomatic. As a direct result of AIDS activism, the FDA has shortened the approval process for new drugs that appear promising against the disease in clinical trials. Zidovudine, formerly known as azidothymidine or AZT, is the first of these drugs

to gain widespread use. AZT was first synthesized twenty years ago. It inhibits the replication of retroviruses such as HIV (Roth, 1989). In clinical trials among patients with advanced AIDS, the drug prolonged survival, improved immune system function, decreased the frequency and severity of opportunistic infections that accompany AIDS, and dramatically improved neurologic function. Reduced doses of the drug have been successfully used among AIDS patients, in an effort to alleviate bone marrow suppression, a common and serious side effect of higher doses of the drug (Collier et al., 1990; Fischl et al., 1990). Other drawbacks of Zidovudine include the expense, and the fact that effects of long-term therapy are as yet unknown. Clinical trials are currently underway to test zidovudine as a preventive drug among HIV-positive individuals who are not yet symptomatic (Roth, 1989).

There are many drugs that are in various stages of testing for use against HIV and the many opportunistic infections that afflict people with AIDS. Some are being tested in combination with zidovudine. Because it has shown very promising results, zidovudine is now used in place of placebo in clinical trials of other potential AIDS drugs. Researchers are also working on a vaccine against HIV. Some researchers are optimistic that a vaccine will be developed in the next five years (Roth, 1989). As treatment of opportunistic infections among those who are HIV-positive improves, length of survival will undoubtedly increase.

Psychological Aspects of HIV and AIDS

In the case of HIV/AIDS, the first contact with the health care system for many individuals is blood testing for HIV antibodies. A vital aspect of HIV testing is pre- and post-test counseling. There are four objectives in the pre-test phase. These are 1) HIV risk assessment and explanation of the test; 2) ensuring that the decision to be tested takes into account the personal,

medical, legal, and social ramifications of a positive test; 3) preparing the person for the potential trauma of a positive test; and 4) providing factual information aimed at decreasing the risk of becoming infected, and of transmitting the virus to others (Green & McCreaner, 1989).

Post-test counseling is very similar to the pre-test phase, with emphasis on risk-reduction for those with a negative test for HIV antibodies. Of note is the fact that it takes an average of ten weeks for an infected person to develop antibodies to HIV, so that a negative test does not guarantee absence of infection (Green & McCreaner, 1989). In fact, up to six months may pass after infection, before a positive antibody test develops (CDC, 1989a). In addition, current screening tests have a sensitivity of 99%, which means that 1 in 100 infected persons will have a false-negative test (Hearst & Hulley, 1988).

Because AIDS is considered a fatal disease, a positive test for HIV antibodies is a traumatic event. The societal stigma associated with AIDS only increases the burden. Normal reactions at diagnosis include disbelief, numbness, and denial, followed by anger, acute turmoil, death anxiety, depression and suicidal ideation. Individual therapy, support group involvement, and possibly drug therapy for intense anxiety, insomnia, and depression may be needed. Self-blame, guilt, loneliness and isolation are common among those afflicted (Flaskerud, 1988). Social support in the form of family, friends, and perhaps social service agencies is a must.

The psychological, emotional, and educational needs of family and friends of the HIV-positive individual are similar to that of the patient. Although the person with HIV may not be ill immediately, the probability of caring for a person with a long-term and potentially fatal illness is extremely difficult to face. Society's attitudes about HIV/AIDS affect family and friends as well. Factual

information about HIV and AIDS, as well as emotional support and referral are essential (Green & McCracken, 1989).

Incidence and Prevalence of HIV infection and AIDS

The Centers for Disease Control estimate that 1 million Americans are infected with HIV, the cause of AIDS. This figure is lower than a 1986 estimate of 1-1.5 million, which was based on the more limited data available at that time (CDC, 1990c). From a nationwide sample of 16,861 college and university students, HIV seroprevalence is estimated to be 0.2% in this population (Keeling, 1989). The vast majority of infected individuals are asymptomatic.

As of January 31, 1991, 164,129 cases of AIDS had been reported to the CDC. Of these, 102,802 (63%) have been fatal. The age group 20-29 years accounted for 32,914 diagnosed cases of AIDS, or 20% of the total (Taylor, 1991). Though the large majority of cases have been diagnosed in homosexual/bisexual males and intravenous drug users, the number of cases is beginning to decrease in these groups, while increasing among heterosexuals (CDC, 1990d; Oregon Health Division, 1990). Using mathematical models, the CDC projects an increase of 390-480,000 new cases of AIDS from 1989 through 1993. Previous CDC incidence projections have been surpassed (CDC, 1990c).

Knowledge and Attitudes about HIV/AIDS

To assess public knowledge about AIDS, the CDC's National Center for Health Statistics began an ongoing cross-sectional household survey in 1987. This National Health Interview Survey revealed that the majority of Americans have accurate knowledge about AIDS concerning routes of transmission, the fact that it is caused by a virus, its fatality, and lack of a cure. The majority, however, have misconceptions about transmission via casual contact. All

content measured in the surveys showed increases in accurate knowledge from the period 1987 to 1988 (CDC, 1989c).

Studies of college students in all regions of the U.S. report that, for the most part, students have accurate knowledge about HIV and AIDS. However, misconceptions remain about transmission via casual contact. (Burnette, Redmon & Poling, 1990; Gray & Saracino, 1989; Grieger & Ponterotto, 1988; Henry & Bradford, 1990; Krupka & Vener, 1989). In addition to casual contact items, students scored poorly on questions about prevalence of HIV/AIDS among homosexuals. Many students were either unsure, or believe that most homosexuals are infected with HIV (Burnette, Redmon & Poling, 1990; DiClemente, Forrest & Mickler, 1990; Dorman & Rienzo, 1988).

Because AIDS was first diagnosed in homosexual males in this country, the disease was dubbed "Gay Plague" in the popular media (Rae, 1985). Attitudes about HIV/AIDS and the people it afflicts continue to be overshadowed by this label. Homophobia is inextricably linked to the disease, and has likely contributed more than any other factor to barriers against studying the disease and controlling its spread. The first US cases of AIDS were diagnosed in 1981, but federal funding for AIDS research was not made available until 1983 (Paxton & Susky, 1988). In 1988, C. Everett Koop, then Surgeon General of the US, summed up this attitudinal component in the battle against the AIDS epidemic: "There are three aspects of AIDS that color everything done and said about the disease: It is still somewhat of a mystery, it is fatal, and most people get it by doing things that the majority of people don't do, and don't approve of other people doing either." As the incidence of HIV infection and development of AIDS decreases among male homosexuals and increases among heterosexuals, these kinds of attitudes may change.

Attitudes toward homosexuals and people with AIDS have been studied in college students, and conflicting results have been found. In a study using a vignette describing a person with AIDS, accompanied by a questionnaire, negative and prejudicial attitudes toward both groups of people were found (St. Lawrence, Husfeldt, Kelly, Hood, and Smith, 1990). A similar study found that although students were not strongly prejudiced toward an AIDS patient, they were significantly more accepting of the same individual with leukemia. Homophobia was apparent in response to items about perceived sexual promiscuity and sexual orientation (Poling, Redmon and Burnette, 1990).

Another study found accepting and sympathetic attitudes toward homosexuals and AIDS patients (Grieger & Ponterotto, 1988). Burnette, Redmon, and Poling (1990) found similar attitudes toward people with AIDS, although the college students in their study were reluctant to have casual contact with AIDS patients. These studies used questionnaires without accompanying vignettes.

Fennell (1990) reviewed studies of attitudes and beliefs about AIDS among college students for the period 1984-1989, and found a preponderance of negative attitudes toward both homosexuality and people with AIDS. The type of questionnaire used in these studies was not specified.

In a study of attitudes toward homosexual behavior, students were found to be highly unaccepting. The minority who were tolerant of homosexuals were also least fearful of contracting HIV (Goodwin & Roscoe, 1988). Another study examined the relationship between attitudes toward people with AIDS and attitudes about homosexuality. A strong positive correlation was found between the two. In addition, tolerant attitudes about AIDS and homosexuality were higher for those subjects who were acquainted with a homosexual (Bruce, Shrum, Trefethen & Slovik, 1990). Grieger & Ponterotto (1988) found that their

subjects were generally accepting of homosexuals and people with AIDS, and that the effect was magnified in those subjects who were familiar with a gay person.

Several studies have found gender differences in attitudes toward homosexuals and people with HIV/AIDS. In a recent study, females were found to be more supportive of the rights of AIDS patients than males (Burnette, Redmon & Poling, 1990). Others have found that males had more negative attitudes toward homosexuals and were more fearful of contracting HIV (Goodwin & Roscoe, 1988). Males have been found to be consistently less tolerant toward AIDS (Gray & Saracino, in press) and homosexuality (Bruce, Shrum, Trefethen & Slovik, 1990; Grieger & Ponterotto, 1988; Henry & Bradford, 1990; Spreadbury, 1988).

Studies of the relationship between knowledge and attitudes about HIV/AIDS are somewhat promising. Krupka & Vener (1989) found that subjects with high knowledge scores were more willing to interact with carriers of HIV. But these same subjects were unwilling to swim in the same pool or share a dorm room with an HIV-positive person, even though they knew that these were not modes of transmission. Another study found that greater knowledge was associated with more empathy and less fear of AIDS (Royse, Dhooper & Hatch, 1987). A third study found no relationship between knowledge and attitudes about HIV/AIDS (Gray & Saracino, in press).

Summary

This chapter has reviewed literature concerning knowledge and attitudes about genital herpes and HIV/AIDS among college students. In addition, an overview of the medical and psychological aspects of these two diseases was presented, and current estimates of prevalence and incidence provided.

Genital herpes prevalence is significant among the college-age population, with 6.9% of the 20-29 year age group positive for antibodies to HSV-II (Johnson et al., 1989). It is a potentially serious and incurable STD. In spite of these facts, there are few studies of knowledge and attitudes among college students about genital herpes. Those that have been done point to a lack of accurate knowledge, and negative attitudes toward the disease and those who have it. Societal stigma about genital herpes is a reality to subjects in these studies.

HIV is also primarily transmitted by sexual contact. It is an incurable and potentially fatal infection. Current prevalence among college students appears to be low (0.2%) (First Survey, 1989). Incidence, however, may be increasing, especially if one looks at the occurrence of risk behaviors and the prevalence of other STD's among this population. In addition, currently 20% of diagnosed cases of AIDS are found among the 20-29 year age group. Since infection with the virus was likely to have occurred 5-10 years prior to diagnosis of AIDS, these individuals most likely were adolescents when the virus was contracted. Sexually active adolescents and young adults are clearly among those who must protect themselves from this frightening STD.

Studies of knowledge and attitudes of HIV/AIDS among this population show that college students have accurate knowledge about the more publicized aspects of the disease. Certain misconceptions remain, such as how it is **not** transmitted, and who is likely to contract the disease. Attitudes are variable, possibly depending in part upon how the questionnaire is constructed. Attitudes about HIV/AIDS appear to be linked to attitudes about homosexuality, and acquaintance with a gay person appears to promote more positive feelings toward people with the disease. Knowledge and attitudes about the disease are positively correlated in some studies, but not in others.

CHAPTER III

METHODS AND PROCEDURES

This chapter describes the methods and procedures used to conduct a study of knowledge and attitudes about genital herpes and HIV/AIDS among future teachers at Oregon State University. The genital herpes data is compared to data from a 1984 study of genital herpes, to assess changes in knowledge and attitudes over the six year period. Included in this chapter are a description of the sample, methods of data collection, the survey instruments used, and data analysis procedures.

The Sample

The subjects for this study are a sample of 150 students who were enrolled in classes in the College of Education at Oregon State University, Spring Term 1990. All undergraduate classes (400 level and below) that met on campus during the term were surveyed, for a total of twelve classes. Virtually all students present in class on the day of the survey participated.

The sample for comparison with the genital herpes portion of this study consists of 150 students in the Departments of Education and Sociology at Washington State University in Pullman, Washington. Gray (1985) surveyed these students concerning knowledge and attitudes about genital herpes during Spring Term 1984. As with the present study, participation was voluntary, anonymous and confidential. A convenience sample of 16 courses were chosen, from which students were invited to participate in the study. The mean age of the students in her sample was 22.5 years. Thirty-one percent were seniors and fifth-year students, while 69% were freshmen, sophomores and juniors. Ninety-two percent were single, and 73% reported being sexually active.

Oregon State University is a Land Grant Institution located in a rural agricultural area in Corvallis, Oregon. The student population is approximately 16,000. Eighty-three percent of these students are undergraduates, with a mean age of 22 years. In the spring of 1990, the College of Education at OSU represented 8% of the university student enrollment. The mean student age in the College of Education was 33 years, and 93% of the students were registered as undergraduates.

Washington State University is also a Land Grand Institution, with a student population of approximately 16,000. It is located in a rural, agricultural area of Eastern Washington, similar to that of Oregon State University. More than 80% of the student body is composed of undergraduates. Thus, the two universities from which subjects were recruited are similar in many respects.

Data Collection

This study was approved by the OSU Human Subjects Committee. Permission was obtained from each of the course instructors, allowing the researcher to invite students' participation in the study during class time. Students were informed in advance by the class instructor that a graduate student would be attending class on a specified day, to ask them to participate in a survey about health issues and sexually transmitted diseases. Participation was voluntary, anonymous, and confidential.

One half of the 150 subjects received a survey about genital herpes, and the other half received a survey about HIV/AIDS. This was accomplished by placing the two surveys in stacks, alternating every other one, and passing them out in class following no predetermined pattern. Before filling out a survey, all participants signed an informed consent, of which they were given a copy. Three types of data was collected from the subjects: Knowledge and attitudes about one of the two diseases, and demographic information about

the respondent. Following completion of the survey, all subjects were given an answer key to the knowledge test, and informational pamphlets about both genital herpes and HIV/AIDS.

Survey Instruments

All instruments were self-administered, requiring 15-25 minutes to complete. They are found in Appendix A. The genital herpes knowledge test (Gray, 1985) measures knowledge of the modes of transmission, symptoms, treatment, and prevention of genital herpes. It has 38 multiple-choice items. It was reviewed and approved for face and content validity prior to use in a 1984 study. Internal consistency was also measured before that study, with Cronbach's Alpha=.61. This reliability test is appropriate for use with continuous variables, as on this multiple choice test.

The HIV/AIDS knowledge survey is a 32-item true/false test on the etiology, symptoms, transmission, and prevention of HIV & AIDS infection. It was developed for use in a 1988 survey at O.S.U. (Gray & Saracino, 1989). Prior to use in that study, it was tested for face validity and manageability, and was approved by the OSU Survey Research Center. Internal consistency was measured using the data obtained in that study. The Kuder-Richardson 20 (K-R 20) was .686. The K-R 20 is appropriate for use with dichotomous variables, as in this true/false knowledge test.

The first of the two questionnaires used to assess attitudes was the Attitude Scale. It consists of 26 items that measure attitudes toward people with genital herpes or HIV/AIDS. One half of the items depict potentially sexual situations (Attitudes "S"), and the other half depict non-sexual situations (Attitudes "NS"). It uses a 6-point, positive to negative, Likert scale. It was originally developed by Gray and her colleagues for use in a 1984 study of genital herpes. (Gray, 1985). Prior to use in her study, this instrument was

tested for face, construct and concurrent validity. The concurrent validity measure, which was calculated by correlation with another genital herpes attitude scale, was a correlation of r=.69. Internal consistency was also measured, with Cronbach's Alpha=.94 for the total Attitude Scale, .93 for the Attitudes "S", and .87 for the Attitudes "NS". For this study, the Acceptance Scale was altered in order to measure attitudes about HIV/AIDS. The words "Genital Herpes" were replaced with "AIDS". Also, one item in the instrument refers to genital herpes as "The New Scarlet Letter." For the HIV/AIDS survey, the term "Gay Plague" was substituted. Otherwise, the two versions of the Attitude Scale are identical. This instrument was field tested in 2 classes, totaling 46 students, prior to use in this study. One was a Human Development/Family Sciences course, and the other a Gerontology course. No changes were made in this instrument as a result of the field tests.

The second of the two attitude instruments used in this survey was adapted from a previous study of college students, which examined attitudes and behavioral tendencies toward people with either AIDS or leukemia (Poling et al. 1990). Permission to adapt the instrument for use in the present study was obtained from the authors. The instrument was not tested prior to use in the above mentioned study. It employs a vignette of a college student who has contracted a disease (either HIV/AIDS or genital herpes in this case), followed by 19 items designed to measure attitudes toward the student described in the vignette. Twelve of the items pertain to responsibility for contracting the disease, and for purposes of analysis are called "Blame Chris". The remaining 7 items refer to situations involving casual contact with the student in question, and are referred to as "Casual Contact with Chris". In the original study, responses were made on a 7-point Likert scale. In this study, a 6-point Likert scale is used, for consistency with the Attitude Scale described

above. In addition, changes were made in the vignette to accurately describe the natural history of genital herpes and HIV/AIDS. The name of the individual described in the vignette was changed to "Chris" and pronouns were removed, to allow the respondents to decide the gender of the individual described. This instrument was field-tested prior to use in this study, using the same 46 students described above. The results of field testing led to the addition of an option called "Can't Say", placed next to the Likert scale on the "Chris" questionnaire. This was added because many subjects in the field test felt that they could not respond to items about "Chris" unless they knew **how** the disease was contracted, and this information was intentionally not provided in the vignette. To pursue the issue of attitudes being dependent upon how a disease is contracted, an open-ended question was added at the end of the "Chris" questionnaire. Its purpose was to allow respondents to indicate what factors influenced their responses to "Chris", including their choice of the "Can't Say" response.

A ten-item demographic data section was included at the end of the survey. Gender, class standing, age, marital status, family income, religious participation, and sexual intercourse experience were queried. These demographic items were adapted from Gray's 1985 genital herpes study.

Before the knowledge and attitude instruments were used in this study, they were reviewed by five health professionals who are specialists in the area of sexually transmitted diseases. Minor changes in wording, based upon their suggestions, were made to improve accuracy of content in both attitude instruments and in the genital herpes knowledge test. The instruments were then reviewed by the OSU Survey Research Center. Suggestions on format were incorporated into the instruments, to improve readability and ease of use by the subjects.

Data Analysis

The Statistical Package for the Social Sciences (SPSS/PC+ V2.0, 1988) was used for data analysis. The .05 level of significance was designated for all statistical tests. Before the data from this survey was analyzed, the subjects were compared on demographic items to determine differences between the two groups (those who received a genital herpes questionnaire, and those who that received a questionnaire about HIV/AIDS.) Chi square analysis was used for this comparison of demographics. A t-test was performed for age.

To assess knowledge levels about the two diseases, mean scores (percent correct), standard deviations, and minimum/maximum scores were computed. The two groups' mean scores were then compared using a t-test.

Attitudes were measured by computing the mean score, standard deviation and minimum/maximum scores on the Likert scale for each of the three sets of attitude measures (Attitude Scale, "Blame Chris", and "Casual Contact with Chris"). The mean attitude scores were then compared between the two groups with a t-test. The "Can't Say" option was analyzed separately for the "Chris" attitude measures. First the mean, standard deviation, and minimum/maximum percent of the time that the option was chosen by each of the two groups was computed. A t-test was then performed on the mean percentage for the two groups.

The Kolmogorov-Smirnov Goodness of Fit Test was done for knowledge scores and for scores on the Attitude Scale, "Blame Chris", and "Casual Contact with Chris" measures for the two groups. This is a test for normality of distribution.

Pearson Product Moment Correlation was done to determine correlations between the knowledge scores and each of the 3 attitude

measures (Attitudes, and the two "Chris" measures) for the two groups of subjects.

The data were examined for possible relationships between each of the demographic variables and the scores on both the knowledge and attitude instruments for the two groups. This was accomplished using two-way analysis of variance. The dependent variable was either mean knowledge score or mean score on the Attitude Scale, and the two independent variables were disease (genital herpes or HIV/AIDS), and each one of the demographic items in turn. Where statistically significant relationships were found, the Newman-Keuls multiple comparison test was used to pinpoint where the differences occurred.

Repeated Measures ANOVA was used to look for relationships between disease and attitudes in potentially sexual and non-sexual situations. In this design, the dependent variable was the mean score on the Attitude Scale, and the independent variable was disease. Between Group factors were disease (genital herpes and HIV/AIDS), and Within Subjects factors were Attitudes "S" (potentially sexual situations) and Attitudes "NS" (non-sexual situations).

Finally, the genital herpes data from this study were compared to data from a 1984 study of genital herpes (Gray, 1985). The two studies used the same knowledge test and the Attitude Scale. A t-test comparison was computed for mean knowledge scores, and for mean scores on the Attitude Scale.

Summary

This chapter describes the methods and procedures used to study knowledge and attitudes about genital herpes and HIV/AIDS among future teachers at OSU. Also included is a description of the methods used to

compare the genital herpes data from this study to data from a 1984 study of genital herpes. Included in this chapter are a description of the sample, methods of data collection, the survey instruments, and statistical procedures used for data analysis.

CHAPTER IV

DATA ANALYSIS

Introduction

This study measures knowledge and attitudes about genital herpes and human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS), among future teachers at OSU. These measurements are then compared to determine if differences exist between AIDS and genital herpes with respect to knowledge and attitudes. The data are also examined for correlations between knowledge and attitudes about genital herpes and HIV/AIDS. Finally, the genital herpes data obtained in this study is compared to data from a similar study of genital herpes conducted in 1984, to determine if changes in knowledge and attitudes have occurred over the six-year period.

Description of the Population - Demographics

Demographic data in this study consists of gender, age, class standing, marital status, and family income. The subjects are 150 students who were enrolled in classes offered by the OSU College of Education during Spring Term, 1990. All College of Education undergraduate classes (400-level and below) which met on campus during the term were included, providing a total of twelve classes surveyed.

One half of the 150 students received a questionnaire about genital herpes, and the other half received a questionnaire about HIV/AIDS. The two questionnaires were placed in stacks, alternating every other one, and then passed out in each classroom, following no pre-determined pattern. Advance permission was obtained from all instructors, allowing the

researcher to invite students to participate in the survey during class time. Virtually all students present on the day of the survey participated. All questionnaires were useable for data analysis.

The .05 level of significance is used for all statistical tests. Two-tailed p-values are presented. Chi square analysis compared the genital herpes and AIDS subjects to determine differences between the two groups in terms of demographics. The exception was age, for which a t-test was conducted. No statistically significant demographic differences exist between the two groups.

The majority of the subjects are undergraduates, making up 76% of the population. Females comprise 73% of the group. The mean age is 25 years, with a range of 18-43 years. Sixty-five percent of participants are single, never married students. To obtain a picture of socioeconomic status, subjects were asked their family's yearly household income during the last few years that they lived at home. The median family income bracket was $36-48,000/year. Table 1 presents details on demographic data. (Note: GH = genital herpes, AIDS = human immunodeficiency virus/acquired immunodeficiency syndrome, Total = combined GH & AIDS subjects. Total N does not always = 150, since not all students answered all questions.)

TABLE 1
DEMOGRAPHIC DATA COMPARISON
GENITAL HERPES & AIDS SUBJECTS

Gender	N	%Female	%Male
GH	74	68	32
AIDS	74	77	23
TOTAL	148	72	28

$X^2 = 1.21$ $p = .27$

Age	N	Mean	SD	Min./Max.
GH	73	26	7	18-43
AIDS	74	24	6	18-42
TOTAL	147	25	6.5	18-43

$t = 1.90$ $p = .06$

Class Standing	N	%Under Class	%Senior & 5th Yr	%Grad & Postbac
GH	74	37	35	28
AIDS	74	29	51	20
TOTAL	148	33	43	24

$X^2 = 6.68$ $p = .35$

Marital Status	N	%Single	%Married	%Sep/Wid/ Divorced
GH	74	59	30	11
AIDS	74	70	24	6
TOTAL	148	65	27	8

$X^2 = 4.18$ $p = .38$

Annual Family Income	N	<12K	12-24K	24-36K	36-48K	48-60K	>60K
GH	72	12%	24%	15%	13%	21%	15%
AIDS	72	12%	17%	18%	17%	18%	18%
TOTAL	144	12%	20%	17%	15%	19%	17%

$X^2 = 1.77$ $p = .88$

Description of the Population-Religious Participation

Questions about religious participation (attendance at church activities or services) reveal that a minority of the sample (46%) currently attends church activities or services at least monthly. Chi-square analysis demonstrates a statistically significant difference between the genital herpes and AIDS subjects in response to the question "Has your religious participation changed since leaving your parents' home?" While the majority of both groups stated no change has occurred, 70% of the AIDS subjects said no, while 52% of the genital herpes subjects reported no change. This is the only religious participation item in which a statistically significant difference between the two groups of respondents occurs. Table 2 presents further details about religious participation. (Note: N for the third item, "religious participation while living at home," includes only those subjects who reported a change in religious participation since leaving home.)

TABLE 2
CHI-SQUARE ANALYSIS OF
PAST AND CURRENT RELIGIOUS PARTICIPATION
GENITAL HERPES & AIDS SUBJECTS

Current Religious Participation	N	%Regular (weekly or >)	%Freq. (1-3X/ month)	%Occas. (several per yr.)	%Rare/Never (0-<1/yr.)
GH	73	31	20	25	24
AIDS	74	25	16	28	31
TOTAL	147	28	19	26	27

$X^2 = 2.67$ $p = .91$

Change in Participation Since Leaving Home	N	%Yes	%No
GH	73	48	52
AIDS	70	30	70
TOTAL	143	39	61

$X^2 = 4.11$ $p = .04$

Participation While at Home	N	%Regular	%Freq	%Occas	%Rare/Never
GH	36	47	22	16	14
AIDS	22	36	36	18	9
TOTAL	58	43	28	17	12

$X^2 = 5.45$ $p = .61$

Religious Preference	N	%Cath.	%Christ.	%Other	%None
GH	70	20	57	7	16
AIDS	69	12	65	6	17
TOTAL	139	16	61	6.5	16.5

$X^2 = 2.08$ $p = .56$

Description of the Population-Sexual Intercourse Experience

Questions about sexual intercourse experience reveal that 83% of the subjects have engaged in this activity. Of those with experience, 76% indicate they have been monogamous during the past year, and another 8% state that they have had no sexual partners during the previous year. Table 3 shows the categories and responses for items pertaining to sexual intercourse experience. The responses of the two groups of subjects were compared with the chi-square test. There were no statistically significant differences between the two groups. (Note: The second item, "number of partners in the past year," excludes those subjects who stated they have never had sexual intercourse.)

TABLE 3
CHI-SQUARE ANALYSIS OF SEXUAL INTERCOURSE EXPERIENCE
GENITAL HERPES & AIDS SUBJECTS

Frequency of Intercourse	N	%Never	%Occas	%1-2X/mo	%>2X/mo
GH	72	14	22	8	56
AIDS	72	21	23	4	53
TOTAL	142	17	23	6	54

$X^2=9.94$ $p=.08$

# Partners Past Year	N	%None	%One	%Two	%Three	%4or more
GH	63	6	78	13	3	0
AIDS	58	10	74	9	5	2
TOTAL	121	8	76	11	4	1

$X^2=2.48$ $p=.65$

Description of the Population-Familiarity with Genital Herpes & HIV/AIDS

Three questions concerning familiarity with genital herpes and AIDS were included in the questionnaire. When asked how often subjects talk to others about the disease in question, AIDS appears as much more a topic of conversation than does genital herpes. More than half of the AIDS respondents talk to others about the disease at least once a month, while just 5% of the genital herpes group talks to others about genital herpes that often. Sixty percent of the genital herpes subjects never talk to others about the disease, while only 3% of the AIDS subjects never talk to others about AIDS.

Of the 75 students who were in the genital herpes survey group, 35% know someone with genital herpes, and 7% report having been diagnosed with the disease themselves. Sixteen percent of the 75 AIDS subjects know someone with a positive test for the AIDS virus, but none report having been diagnosed HIV positive themselves. The difference between the two groups of subjects is not statistically significant on this item. These comparisons between herpes and AIDS respondents using the chi-square test are shown in Table 4.

TABLE 4
CHI-SQUARE ANALYSIS
FAMILIARITY WITH GENITAL HERPES & HIV/AIDS
GENITAL HERPES & AIDS SUBJECTS

Talk About Disease with Others		N	>1/wk	1/wk	1/mo	<1/mo	Never
	GH	75	0	0	5%	35%	60%
	AIDS	74	1%	12%	39%	45%	3%
$X^2=69.11$ $p\leq.001$							
Report Knowing Someone with Disease				N	%Yes	%No	
	GH			75	35	65	
	AIDS			75	16	84	
$X^2=5.95$ $p=.01$							
Report Having the Disease				N	%Yes	%No	
	GH			75	7	93	
	AIDS			75	0	100	
$X^2=3.31$ $p=.069$							

Results

Highlights of the results of this study are discussed in text, and details are presented in table form. Results are grouped in the following manner:

1) Hypotheses and research questions concerning knowledge about genital herpes and HIV/AIDS

2) Hypotheses and research questions concerning attitudes about genital herpes and HIV/AIDS

3) Hypotheses concerning the relationship between knowledge and attitudes about genital herpes and HIV/AIDS

4) Hypotheses concerning the relationship between knowledge and attitudes about genital herpes from this study, and knowledge and attitudes about genital herpes from a 1984 study.

Knowledge about Genital Herpes and HIV/AIDS

Research Question #1

What level of knowledge about genital herpes and HIV/AIDS exists among future teachers at OSU?

The knowledge test about HIV/AIDS consists of 32 true/false items about etiology, symptomatology, transmission, and risk factors for the disease. The genital herpes knowledge test is composed of 38 multiple choice items on the same topics stated above, and also include questions about medical treatment of the disease. Knowledge scores are computed as percent correct responses, so that a comparison may be made between the two tests. See Chapter 3 for a detailed description of the survey questionnaires. The survey questionnaires are found in Appendix A.

Research question #1 was addressed by computing means and standard deviations on the knowledge scores for both the genital herpes and HIV/AIDS questionnaires. The mean score on the HIV/AIDS knowledge test is 88% correct, while the mean score on the genital herpes knowledge test is 62% correct. Table 5 presents these results.

Hypothesis #1

There is no statistically significant difference between genital herpes knowledge scores and HIV/AIDS knowledge scores among future teachers at OSU.

The knowledge level about the two diseases was compared by computing an approximation of the usual T-test (Snedcor & Cochran, 1974). This test uses a separate variance estimate, because the variances in this case are unequal. A statistically significant difference in knowledge about the two diseases is noted, with the mean HIV/AIDS knowledge score being higher. Hypothesis #1 is rejected. Table 5 presents this comparison.

TABLE 5
MEAN, STANDARD DEVIATION AND T-TEST
KNOWLEDGE SCORES
GENITAL HERPES & AIDS SUBJECTS

Instrument	Group	N	Mean Score	SD	Min./Max.
Knowledge Survey	GH	74	62%	11%	27-90%
	AIDS	75	88%	9%	63-100%
$t=-15.82$ $p \leq .001$					

To further evaluate the data, it was arbitrarily determined that subjects possess accurate knowledge on particular test items if 75% or more chose the correct answer for that item. Students taking the genital herpes knowledge test scored below this level on items pertaining to the following: How the disease is diagnosed and treated; modes of transmission of the virus and times that a person is infectious; consequences of infection; likelihood, severity, and frequency of recurrences; the fact that vaccine research is in progress; association of HSV-II with cervical cancer, and the potential effect of the virus on childbearing. Subjects were knowledgeable with regard to the following items: The sexually transmitted nature of the disease; distinction between HSV-I and HSV-II; permanence of infection; availability of treatment and resources for those afflicted; factors that trigger an outbreak; increase in risk of infection with increase in number of partners; transmission decreased by sexual communication with a partner and use of condoms. See Appendix A for a complete list of knowledge test questions.

AIDS subjects scored very highly overall, especially on items related to transmission and treatment of the disease. Seventy-five percent or more of respondents knew that HIV is not transmitted by casual contact, or by giving or receiving blood. However, as a group they scored below 75% correct on the following items: The fact that AIDS is a viral infection, not related to gonorrhea; that a natural-skin condom is not an effective barrier to HIV transmission; and that most homosexuals do not have AIDS.

Research Question #2

Can demographic characteristics be identified within this sample that are related to knowledge about genital herpes and HIV/AIDS?

Two-way analysis of variance (ANOVA) reveals a statistically significant difference on both the genital herpes and HIV/AIDS knowledge scores with regard to class standing and marital status. The p-value on the ANOVA for class standing is .05, and for marital status is .027. Age, gender, family income, religious participation, and sexual intercourse experience are not related to knowledge scores.

To locate where the differences on knowledge scores by class levels occur, the Newman-Keuls multiple comparison test was used. This is shown in Table 6. The knowledge scores for the two sets of subjects is combined for this test, since ANOVA found that the interaction between class standing and group (ie. GH vs. HIV/AIDS) was not significant. The Newman-Keuls test reveals that underclassmen (freshmen, sophomores, juniors) scored lower on both knowledge tests than did seniors, fifth year students, post-baccalaureate and graduate students. Figure 1 is a bar graph that displays combined GH and AIDS knowledge scores by class standing.

Although two-way ANOVA identified statistically significant differences between marital status groups on both genital herpes and HIV/AIDS knowledge scores, the same multiple comparison test was unable to identify where the differences occur. This is due, most likely, to unequal cell sizes as shown in Table 6.

TABLE 6
NEWMAN-KEULS MULTIPLE COMPARISONS
COMBINED GENITAL HERPES & AIDS KNOWLEDGE SCORES
BY CLASS STANDING AND MARITAL STATUS

Class Standing	Mean Score	N
Underclassmen	70.77% (a)	48
Senior/ 5th Yr.	78.33% (b)	63
PostBac/Grad.	75.65% (b)	36
p = < .05		

Marital Status	Mean Score	N
Single	74.89%	95
Married	75.57%	40
Widowed/Separated/ Divorced	76.50%	12
p = < .05		

Note: Means followed by the same letter are not are not statistically different from one another.

KNOWLEDGE
BY CLASS

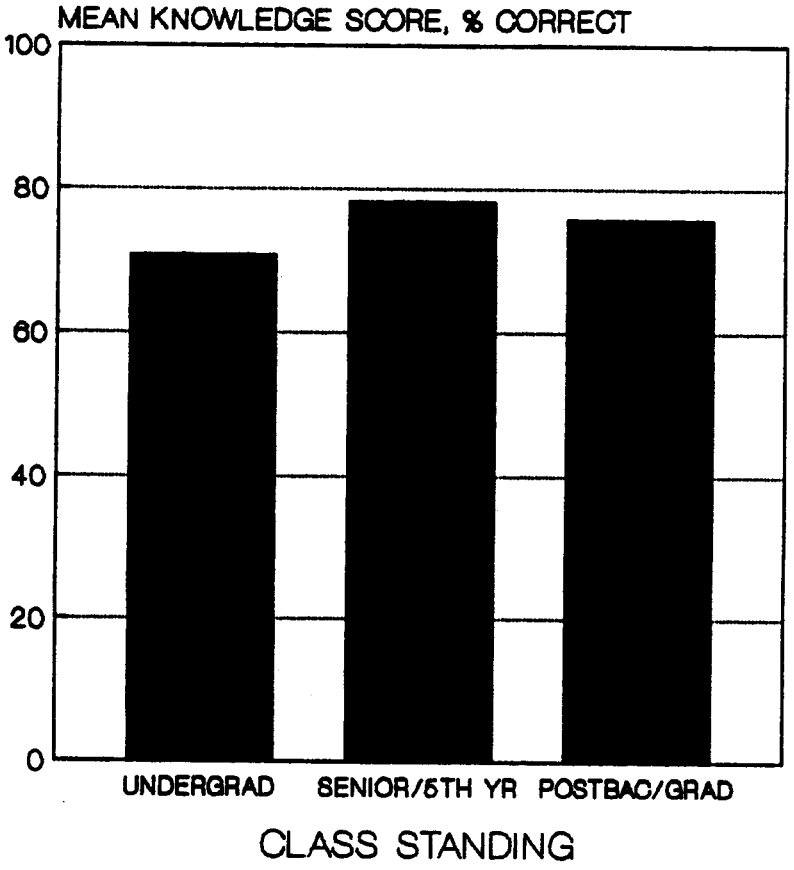

Fig. 1

Attitudes about Genital Herpes and HIV/AIDS

Research Question #3

What attitudes exist toward people with genital herpes and HIV/AIDS among future teachers at OSU?

To answer Research Question #3, attitudes were measured using two different attitude questionnaires. The first is referred to as "Attitudes" and the second is referred to as "Chris." See Chapter 3 for a detailed description of the survey questionnaires.

"Attitudes" is composed of 26 statements about people who have either genital herpes or AIDS. The wording on the questionnaires is identical, except for the name of the disease. One half of the "Attitudes" statements depict potentially sexual situations (e.g. dating, marriage) (Attitudes "S"), and the other half refer to non-sexual situations (Attitudes "NS").

"Chris" consists of two sets of statements about an individual who has contracted either genital herpes or HIV/AIDS. A short descriptive paragraph, or vignette about an individual called "Chris" was read by the subjects before they answered the questions. The two sets of statements about "Chris" are called "Blame Chris" and "Casual Contact with Chris." "Blame Chris" is composed of 12 statements about responsibility for the disease. "Casual Contact" pertains to 9 situations involving casual contact with the HSV-II or HIV positive individual. Chris' gender was not specified in the vignette. All attitudes were measured using a 6-point Likert scale.

Table 7 presents the total mean score on the "Attitudes" test for each group. Also in Table 7 are the two sets of mean scores on the "Chris" questionnaire, "Blame Chris" and "Casual Contact with Chris." Using 3.5

as the midpoint on the Likert scale, subjects are found to have relatively positive and accepting attitudes toward people with both HIV/AIDS and genital herpes, with lower scores representing more positive attitudes.

Hypothesis #2

There is no statistically significant difference between attitudes toward people with genital herpes and people with HIV/AIDS among future teachers at OSU.

In order to test Hypothesis #2, a T-test comparison was done on the mean scores for total Attitudes. An approximation of the usual t-test, using a separate variance estimate (Snedcor & Cochran, 1975), was used for "Blame Chris", and "Casual Contact with Chris." Statistically significant differences are found between the genital herpes and HIV/AIDS subjects for these three measurements, as shown in Table 7. Genital herpes subjects are more positive toward people with that disease, as compared to mean scores from the HIV/AIDS subjects, on both Attitudes and "Casual Contact with Chris". However, the HIV/AIDS subjects' mean score on "Blame Chris" is more positive. Hypothesis #2 is rejected.

TABLE 7
MEAN, STANDARD DEVIATION, RANGE & T-TEST
ATTITUDE SCORES
GENITAL HERPES & AIDS SUBJECTS

Instrument	Group	N	Mean	S.D.	Min./Max.
Attitudes	GH	75	2.7	.89	1.2-4.7
	AIDS	75	3.2	.96	1.4-5.6
t=-2.92 p=.004					
"Blame Chris"	GH	73	2.0	.78	1.0-3.9
	AIDS	71	1.6	.55	1.0-3.6
t=3.67 p<.001					
"Casual Contact with Chris"	GH	72	1.5	.69	1.0-4.0
	AIDS	75	1.9	1.0	1.0-5.5
t=-3.01 p=.003					

Note: Attitudes were measured on a 6-point Likert scale. The lower the score, the more positive the attitudes.

To further analyze Attitudes, separate scores were computed for those items pertaining to potentially sexual situations (Attitudes "S"), and those items pertaining to non-sexual situations. Repeated measures ANOVA was performed on the mean scores for the two sets of statements. Differences between the genital herpes and HIV/AIDS subjects are found on these measures, and are significant at the .004 level. There is an interaction between situation (sexual and non-sexual), and group (GH and AIDS) with the p-value at $\leq$.001. The Newman-Keuls multiple comparison test reveals that attitudes scores for the AIDS subjects are more positive than are scores for the genital herpes subjects in non-sexual situations. Conversely, the AIDS subjects are more negative in potentially sexual situations, as compared to the genital herpes subjects. Table 8 displays this comparison. Figure 2 is a bar graph that depicts the above interactions.

TABLE 8
NEWMAN-KEULS MULTIPLE COMPARISONS
ATTITUDES IN SEXUAL AND NON-SEXUAL SITUATIONS
GENITAL HERPES & AIDS SUBJECTS

	Sexual	Non-Sexual
AIDS	4.0 (72)	2.3 (67)
GH	3.0 (71)	2.5 (71)

$p < .05$

Note: Attitudes were measured on a 6-point Likert scale. The lower the score, the more positive the attitudes. All means presented here are statistically different from one another.

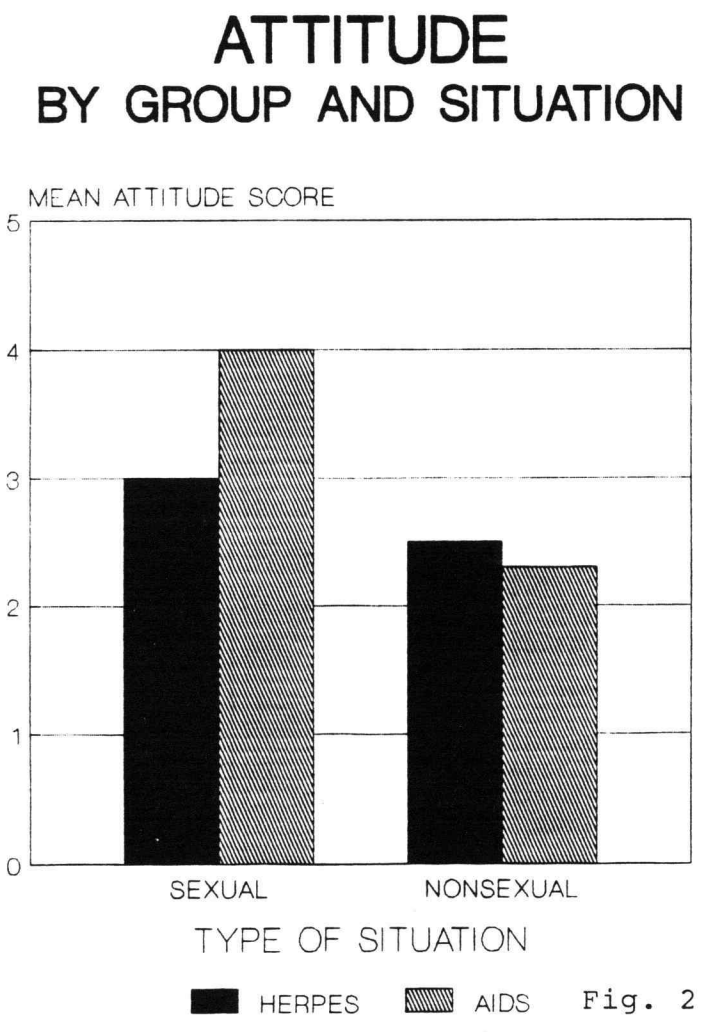

Fig. 2

On the two "Chris" groups of attitude measures ("Blame Chris" and "Casual Contact with Chris"), subjects were given the option of circling a response called "Can't Say" to each of the items. This was done after field tests of the instrument revealed that subjects were hesitant to circle a response, because they felt that their response depended upon **how** Chris contracted the disease, and this information was not provided in the vignette. To avoid confusing an "undecided" respondent with a "neutral respondent" (someone circling a "3" or "4" in the middle of the Likert Scale), this "Can't Say" option was provided.

Among the genital herpes subjects on the "Blame Chris" items, this "Can't Say" option was chosen 20% of the time, while among the AIDS subjects it was circled 32% of the time. This difference was statistically significant, as shown by an approximation of the usual t-test (Snedcor & Cochran, 1975). There was no significant difference between the two groups on the "Casual Contact" items with regard to frequency of choosing "Can't Say."

In comparing the two sets of questions on frequency of "Can't Say" responses, subjects from both the genital herpes and AIDS groups chose "Can't Say" relatively often on the "Blame Chris" items, whereas the percentage of "Can't Say" is much smaller for the "Casual Contact" items. The variance for both sets of questions is quite large. Table 9 presents the percentage of the time that subjects chose "Can't Say" responses.

TABLE 9
MEAN, STANDARD DEVIATION AND T-TESTS
FOR PERCENTAGE OF "CAN'T SAY" RESPONSES ON "CHRIS" VIGNETTE
GENITAL HERPES & AIDS SUBJECTS

Instrument	Group	N	Mean	S.D.
"Blame Chris"	GH	75	20%	17%
	AIDS	75	32%	13%
$t=-5.19$ $p \leq .001$				
"Casual Contact with Chris"	GH	75	3%	13%
	AIDS	75	4%	10%
$t=-.61$ $p=.54$				

To summarize the attitude measures: Overall, attitudes toward people with genital herpes and HIV/AIDS are relatively positive. Mean scores are below the midpoint on the Likert scale. The exception to this is a mean score above the midpoint on the Likert scale for the HIV/AIDS subjects on the items measuring attitudes in potentially sexual situations. In comparing attitudes between the two groups of subjects, the genital herpes subjects' scores are more positive on total attitudes, in sexual situations, and on casual contact items, than are the HIV/AIDS group. The HIV/AIDS subjects' scores are more positive in non-sexual situations, and on the items pertaining to responsibility for the disease. The HIV/AIDS group chose the "CAN'T SAY" option more frequently for items pertaining to responsibility for the disease (ie. fewer AIDS subjects responded on the Likert scale to the statements pertaining to responsibility for the disease).

In the "Chris" vignette described earlier, gender was purposely not specified. The last question about Chris asked whether Chris was perceived by the respondent as male or female. A majority of both groups labeled Chris as male, but more of the HIV/AIDS subjects perceived Chris as male, as compared to the genital herpes subjects using the chi-square test. This data is displayed below in Table 10.

TABLE 10
CHI-SQUARE ANALYSIS OF PERCEIVED GENDER IN "CHRIS" VIGNETTE GENITAL HERPES & AIDS SUBJECTS

Group	N	%Male	%Female
GH	60	72	28
AIDS	60	90	10

$X^2 = 5.38$ $p = .02$

Following the "Chris" questionnaire, subjects had the opportunity to answer an open ended question: "In responding to the statements about Chris, what factor(s), if any, influenced your responses?" Fifty-six percent of the genital herpes subjects provided a response to this item, while 69% of the HIV/AIDS subjects responded. The categories of responses listed below were generated by having two graduate students (the researcher and one other student) read all responses. The students independently generated an arbitrary set of categories based on their interpretation of the written responses. Because the categories were similar, they were then combined. Table 11 shows categories of responses to this question.

TABLE 11
RESPONSES TO OPEN-ENDED QUESTION

Group	%Responding to Question
GH	56
AIDS	69

Types of Responses	% of GH subjects with this response	% of AIDS subjects with this response
Response to "Chris" depends on how disease was contracted	15	38
Sympathetic/Accepting	31	17
Judgmental/Negative	1	25

Research Question #4

Can demographic characteristics be identified within this sample that are related to attitudes toward people with genital herpes and HIV/AIDS?

Using two-way ANOVA, a statistically significant interaction is noted on the attitudes measures for current religious participation and religious preference with regard to group. For current religious participation, the ANOVA $p = .003$. On religious preference, the ANOVA $p = .033$. The Newman-Keuls multiple comparison test reveals that in the genital herpes group, those who attend church rarely or never have the most positive attitudes toward people with that disease. All other attitude scores are not statistically different.

With regard to religion, those subjects in the herpes group with no religious preference have the most positive attitudes toward people with that disease. All other attitude scores are not statistically different. Table 12 presents the multiple comparison results on attitude means by religious participation and group, and by religious preference and group. Figures 3 and 4 are bar graphs of the relationships described above.

TABLE 12
NEWMAN-KEULS MULTIPLE COMPARISONS
ATTITUDES BY RELIGIOUS PARTICIPATION AND RELIGION
GENITAL HERPES & AIDS SUBJECTS

Group	Religious Participation	Mean Score		N
Genital Herpes	Rarely/Never	1.99	(a)	17
	Few times/Yr.	2.68	(b)	18
	Frequently	3.25	(b)	15
	Regularly	2.95	(b)	23
HIV/ AIDS	Rarely/Never	3.41	(b)	23
	Few times/Yr.	2.88	(b)	21
	Frequently	3.37	(b)	12
	Regularly	3.10	(b)	18

$p < .05$

Group	Religion	Mean Score		N
Genital Herpes	Catholic	3.15	(b)	14
	Christian	2.94	(b)	40
	None	2.07	(a)	11
HIV/ AIDS	Catholic	2.82	(a,b)	8
	Christian	3.17	(b)	45
	None	3.10	(b)	12

$p < .05$

Note: Attitudes were measured on a 6-point Likert scale. The lower the score, the more positive the attitudes. Means followed by the same letter are not statistically different from one another.

ATTITUDE
BY GROUP AND RELIGIOUS PARTICIPATION

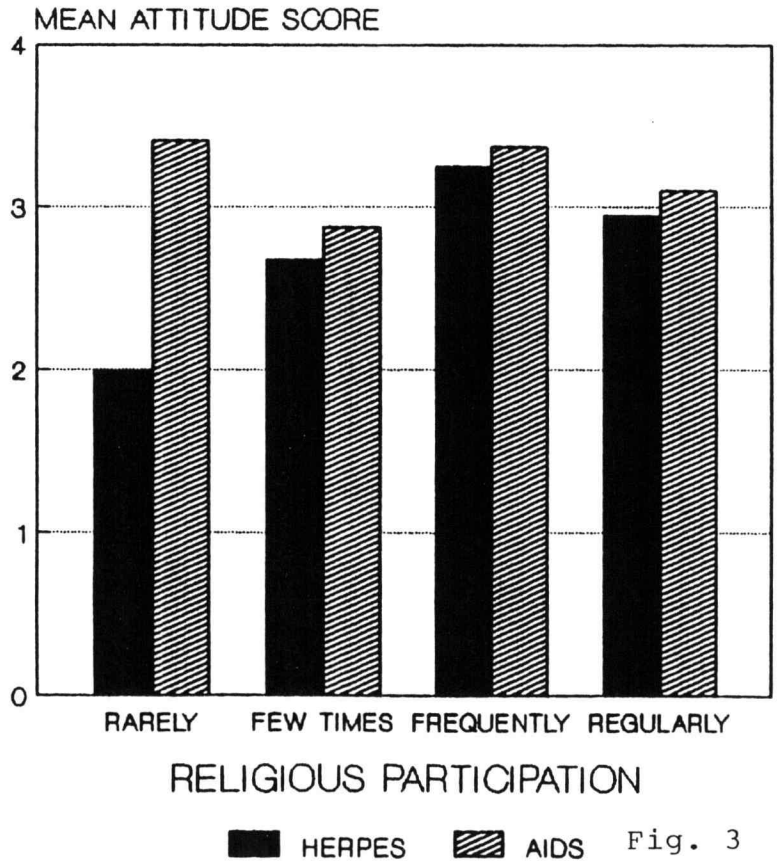

Fig. 3

ATTITUDE
BY GROUP AND RELIGION

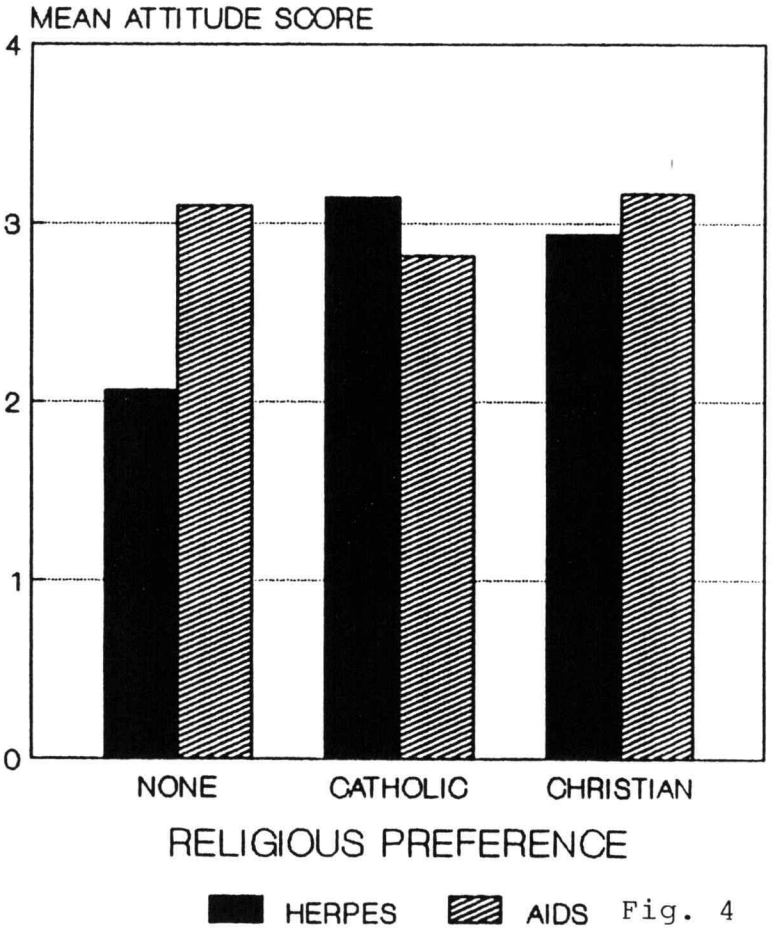

Fig. 4

Relationship Between Knowledge and Attitudes

Hypothesis #3

There is no correlation between genital herpes knowledge scores and attitude scores among future teachers at OSU.

Hypothesis #3 was tested by computing Pearson's correlation coefficients for scores on the genital herpes knowledge test, the "Attitudes" questionnaire, the "Blame Chris" and the "Casual Contact with Chris" surveys. There is a weak but statistically significant negative correlation between knowledge scores and scores on "Attitudes," and between knowledge scores and scores on "Blame Chris." Because **lower** attitude scores mean more accepting attitudes, the correlation translates to a relationship between higher knowledge scores and more positive attitudes toward people with genital herpes. Hypothesis #3 is rejected.

Correlations among all three sets of questions measuring attitudes about genital herpes are statistically significant. A positive correlation is found between "Attitudes" scores and scores on both "Blame Chris" and "Casual Contact with Chris." A positive correlation occurs between scores on "Blame Chris" and "Casual Contact with Chris." Correlations are presented in Table 13.

TABLE 13
GENITAL HERPES
KNOWLEDGE AND ATTITUDE CORRELATION COEFFICIENTS

	KNOWLEDGE	ATTITUDE	"BLAME"	"CONTACT"
KNOWL.	1.00	-.3128 p=.004	-.2537 p=.016	-.1559 p=.095
ATTITUDE	-.3128 p=.004	1.00	.6795 p≤.001	.6092 p≤.001
"BLAME"	-.2537 p=.016	.6795 p≤.001	1.00	.5457 p≤.001
"CONTACT"	-.1559 p=.095	.6092 p≤.001	.5457 p≤.001	1.00

N=72

Hypothesis #4

There is no correlation between HIV/AIDS knowledge scores and attitude scores among future teachers at OSU.

To test Hypothesis #4, Pearson's correlation coefficients were computed for scores on the HIV/AIDS knowledge test and Attitudes, "Blame Chris," and "Casual Contact with Chris." A weak but statistically significant negative correlation is noted between knowledge scores and Attitudes scores. Because **lower** attitude scores mean more accepting attitudes, the correlation translates to a relationship between higher knowledge scores and more accepting attitudes toward people with HIV/AIDS. Hypothesis #4 is rejected.

Correlations among all three sets of questions measuring attitudes about HIV/AIDS are statistically significant. A positive correlation is noted between "Attitudes" scores and both "Blame Chris" and "Casual Contact with Chris" scores. The same is noted for the relationship between scores on "Blame Chris" and "Personal Contact with Chris." These correlations are shown in Table 14.

TABLE 14
AIDS KNOWLEDGE AND ATTITUDE
CORRELATION COEFFICIENTS

	KNOWLEDGE	ATTITUDE	"BLAME"	"CONTACT"
KNOWL.	1.00	-.2298 p=.027	-.1145 p=.171	-.1314 p=.137
ATTITUDE	-.2298 p=.027	1.00	.7050 p≤.001	.7757 p≤.001
"BLAME"	-.1145 p=.171	.7050 p≤.001	1.00	.6860 p≤.001
"CONTACT"	-.1314 p=.137	.7757 p≤.001	.6860 p≤.001	1.00

N=71

Relationship Between Data from this Study and a 1984 Study of Genital Herpes

A study of students in the Departments of Education and Sociology at Washington State University was done six years ago, in which knowledge and attitudes about genital herpes were measured. The knowledge test and Attitude questionnaire from that study was used in the present research. The results of these two studies are compared below.

Hypothesis #5

There is no statistically significant difference between genital herpes knowledge scores from this study, and knowledge scores from a 1984 study of genital herpes.

Hypothesis #5 was tested with a T-test comparison of the mean scores on the knowledge tests from the two studies. Students in the present study scored higher on the knowledge test than did students in the 1984 study. This difference is statistically significant, as shown in table 15. Hypothesis #5 is rejected.

TABLE 15
T-TEST COMPARISON
1984 & 1990 GENITAL HERPES KNOWLEDGE SCORES

SURVEY	N	MEAN SCORE	S.D.	Min./Max.
1984	150	57%	11%	21-84%
1990	74	62%	11%	27-90%
t=3.1982	$p \leq .001$			

Hypothesis #6

There is no statistically significant difference between genital herpes attitude scores from this study, and attitude scores from a 1984 study of genital herpes.

Subjects' scores in the present study demonstrate more positive attitudes toward people with genital herpes, as compared to "Attitudes" scores from a 1984 study of genital herpes. T-test comparisons of mean scores from the two studies are given in Table 16. These differences are statistically significant. Hypothesis #6 is rejected.

TABLE 16
T-TEST COMPARISON
1984 & 1990 GENITAL HERPES "ATTITUDES" SCORES

SURVEY	N	MEAN	S.D.	Min./Max.
1984 "Attitudes"	150	3.16	.81	1.4-4.9
1990 "Attitudes"	75	2.73	.89	1.2-4.7
t=4.594 p≤.001				
1984 "Attitudes S"	150	3.57	.99	1.3-5.5
1990 "Attitudes S"	71	3.00	1.13	1.0-5.4
t=3.816 p≤.001				
1984 "Attitudes NS"	150	2.80	.75	1.1-4.5
1990 "Attitudes NS"	71	2.50	.87	1.0-4.2
t=2.632 p=.005				

(Note: Attitudes were measured using a 6-point Likert scale. The lower the number, the more positive the attitudes.)

Reliability Measures

Internal consistency was measured for each of the instruments used in this survey. For dichotomous data, the Kuder-Richardson 20 (KR-20) was calculated. For continuous data, Cronbach's Alpha was computed. Table 17 presents reliability measures for the instruments used with this sample. For reliability measures for these instruments from previous research, see Chapter 3.

TABLE 17
RELIABILITY MEASURES
SURVEY INSTRUMENTS

SURVEY INSTRUMENT	N	CRONBACH'S ALPHA	KUDER-RICHARDSON 20
HIV/AIDS Knowledge	75		.69
GH Knowledge	75	.84	
Attitudes "S"	150	.92	
Attitudes "NS"	150	.86	
"Blame Chris"	150	.75	
"Casual Contact"	150	.88	

Summary

This chapter has presented the results of the analysis of this survey data. Statistically significant findings are as follows. Two-tailed p-values are given.

1) No differences exist between the two survey groups (genital herpes & HIV/AIDS) in terms of demographics (gender, age, class standing, marital status, & family income).

2) The majority of both groups report no change in religious participation since leaving home, however a smaller percentage of the genital herpes subjects (52%) report no change, compared to 70% of the HIV/AIDS subjects reporting no change ($p = .04$).

3) A far greater number of HIV/AIDS subjects talk frequently to others about the disease, as compared to the genital herpes subjects, who talk less often to others about genital herpes ($p \leq .001$).

4) More genital herpes subjects know someone with that disease, as compared to HIV/AIDS subjects, who know fewer people who are HIV positive ($p = .01$).

5) Knowledge scores are higher among the HIV/AIDS subjects (mean score 88% correct) as compared to the genital herpes subjects (mean score 62% correct) ($p \leq .001$).

6) Marital status ($p = .05$) and class standing ($p = .027$) are the two demographic items that are related to knowledge scores in both the HIV/AIDS and genital herpes groups. Age, gender, family income, religious participation, religious preference, and sexual intercourse experience are not related to knowledge scores.

7) On average, subjects in both the HIV/AIDS and genital herpes groups are relatively positive toward people with those diseases, except for the HIV/AIDS subjects in potentially sexual situations. However, the range of scores is quite variable.

8) When the two groups' attitude scores are compared, the genital herpes group scores are more positive on total attitudes ($p = .004$), in potentially sexual situations (e.g. dating, marriage) ($p = \leq .001$), and on casual contact items ($p = .003$), than the HIV/AIDS group. The HIV/AIDS groups' scores are more positive in non-sexual situations ($p = .004$), and on the items pertaining to responsibility for the disease ($p \leq .001$), although this group chose the "CAN'T SAY" option more frequently for these items (i.e. fewer AIDS subjects responded on the Likert scale to the statements pertaining to responsibility for the disease).

9) Current church attendance ($p = .003$) and religion ($p = .033$) are the two demographic items that are related to attitude scores in both the genital herpes and HIV/AIDS groups. No other demographic items are related to attitudes.

10) There are weak, but statistically significant correlations between knowledge and attitudes for both groups of subjects. Higher knowledge scores are correlated with more accepting attitudes (see Tables 13 and 14 for p-values).

11) Subjects in this study have both higher knowledge scores ($p = \leq .001$) and more positive attitudes ($p \leq .001$) toward people with genital herpes, than do subjects from a similar study of genital herpes conducted in 1984.

CHAPTER V

DISCUSSION, SUMMARY AND RECOMMENDATIONS

This study has examined knowledge and attitudes about genital herpes and human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) among future teachers at Oregon State University. The purpose was to quantify knowledge about the two diseases, and to measure attitudes toward people who have them. One important aspect of this study is that data about two STD's was collected using a group of future teachers as a sample, and attitudes were measured in two ways. The first attitude instrument employs a series of statements to which responses are made. The second instrument consists of a vignette of a college student, followed by statements about the student described, to which responses are made. Previous studies have measured attitudes in one of these two ways, and have obtained differing results. This study provides a comparison of the two types of attitude measures, using the same sample. In addition, a longitudinal comparison of knowledge and attitudes about genital herpes was done, by comparing data from this study to data from a similar study of genital herpes that was conducted in 1984.

For this study, a convenience sample was taken of students in the College of Education at Oregon State University, Spring Term 1990. All undergraduate classes that met on campus were surveyed, and a total of 150 subjects were obtained. Students present in class on the day of the survey completed a self-administered questionnaire. Data was collected from each subject concerning knowledge and attitudes about either genital herpes or HIV/AIDS, as well as demographic information.

A review of the literature reveals that college students lack accurate knowledge about genital herpes, but are fairly knowledgeable about HIV/AIDS. Societal stigma surrounding genital herpes is acknowledged by the majority of students surveyed. Negative attitudes toward people with genital herpes are documented. Both positive and negative attitudes are documented toward people with HIV/AIDS. It appears that homophobia is linked to attitudes about HIV/AIDS. These findings will be cited in detail in the following discussion.

Discussion

Discussion of the findings of this study are organized in five groupings. These are: 1) personal characteristics of the subjects (i.e. demographics, religious participation, sexual intercourse experience, and familiarity with genital herpes and HIV/AIDS); 2) knowledge about genital herpes and HIV/AIDS; 3) attitudes toward people with genital herpes and HIV/AIDS; 4) possible relationships between knowledge and attitudes about genital herpes and HIV/AIDS; and 5) a comparison of data from this study with data from a 1984 study of genital herpes.

Personal Characteristics of the Sample

The majority of subjects are single, sexually active individuals with a mean age of 25 years. Seventy-three percent are female. Three quarters of sexually active subjects have had one sex partner in the past year. More than half of the subjects are of a Christian faith other than Catholic, and the majority attend religious services infrequently or not at all. Seven percent of the subjects who completed the genital herpes survey report having the disease, while 35% report knowing someone else with the disease. No one in the HIV/AIDS group claims to be HIV-positive, but 16% report knowing

someone who is. Most of the genital herpes subjects never talk about the disease to others, while the majority of the HIV/AIDS subjects converse at least monthly about AIDS.

While not a random sample, the subjects in this study are similar in many respects to those in other studies of college students (Bruce, Shrum, Trefethen, & Slovik, 1990; Fennell, 1990; Gray, 1985; Gray & Saracino, 1989; Henry & Bradford, 1990). As compared to samples from other studies of STD's and college students, this group of subjects is somewhat older. Rates of sexual activity are similar to that found in similar samples, as is number of sexual partners in the past year. The 7% prevalence of genital herpes in this sample is nearly identical to the US population estimate of 6.9% for this age group (Johnson et al, 1989). The HIV seroprevalence estimate of 0.2% for the US college population (First Survey, 1989) is corroborated, with no reported cases in this group of 75 HIV/AIDS subjects.

Knowledge About Genital Herpes and HIV/AIDS

Accurate knowledge about genital herpes is lacking among this sample of students. The mean score of 62% correct is similar to those of the few other studies done on this topic (Bruce & Bullins, 1989; Bruce & McLaughlin, 1986; Gray, 1985; Hillard, Kitchell, Turner, Keeling & Shank, 1984). Students scored poorly on a variety of questions about the disease, including modes of transmission, diagnosis and treatment, consequences of infection, the nature of recurrences, existence of vaccine research, the association of HSV-II with cervical cancer, and its effect on childbearing (see Chapter 4, pg.48). It is clear from the lack of knowledge documented in this and other studies cited above that the importance of genital herpes to this high risk population is being overlooked. There is a need for factual

information among college students concerning this disease. It is heartening to note that students in this sample are aware that transmission of HSV-II can be reduced by having fewer sex partners, through open communication with sex partners, and by the use of condoms (see Chapter 4, pg.48).

A significantly higher level of knowledge about HIV/AIDS exists, as compared to knowledge about genital herpes. The mean HIV/AIDS score was 88% correct, and there are only three items that fewer than 75% of subjects answered correctly. These include the fact that a natural skin condom is not an effective barrier to transmission of HIV, that AIDS is a viral infection not related to gonorrhea, and that most homosexuals do not have AIDS. These same gaps in knowledge have been reported by other researchers (DiClemente, Forrest & Mickler, 1990; Dorman & Rienzo, 1988; Goodwin & Roscoe, 1988; Gray & Saracino, 1989; Grieger & Ponterotto, 1988; Krupka & Vener, 1989). Correct information about condom effectiveness as a barrier to the transmission of many STD's is crucial, and must be understood by college students. This simple piece of information requires emphasis in educational programs about STD's, because it can play an important role in STD prevention.

The misconception that most homosexuals have HIV/AIDS is disturbing, and may partially explain homophobic attitudes surrounding this disease. Factual information to dispel this myth, including an accurate portrayal of homosexual lifestyles may correct this misperception, and should be included in STD education. On a positive note, this group of subjects is well aware that casual contact is not a mode of HIV transmission, and that giving and receiving blood does not cause HIV infection. These findings are in contrast to many other HIV/AIDS studies, in which the majority of college

students were unable to answer these questions correctly (Burnette, Redmon & Poling, 1990; DiClemente, Forrest & Mickler, 1990; Dorman & Rienzo, 1988; Goodwin & Roscoe, 1988).

Two demographic factors influenced the knowledge scores in this study: Class standing and marital status. Upper-level students (i.e. seniors, fifth-year, post-baccalaureate, and graduate students) scored higher on both the genital herpes and HIV/AIDS knowledge tests than did freshmen, sophomores and juniors. Since the variable age did not influence knowledge scores, one may surmise that education about STD's is occurring during the university career. Future surveys should ask students where they get their information about these diseases. Such a question would reveal whether or not these scores are due to educational efforts on campus. It is not possible to draw conclusions about marital status and knowledge scores in this sample, due to unequal cell sizes (see Chapter 4, Table 6).

Two issues concerning the knowledge tests used in this survey must be pointed out. The first is that the genital herpes test uses a multiple-choice format, while the HIV/AIDS questionnaire is a true/false test. One might expect students to score higher using the true/false format, since due to chance alone a score of 50% correct is possible. The second issue pertains to the distribution of scores on the knowledge tests. While scores on the genital herpes knowledge test are normally distributed, the HIV/AIDS scores are not. Since the majority of HIV/AIDS subjects did well on the knowledge test, the distribution of scores is truncated. This truncated distribution can affect the results of statistical tests used to analyze this data. Comparisons of the knowledge scores should consider these two factors.

Attitudes About Genital Herpes and HIV/AIDS

Attitudes toward people with genital herpes and HIV/AIDS were measured in two ways. First, subjects responded to a series of statements about people with genital herpes or HIV/AIDS. In a second attitude measure, subjects read a vignette about a college student named "Chris", who contracted one of the two diseases. Following the vignette, students responded to statements about "Chris". Attitudes were measured on a 6-point Likert scale.

Rather than treat this as ordinal data, underlying continuity was assumed on this scale, so that more sophisticated statistical techniques could be used in the analysis of data. For both the genital herpes and HIV/AIDS groups, mean scores were computed for attitudes. The lower the score, the more accepting the attitudes.

Using 3.5 as the midpoint on the Likert scale, attitudes in all situations are relatively positive for both groups of subjects. The exception was among the HIV/AIDS subjects in potentially sexual situations, where attitudes were relatively unaccepting. This somewhat negative mean score may reflect the fear of HIV/AIDS as a potentially fatal STD. Mean scores ranged from 1.5 for the genital herpes subjects on the casual contact items, to 4.0 for the AIDS subjects in potentially sexual situations. These relatively positive attitudes contrast with some previous studies among college students, which found negative and prejudicial attitudes toward both genital herpes (Bruce & Bullins, 1989; Bruce & McLaughlin, 1986; Dorman & Rienzo, 1988; Gray, 1985; Hillard, Kitchell, Turner, Keeling & Shank, 1984) and AIDS sufferers (Fennell, 1990; Henry & Bradford, 1990; Krupka & Vener, 1989; Poling, Redmon & Burnette, 1990; St. Lawrence, Husfeldt, Kelly, Hood & Smith, 1990).

However, these results agree with one recent study that found generally accepting attitudes toward people with HIV/AIDS (Gray & Saracino, in press).

In comparing attitude scores between the two groups of subjects, it is noteworthy that attitudes toward people with genital herpes are significantly more positive than are attitudes toward people with HIV/AIDS. The only exception is on those statements concerning non-sexual situations, where AIDS subjects are somewhat more positive. These findings agree with two comparison studies of attitudes toward AIDS and leukemia patients, one in a sample of college students (Poling, Redmon & Burnette, 1990), and the other in a sample of physicians (Kelly, St. Lawrence, Smith, Hood & Cook, 1987). In both instances, subjects expressed more positive attitudes toward and more willingness to interact with the leukemia patient as compared to the AIDS patient as described in a vignette. The idea that one's attitudes may be determined by the type of disease or the manner in which it is contracted is an interesting one, and may reveal the myths and prejudices that characterize this society's responses to STD's. If empathy with those who contract diseases of any kind is society's goal, this study provides an example where examination of attitudes is imperative. Further research among college students is needed, since prejudices must be understood in order to adequately address them.

In addition to the 6-point Likert scale, subjects in this study had the option of circling a response called "Can't Say" to each of the statements that followed the "Chris" vignette. Also included at the end of the "Chris" questionnaire was an open-ended question: "In responding to the statements about Chris, what factors, if any, influenced your responses?" A significant percentage of responses were "Can't Say" for both groups of subjects

concerning statements about responsibility for the disease. These subjects apparently are not certain how much sympathy or blame they should express toward "Chris". Indeed, in response to the open-ended question following the "Chris" questionnaire, many subjects stated that their responses to "Chris" depended upon **how** s/he contracted the disease. It was stated by many that if s/he contracted HIV through sex or drug use, they would not feel sorry for him/her, but if it was contracted "innocently" as in a blood transfusion, they would be more sympathetic. Some genital herpes subjects felt that if "Chris" was promiscuous, s/he was more deserving of the disease. Of interest is the fact that while only 1% of the genital herpes subjects wrote a negative or judgmental comment about "Chris", 25% of the HIV/AIDS subjects so responded. In addition, only 17% of the HIV/AIDS subjects expressed sympathetic feelings toward "Chris", while 31% of the genital herpes subjects were sympathetic. Again, the nature of HIV/AIDS and the fears and prejudices surrounding it are apparent in this comparison with genital herpes. Here is an example where the type of disease and how it was contracted appears to dictate responses to a person who is infected. These attitudes should be closely examined and discussed among college students in the classroom setting. It is possible that many students are not aware of the beliefs that inform their attitudes toward people with STD's. It is also possible that homophobia plays a significant role in attitudes toward people with HIV/AIDS, as has been documented in other studies among college students (Bruce, Shrum, Trefethen & Slovik, 1990; Fennell, 1990; Goodwin & Roscoe, 1988; Poling, Redmon & Burnette, 1990; St. Lawrence, Husfeldt, Kelly, Hood & Smith, 1990). This possibility should be explored and discussed with college students.

Among the HIV/AIDS subjects, responses to the open-ended question tended to be quite emotional. One individual referred to HIV/AIDS as "God's Plague" and punishment for wrongdoing. Another subject stated that not enough is known yet about possible transmission modes of HIV, so that s/he would not take chances with regard to contact of any kind involving someone with HIV/AIDS. Brandt (1988) points out that we live in an era in which scientific authority has eroded. Perhaps due to rapid changes in information and technology, people do not know whom to believe, especially when there is lack of consensus among professionals. This lack of consensus occurred when the presence of HIV was discovered in low concentrations in bodily fluids such as saliva and tears. Controversy arose over whether or not precautions should be taken to avoid contact with these bodily fluids. Since no known cases of infection have occurred after exposure to these fluids, there is no reason to believe that they are modes of transmission. But the seeds of doubt may have been planted as a result of this controversy. Seemingly irrational fears among even the most educated may have led to the negative and prejudicial attitudes that have been documented toward those with HIV/AIDS (Fennell, 1990; Krupka & Vener, 1989; Poling, Redmon & Burnette, 1990; St. Lawrence, Husfeldt, Kelly, Hood & Smith, 1990).

With regard to perceived gender, the majority of both groups of subjects thought of Chris as male, but significantly more HIV/AIDS subjects chose this response, as compared to subjects in the genital herpes group. This majority response may reflect the common stereotype that AIDS is strictly a gay male disease. Stereotypes that afford an inaccurate perception of risk may be comforting to sexually active college students, but also may lead to dangerous sexual behavior. Indeed, two other studies found that

perceived susceptibility to HIV infection was related to "safer sex" behavior (Gray & Saracino, 1989; DiClemente, Forrest & Mickler, 1990). Although the present study did not address the issue of behavior, possible relationships between attitudes and sexual behavior require clearer insight. Future research should focus on possible interactions between these two factors among college students.

Two demographic characteristics affected attitude scores in this sample. These were frequency of religious participation, and religious preference. Those subjects in the genital herpes group who attend religious activities rarely or never and who have no religious preference, have more positive attitudes than do all other subjects in both groups. Perhaps religious influence should be studied more closely in future surveys, since lack of it resulted in more accepting attitudes in this sample. It might be that religious influence contributes to negative attitudes toward those who contract diseases that are somehow equated with wrong-doing. This is an interesting idea that has not yet received attention, and could be readily examined in future research.

With regard to gender of respondents, other studies of HIV/AIDS have found that gender influenced attitudes, with males being more negative and homophobic than females (Burnette, Redmon & Poling, 1990; Bruce, Shrum, Trefethen & Slovik, 1990; Goodwin & Roscoe, 1988; Gray & Saracino, in press; Grieger & Ponterotto, 1988; Henry & Bradford, 1990; Spreadbury, 1988). This effect was not found among this group of subjects. Attitudes were similar among males and females in this sample.

An interesting comparison is that of the two types of attitude measures (i.e. questionnaire only, versus vignette followed by questionnaire). Attitudes

for both groups of subjects are more positive when measured by the vignette-questionnaire. This type of comparison has not been previously made using the same group of subjects. Studies have found both relatively positive (Poling, Redmon & Burnette, 1990) and negative (St. Lawrence, Husfeldt, Kelly, Hood and Smith, 1990) attitudes toward people with AIDS as measured with a vignette-questionnaire. A few studies have documented accepting and sympathetic attitudes toward AIDS patients using questionnaires only (Burnette, Redmon & Poling, 1990; Gray & Saracino, in press; Grieger & Ponterotto, 1988), but many others have found a preponderance of negative attitudes in this way (Bruce, Shrum, Trefethen & Slovik, 1990; Fennell, 1990; Krupka & Vener, 1989). Perhaps, as in this study, a vignette personalizes the disease and allows subjects to relate more easily to the student and the disease described. In this way, empathy may be engendered that otherwise would not be apparent in subjects' responses. Differences in responses that are due to the construction of the questionnaire are a real possibility, and should be considered in future surveys. Using both types of attitude measures in the same sample of students, as was done in this study, is one way that this could be ascertained. This study has suggested that if students can personalize STD's, their attitudes are more sympathetic. If one's goal is to engender sympathy and promote perceived susceptibility, educators can attempt to make these diseases real to college students. This might be accomplished by using case histories, and by inviting guest speakers who have personal experience with STD's to address attitudes in the classroom setting. Discussion of a range of sexual lifestyles could be included, with emphasis on similarities between homosexuals and heterosexuals in many aspects of daily living.

Relationship Between Knowledge and Attitudes

Weak but statistically significant correlations occurred between knowledge and attitudes about both genital herpes and HIV/AIDS. For both groups of subjects, attitudes in sexual and non-sexual situations were more accepting as knowledge scores increased. Among the genital herpes subjects, the same correlation occurred for attitudes about "Chris'" responsibility for his/her disease. These findings agree with those of other recent studies among college students, where knowledge and attitudes were positively correlated (Gray & Saracino, in press; Royse, Dhooper & Hatch, 1987). One might hope that accurate knowledge results in more reasoned attitudes, and this data supports that idea. However, in this study, these correlations are weak, suggesting that there is more to be understood about the relationship between knowledge, attitudes and beliefs. Possessing factual information is perhaps not as important as examining one's attitudes, and the values and beliefs that inform them. Examining personal and societal values and beliefs in the classroom is one way that educators can help college students to understand how stereotypes affect ourselves as well as those who are targeted by them. Another concern is how attitudes and beliefs translate into behavior. This area should continue to be addressed in future research.

Comparison Between 1984 and 1990 Knowledge and Attitudes About Genital Herpes

The 1984 and 1990 studies of genital herpes employed the same knowledge test, as well as the same scale measuring attitudes toward people with genital herpes in potentially sexual and non-sexual situations. Knowledge scores in 1990 are significantly higher, with 62% correct

responses, compared to 57% correct in 1984. This result is surprising, since genital herpes does not currently receive as much publicity as it did a decade ago. A higher level of knowledge may be due to effective effort on the part of educators to impart this information to adolescents and young adults. On the other hand, a rising prevalence of genital herpes among this population may be a factor, forcing college students to deal with this disease as it affects them or their friends and acquaintances. However, knowledge scores are not high in either the 1984 or 1990 samples, which demonstrates that students in this sample do not know enough about genital herpes to protect themselves from it, or to educate others about it in their future role as teachers. This lack of knowledge must be addressed, and should begin prior to the age at which students become sexually active.

Attitudes toward people with genital herpes are significantly more positive in 1990 as compared to 1984. This change includes attitudes in potentially sexual as well as non-sexual situations. In 1984, herpes was often in the news and negative coverage was common. A shift in the media spotlight has occurred since 1984. HIV infection and AIDS have moved onto center stage. Because HIV infection is potentially fatal, genital herpes may not seem as dangerous or as stigmatizing to college students as it once did. This fact may make people with genital herpes seem less threatening now, affecting current attitudes toward people with this disease.

Summary

Two important issues must be recognized in formulating recommendations based upon this and previous research. The first is the fact that college students are a well-defined risk group for contracting STD's. This high risk status is due to behaviors that have been documented among this group, such as high rates of sexual activity with multiple partners (including serial monogamy), the use of illicit drugs and alcohol that cloud judgement in sexual decision-making, experimentation with IV drugs, and this age group's characteristic perception of invulnerability (i.e. "It can't happen to me"). Current estimates of the prevalence of STD's among this population support this high-risk classification.

The second issue for students in this sample is that of their chosen profession. Because they are future teachers, they will be in a position that requires the knowledge, skills and methods necessary to teach others about these serious diseases. Their attitudes may influence the way in which they present this information, and therefore must be understood and addressed before they begin teaching in the classroom.

Genital Herpes

Since college students lack accurate knowledge about genital herpes, and because the disease is prevalent among this population, it is necessary to improve educational efforts concerning this disease. Negative attitudes toward people with genital herpes is apparent, and serves to perpetuate the societal stigma of shame and embarrassment surrounding this and other STD's. This phenomenon of stigma may block efforts to prevent the spread of genital herpes. It allows students the unrealistic perception that these diseases happen only to others who are unlike themselves. Factual

information presented in an effective manner is needed. But classroom lectures on facts about herpes may not be the best way to transmit this information. Interactive instruction, including speakers who have personal experience with STD's may be more appropriate. By personalizing these diseases, students' perceived susceptibility may increase, so that they are more likely to protect themselves and their partners in sexual situations. In addition, empathy may be developed by associating a person with the disease, so that attitudes toward people who have STD's become supportive and non-judgmental.

Future teachers must have up-to-date information on STD's, both for their own risk reduction, as well as in application to their role in the classroom. Because attitudes will be reflected in the way in which they present this information to their students, future teachers must learn to recognize and change those attitudes that are detrimental to accurately transmitting this important information.

HIV/AIDS

College students for the most part have accurate information about HIV/AIDS. However, it is important to continue providing factual information because of the fear and stigma surrounding this infection, and because doubts about scientific authority may overshadow rational thought. Also, the college student population changes rapidly, and within a relatively short time span new students replace those who move on to other endeavors. Therefore, the process of education must be ongoing. Special emphasis must be given to those questions that subjects in this and other studies could not answer correctly, so that college students' attitudes and behaviors will be based upon accurate information.

It appears that homophobia is central to attitudes about this disease. Until this fact is confronted and addressed, perceived susceptibility on the part of heterosexuals will likely remain low. College students may become infected with HIV because of their inaccurate perception of risk. Further, empathy and support for victims of this devastating disease will remain scarce, since at this time the majority of people with AIDS are homosexuals and IV drug users. These groups are already ostracized for behavior that is deemed unacceptable or is misunderstood by a large percentage of people. It is possible that society as a whole may suffer as a result of these negative and prejudicial attitudes, through an increase in the incidence of HIV/AIDS.

Recommendations

Recommendations for future research and education among future teachers concerning sexually transmitted diseases are as follows:

1) Effective methods must be developed for transmitting accurate information to future teachers about STD's, which personalize these diseases and relate them to each student's experience. This is especially true in the case of genital herpes, since this study as well as the current literature point to lack of accurate information about this disease. Gaps in knowledge also exist with regard to HIV/AIDS, so there is need for improvement on this topic as well, especially since this is a potentially fatal disease.

2) Although accurate knowledge is important, research among future teachers should focus on attitudes and perceptions about STD's and the people who have them. Conflicting information is available from current attitudinal research, which creates difficulties in applying the results from this and other studies. Areas of particular importance include discrimination and prejudice toward sufferers of STD's, and especially homophobic attitudes, and their impact on perceptions and behavior. Inaccurate perceptions on the part of college students concerning their personal risk assessment for STD's must be addressed. The interaction between knowledge, attitudes and behavior among college students specifically as related to STD's also requires further study.

3) Future teachers need factual information about STD's, as well as attitudes that are conducive to presenting the information accurately and impartially in the classroom setting. Educational efforts should prepare teachers for this role. Relating STD's to the personal experiences of students, and examining attitudes and values in the classroom are two ways that this preparation can be accomplished.

Future research among the general college student population should focus on: 1) the relationship between knowledge, attitudes, perceptions and behavior concerning STD's; 2) potential differences in responses made to a vignette followed by a questionnaire, compared to a questionnaire only; 3) students' source(s) of information about STD's, and level of trust in "scientific authority"; 4) possible interactions between religious influence and attitudes about STD's; 5) the existence of a stereotype of HIV/AIDS as a gay male disease, and how this might affect attitudes and perceptions; 6) differences between males and females in terms of attitudes, especially with regard to homophobia; 7) the effectiveness of personalizing STD education to increase knowledge about and perceived susceptibility to STD's; 8) the interaction between societal values and personal values, and their effect on attitudes about STD's and sexual behavior.

Others have suggested that although efforts to control STD's have historically relied on education and attempts to change human behavior, we must also examine the role that social values play in this less-than-successful battle. Currently popular models of behavior that emphasize individual responsibility ignore the social and cultural forces that affect individuals. Further, moralistic attitudes that equate STD's with sin inhibit progress in

controlling the spread of these diseases (Brandt, 1986; Yankauer, 1987). In order to have an effect on social values and cultural forces, and to change those that have a negative impact on STD control, a thorough understanding of prevailing attitudes is necessary. Though ongoing assessment of knowledge about STD's is important, perhaps attitudes and perceptions rather than knowledge of facts should be the focus of study about STD's among the college student population.

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APPENDICES

Appendix A

Genital Herpes Survey Instruments

INFORMED CONSENT

This project involves research which has been approved by the Committee for the Protection of Human Subjects of the OSU Research Office. The purpose of the research is to gather data about knowledge and attitudes concerning sexually transmitted diseases. This information will potentially improve the quality of education for college students concerning these diseases.

At this time, I invite you to participate in this study. Participation is strictly voluntary, anonymous, and confidential. You are free to decline for any reason, without affecting your grade in this class. No attempt will be made to identify the participants in this study.

Participation involves filling out four survey instruments. The instruments ask for demographic data, and knowledge and attitudes concerning sexually transmitted diseases.

If you have any questions, feel free to contact me at 737-2686. Thank you for taking the time to consider this request.

Kathy Mix
Graduate Student, Public Health
Oregon State University

I have read and understand the above description, have received a copy of this consent form for my records, and agree to participate in this survey. I understand that participation is voluntary, confidential and anonymous, and that I may withdraw at any time.

Student signature_____Date_____

OREGON STATE UNIVERSITY
STUDENT SURVEY ON GENITAL HERPES
MAY 1990

1. Please circle the number next to the answer that you think is **most** correct. **Circle one number for each statement.**

a. People who have genital herpes

1 CAN SPREAD THE DISEASE ONLY WHEN SORES ARE VISIBLE.
2 CANNOT SPREAD THE DISEASE EASILY TO OTHERS.
3 MAY OCCASIONALLY SPREAD THE DISEASE TO OTHERS WHEN SORES ARE NOT VISIBLE.
4 SPREAD THE DISEASE AT ALL TIMES.

b. When a person gets genital herpes

1 THEY BECOME IMMUNE TO THE VIRUS AND WILL NOT GET INFECTED WITH HERPES AGAIN.
2 THE VIRUS REMAINS IN THE BODY AND MAY PRODUCE SORES AFTER A VARYING TIME OF DORMANCY.
3 THE VIRUS LEAVES THE BODY, BUT SINCE THERE IS NO PERMANENT IMMUNITY A PERSON CAN BE REINFECTED.
4 THE VIRUS REMAINS IN THE BODY AND CONTINUALLY PRODUCES SORES.

c. Genital herpes is

1 USUALLY TRANSMITTED THROUGH THE SPREAD OF THE ORAL HERPES VIRUS.
2 USUALLY TRANSMITTED FROM PERSON TO PERSON BY DIRECT CONTACT WITH THE VIRUS.
3 LIMITED TO SPREAD BY SEXUAL INTERCOURSE.
4 TRANSMITTED FREQUENTLY BY CONTACT WITH CONTAMINATED INANIMATE OBJECTS.

d. After a person has an initial attack of genital herpes

1 THEY WILL NEVER HAVE HERPES SORES AGAIN.
2 RECURRENCES OF THE DISEASE ARE LIKELY TO BE LESS SEVERE THAN THE FIRST OUTBREAK.
3 RECURRENCES OF THE DISEASE ARE LIKELY TO BE MORE SEVERE THAN THE FIRST OUTBREAK.
4 RECURRENCES OF THE DISEASE ARE NOT RELATED TO THE FIRST OUTBREAK.

e. The major symptom of genital herpes is

1 SHALLOW SORES WHICH HEAL WITHOUT SCARRING.
2 DEEP SORES WHICH HEAL WITH SCARRING.
3 RED RASH ON THIGHS AND BUTTOCKS.
4 HIGH FEVER.

f. If a person has genital herpes

1 THE SYMPTOMS ARE ALWAYS PRESENT.
2 RECURRENCES OF THE DISEASE MAY BE TRIGGERED BY STRESS.
3 THE SYMPTOMS HEAL AND RARELY RECUR.
4 THE SYMPTOMS WILL RECUR ABOUT EVERY SIX WEEKS.

g. An outbreak of genital herpes

1 MAY BE SO MILD THAT THE OUTBREAK IS UNNOTICED.
2 IS ACCOMPANIED BY A PAINFUL RED RASH.
3 IS ACCOMPANIED BY A SWELLING ON THE LIP.
4 IS ACCOMPANIED BY SEVERE HEADACHES.

h. People can spread the genital herpes virus from one part of the body to another by

1 MASTURBATION
2 WASHCLOTHS
3 BOTH OF THE ABOVE
4 NONE OF THE ABOVE

i. During an outbreak of herpes on the genitals

1 KISSING CAN SPREAD THE HERPES VIRUS BETWEEN PEOPLE.
2 ANY KIND OF SEX PLAY INVOLVING THE GENITALS CAN SPREAD THE HERPES VIRUS BETWEEN PEOPLE.
3 EATING THE SAME FOOD CAN SPREAD THE HERPES VIRUS BETWEEN PEOPLE.
4 ONLY SEXUAL INTERCOURSE WILL SPREAD THE HERPES VIRUS BETWEEN PEOPLE.

j. Women with the genital herpes virus

1 CANNOT BEAR CHILDREN.
2 MUST DELIVER BY CESAREAN SECTION TO AVOID INFECTING THE CHILD.
3 WILL USUALLY TRANSFER THE VIRUS TO THEIR OFFSPRING.
4 CAN BEAR CHILDREN NOT INFECTED WITH THE HERPES VIRUS IF PRECAUTIONS ARE TAKEN.

k. There is medical treatment which

1 PREVENTS A PERSON WHO HAS GENITAL HERPES FROM TRANSMITTING THE DISEASE TO ANOTHER PERSON.
2 SHORTENS THE NORMAL COURSE OF THE DISEASE AND REDUCES THE NUMBER OF RECURRENCES.
3 IS IN THE FORM OF A SMALLPOX VACCINE WHICH IS EFFECTIVE AGAINST GENITAL HERPES.
4 A PHYSICIAN CAN ADMINISTER THE NEXT DAY TO GREATLY REDUCE THE LIKELIHOOD OF BECOMING INFECTED WITH GENITAL HERPES.

l. Women with genital herpes

1 ARE AT HIGHER RISK FOR YEAST INFECTIONS.
2 ARE AT HIGHER RISK FOR CERVICAL CANCER.
3 ARE AT HIGHER RISK FOR OVARIAN CYSTS.
4 ARE AT HIGHER RISK FOR INFLAMMATION OF THE UTERUS.

m. If you have oral herpes on the lips

1 YOU ARE LIKELY TO ALSO HAVE GENITAL HERPES.
2 YOU CANNOT ALSO HAVE GENITAL HERPES.
3 YOU MUST HAVE HAD GENITAL HERPES ALREADY.
4 YOU MAY OR MAY NOT HAVE GENITAL HERPES, BECAUSE THE TWO INFECTIONS ARE NOT NECESSARILY RELATED.

n. Untreated genital herpes can cause

1 SERIOUS BRAIN DAMAGE.
2 BLADDER INFECTIONS.
3 EXTERNAL SORES WHICH MAY BE PAINFUL.
4 STERILITY.

o. A warm soapy wash of items that have come in contact with herpes sores

1 IS NOT EFFECTIVE IN PREVENTING THE SPREAD OF THE HERPES VIRUS.
2 IS EFFECTIVE IN REDUCING THE LIKELIHOOD OF SPREADING THE VIRUS.
3 WILL CREATE AN ENVIRONMENT WHICH NURTURES THE GROWTH OF THE HERPES VIRUS.
4 WILL REDUCE THE VIRULENCE OF THE VIRUS.

p. When genital herpes sores or scabs are present

1 INTERCOURSE MUST BE COMPLETELY AVOIDED TO PREVENT THE SPREAD OF HERPES.
2 WEARING A CONDOM DURING INTERCOURSE WILL PREVENT THE SPREAD OF HERPES.
3 MUTUAL GENITAL PETTING IS AN ALTERNATIVE WHICH WILL PREVENT THE SPREAD OF THE VIRUS.
4 MASTURBATION IS AN ALTERNATIVE WHICH WILL PREVENT THE SPREAD OF THE VIRUS.

q. If a person has genital herpes

1 STRENUOUS EXERCISE MAY TRIGGER LATER OUTBREAKS.
2 FATIGUE MAY TRIGGER LATER OUTBREAKS.
3 MENSTRUAL PERIODS MAY TRIGGER LATER OUTBREAKS.
4 ALL OF THE ABOVE.

r. People with genital herpes

1 USUALLY HAVE OTHER VENEREAL DISEASES AS WELL.
2 ARE IMMUNE TO OTHER VENEREAL DISEASES.
3 CAN CONTRACT OTHER VENEREAL DISEASES.
4 ARE LESS LIKELY TO CONTRACT OTHER VENEREAL DISEASES.

s. Recurrences of genital herpes are eliminated by the use of

1 CONTRACEPTIVE JELLIES, FOAMS, AND CREAMS.
2 ADENINE ARABINOSIDE.
3 ACYCLOVIR.
4 NONE OF THE ABOVE.

t. Symptoms of genital herpes are

1 PAINFUL SHALLOW SORES.
2 SWOLLEN LYMPH NODES IN THE GROIN AREA.
3 FLU-LIKE SYMPTOMS.
4 ALL OF THE ABOVE.

u. People who contract genital herpes

1 COULD HAVE PREVENTED THE DISEASE BY PRACTICING BETTER HYGIENE.
2 ARE GENETICALLY SUSCEPTIBLE.
3 HAVE USUALLY EXPERIENCED SEXUAL CONTACT.
4 HAVE HAD MORE THAN ONE SEXUAL PARTNER.

v. The best way to prevent genital herpes is

1 WASH OR DOUCHE IMMEDIATELY FOLLOWING INTERCOURSE.
2 USE A CONDOM DURING INTERCOURSE.
3 ASK BEFORE INTERCOURSE WHETHER HE/SHE HAS THE DISEASE, AND USE A CONDOM DURING INTERCOURSE.
4 SEE YOUR DOCTOR IMMEDIATELY UPON DEVELOPING SYMPTOMS.

w. The herpes virus lives

1 IN THE NERVE CELLS.
2 UNDER THE SURFACE OF THE SKIN.
3 IN THE MUSCLE CELLS.
4 IN THE MUCUS SECRETING GLANDS OF THE GENITAL TRACT.

x. Genital herpes

1 WAS DISCOVERED IN THE 1950'S.
2 HAS BEEN DOCUMENTED FOR 2,000 YEARS.
3 IS A DISEASE DISCOVERED TEN YEARS AGO.
4 IS A VIRUS RELATED TO THE OUTBREAK OF AIDS (ACQUIRED IMMUNODEFICIENCY SYNDROME).

y. The likelihood of a person diagnosed with genital herpes having another outbreak is

1 25% to 30%.
2 55% to 60%.
3 75% to 80%.
4 95% to 100%.

z. Within the first year of the initial occurrence, the average number of outbreaks is

1 ONE.
2 TWO.
3 FOUR.
4 SIX OR MORE.

aa. An initial herpes infection clears more rapidly with

1 ACYCLOVIR.
2 INTERFERON.
3 ANTIBIOTICS.
4 MEDICATED DOUCHES.

bb. Generally, the number of recurring herpes outbreaks

1 DECREASES WITH TIME.
2 INCREASES WITH TIME.
3 REMAINS CONSTANT THROUGHOUT LIFE.
4 IS UNPREDICTABLE.

cc. Most doctors recommend

1 KEEPING THE SORES WET.
2 KEEPING THE SORES DRY.
3 KEEPING THE SORES COVERED WITH A STERILE DRESSING.
4 KEEPING THE SORES COVERED WITH VASELINE PETROLEUM JELLY.

dd. Symptoms usually appear on the infected area

1 WITHIN 12 HOURS AFTER CONTACT WITH THE VIRUS.
2 THE DAY AFTER CONTACT WITH THE VIRUS.
3 2 TO 12 DAYS AFTER CONTACT WITH THE VIRUS.
4 2 TO 3 WEEKS AFTER CONTACT WITH THE VIRUS.

ee. The most unreliable method of diagnosing genital herpes is a

1 PAP SMEAR.
2 BLOOD TEST.
3 CULTURE.
4 VISUAL INSPECTION.

ff. Medical researchers

1 ARE DEVELOPING AN IMMUNIZATION FOR GENITAL HERPES.
2 ARE DEVELOPING AN ANTIBODY FOR GENITAL HERPES.
3 PREDICT A CURE IN 12 YEARS FOR GENITAL HERPES.
4 PREDICT THAT THE VIRUS WILL EVENTUALLY GENETICALLY CORRECT ITSELF.

gg. Resources available for herpes patients include

1 HOTLINES.
2 SUPPORT GROUPS.
3 HERPES RESOURCE CENTER.
4 ALL OF THE ABOVE.

hh. Usually, the time between the first infection of genital herpes and later eruptions

1 IS 36 TO 48 HOURS.
2 IS 6 TO 8 DAYS.
3 IS 30 DAYS.
4 MAY BE MONTHS.

ii. A person who has genital herpes

1 WILL ALSO HAVE SORES ON THEIR LIPS.
2 WILL EVENTUALLY DEVELOP SORES IN THEIR MOUTH.
3 WILL HAVE OUTBREAKS THAT INCREASE OVER THE YEARS.
4 NONE OF THE ABOVE.

jj. The risk of contracting genital herpes

1 INCREASES WITH THE NUMBER OF SEXUAL PARTNERS.
2 INCREASES IF YOU HAVE A ROOMMATE WITH GENITAL HERPES.
3 INCREASES WITH THE USE OF PUBLIC HOT TUBS.
4 INCREASES FOR THOSE WHO HAVE ORAL INTERCOURSE.

kk. People with genital herpes

1 MUST REPORT THIS TO A PHYSICIAN.
2 MUST REGISTER WITH THE COUNTY HEALTH DEPARTMENT.
3 BOTH OF THE ABOVE.
4 NONE OF THE ABOVE.

ll. Initial outbreaks usually last

1 24 HOURS.
2 2-3 DAYS.
3 1 WEEK.
4 2 OR MORE WEEKS.

2. Please answer the following questions. **Circle one number for each item.**

a. How often do you talk to people about genital herpes?

1 MORE THAN ONCE A WEEK
2 ONCE A WEEK
3 ONCE A MONTH
4 LESS THAN ONCE A MONTH
5 NEVER

b. Do you know someone who has genital herpes?

1 YES
2 NO

c. Have you ever been diagnosed with genital herpes?

1 YES
2 NO

(PLEASE GO ON TO THE NEXT PAGE)

3. Please respond to each statement according to your present belief. Do not spend more than 15-20 seconds on each item. The entire inventory should take no more than 8-10 minutes. Please do not omit any items.
Please answer each item according to the following scale. A score of 1 = Strongly Agree. A score of 6 = Strongly Disagree. **Circle one number for each item.**

	STRONGLY AGREE					**STRONGLY DISAGREE**
a. When choosing a marriage partner, it would not matter to me if that person has genital herpes.	1	2	3	4	5	6
b. People with genital herpes should have to be registered with a governmental medical agency . . .	1	2	3	4	5	6
c. My friendship with a person of the opposite sex would not be adversely affected by their contraction of genital herpes . .	1	2	3	4	5	6
d. People who have genital herpes have been unjustly victimized . .	1	2	3	4	5	6
e. Dating people who have genital herpes is acceptable.	1	2	3	4	5	6
f. I could love a person who has genital herpes.	1	2	3	4	5	6
g. People with genital herpes are unclean	1	2	3	4	5	6
h. There is no reason that a person should be ashamed of having genital herpes.	1	2	3	4	5	6
i. I would still be interested in developing a friendship with a person of the opposite sex who told me they had genital herpes .	1	2	3	4	5	6
j. People with genital herpes should not be allowed to try on clothing in stores	1	2	3	4	5	6
k. Public facilities should be open to people with genital herpes . .	1	2	3	4	5	6

	STRONGLY AGREE					STRONGLY DISAGREE
l. Persons who have genital herpes should not be allowed to use public restrooms	1	2	3	4	5	6
m. My friendship with a person of the same sex would not be adversely affected by their contraction of genital herpes	1	2	3	4	5	6
n. I would not date a person with genital herpes	1	2	3	4	5	6
o. I would not even consider getting to know a person with genital herpes	1	2	3	4	5	6
p. A person with genital herpes can be a good marriage partner . .	1	2	3	4	5	6
q. I would not want my child to marry a person with genital herpes .	1	2	3	4	5	6
r. I would not want my child to date a person with genital herpes .	1	2	3	4	5	6
s. Genital herpes will adversely affect a marriage.	1	2	3	4	5	6
t. Labeling genital herpes as the new "scarlet letter" in unfair	1	2	3	4	5	6
u. People who have genital herpes would not make good marriage partners	1	2	3	4	5	6
v. Persons who have genital herpes have been treated unfairly . .	1	2	3	4	5	6
w. I would welcome a person with genital herpes into my home. .	1	2	3	4	5	6
x. Genital herpes need not interfere with marriage.	1	2	3	4	5	6
y. I would not choose a person who has genital herpes for my marriage partner	1	2	3	4	5	6

	STRONGLY AGREE					STRONGLY DISAGREE
z. I would still be interested in developing a friendship with a person of the same sex who told me they had genital herpes . .	1	2	3	4	5	6

PLEASE GO ON TO THE NEXT PAGE

4. Please read the following paragraph. After you have read it, respond to the items that follow it.

Chris first came to OSU in the fall of 1987, and after consistent hard work, did well in classes. As a person who made friends easily and enjoyed social activities, Chris especially liked dancing and downhill skiing, and did both with skill and vigor. Always healthy, Chris was surprised in the summer of 1988 by a fever and swollen glands, followed by painful sores on the genitals. After experiencing recurrent minor flare-ups the following winter, Chris sought help from a family doctor. The illness was diagnosed as genital herpes, for which there is no cure. Despite this, Chris enrolled in school and is attending classes, but appears lonely and depressed. Friends and family members have difficulty dealing with the illness. Chris spends much time alone, but occasionally goes out.

(PLEASE GO ON TO THE NEXT PAGE)

Please respond to the following statements according to your present belief. Do not spend more than 15-20 seconds on each item. A score of 1 = Strongly Agree. A score of 6 = Strongly Disagree. **Circle one number for each item.**

	STRONGLY AGREE					**STRONGLY DISAGREE**	**CAN'T SAY**
a. Chris is responsible for the illness	1	2	3	4	5	6	7
b. Chris deserves sympathy and understanding . . .	1	2	3	4	5	6	7
c. Chris deserves what has happened.	1	2	3	4	5	6	7
d. Chris' illness has been traumatic	1	2	3	4	5	6	7
e. Chris has a lot of pain and suffering	1	2	3	4	5	6	7
f. Chris is dangerous to other people. . . .	1	2	3	4	5	6	7
g. Chris deserves the best medical care possible .	1	2	3	4	5	6	7
h. Suicide might be the best solution for Chris	1	2	3	4	5	6	7
i. Chris should be quarantined	1	2	3	4	5	6	7
j. Chris has been sexually promiscuous. .	1	2	3	4	5	6	7
k. Chris has engaged in homosexual activity . .	1	2	3	4	5	6	7
l. Chris has abused drugs	1	2	3	4	5	6	7

-

(PLEASE GO ON TO THE NEXT PAGE)

5. Thinking about the preceding paragraph, please score the following items on the this scale. A score of 1 = Not At All. A score of 6 = Very Much. **Circle one number for each item.**

	NOT AT ALL					**VERY MUCH**	**CAN'T SAY**
a. If you met Chris, would you be willing to strike up a conversation?.	1	2	3	4	5	6	7
b. Would you be willing to attend a party where Chris was present?	1	2	3	4	5	6	7
c. Would you be willing to attend a party where Chris was preparing dinner?	1	2	3	4	5	6	7
d. Would you be willing to work in the same office with Chris?.	1	2	3	4	5	6	7
e. If you were a friend of Chris' before the disease was contracted, would you be willing to continue the friendship?	1	2	3	4	5	6	7
f. Chris' lease is up in two months. If you were the landlord, would you renew the lease?	1	2	3	4	5	6	7
g. If you had children, would you be willing to allow them to visit Chris in Chris' home?.	1	2	3	4	5	6	7

6. Chris is: **(circle one number)**

   1 MALE
   2 FEMALE

7. In responding to the statements about Chris, what factor(s), if any, influenced your responses? (Use the space below, or write on the back of this page.)

Please answer the following questions about yourself. This information will be used to evaluate the data by groups, not to identify any one individual. **Circle one number for each item.**

8. Gender:

   1 FEMALE
   2 MALE

9. What was your class standing at the beginning of Spring Term 1990?

   1 FRESHMAN
   2 SOPHOMORE
   3 JUNIOR
   4 SENIOR
   5 GRADUATE STUDENT
   6 OTHER_____

10. What was your age on your last birthday?

    _____Age

11. What is your marital status?

    1 MARRIED
    2 SEPARATED
    3 DIVORCED
    4 WIDOWED
    5 SINGLE, NEVER MARRIED

12. What would you say was your family's yearly household income the last few years that you lived at home?

    1 UNDER $12,000
    2 $12,000 TO $24,000
    3 $24,001 TO $36,000
    4 $36,001 TO $48,000
    5 $48,001 TO $60,000
    6 $60,001 AND ABOVE

13. About how often, if at all, do you attend church activities or services?

    1 MORE THAN ONCE A WEEK
    2 ONCE A WEEK
    3 2-3 TIMES A MONTH
    4 ABOUT ONCE A MONTH
    5 SEVERAL TIMES A YEAR
    6 ABOUT ONCE A YEAR
    7 LESS THAN ONCE A YEAR
    8 NEVER

14. Has your religious participation has changed since leaving your parents home?

1 NO **(Skip to question 15)**
2 YES

14a. About how often did you attend church activities or services while living at home?

1 MORE THAN ONCE A WEEK
2 ONCE A WEEK
3 2-3 TIMES A MONTH
4 ABOUT ONCE A MONTH
5 SEVERAL TIMES A YEAR
6 ABOUT ONCE A YEAR
7 LESS THAN ONCE A YEAR
8 NEVER

15. What, if any, is your religious preference?

1 NONE
2 CATHOLIC
3 CHRISTIAN OTHER THAN CATHOLIC
4 JEWISH
5 OTHER (SPECIFY)_____

16. If you checked Protestant, what specific denomination is that, if any?

1 BAPTIST
2 METHODIST
3 LUTHERAN
4 PRESBYTERIAN
5 EPISCOPALIAN
6 NO SPECIFIC DENOMINATION
7 OTHER (SPECIFY)_____

17. Which one of the following comes closest to describing your own sexual intercourse experience?

1 NEVER HAVE HAD SEXUAL INTERCOURSE
(Skip the next question)

2 HAVE SEXUAL INTERCOURSE RARELY
3 HAVE SEXUAL INTERCOURSE OCCASIONALLY
4 HAVE SEXUAL INTERCOURSE ONCE A MONTH
5 HAVE SEXUAL INTERCOURSE TWICE A MONTH
6 HAVE SEXUAL INTERCOURSE MORE THAN TWICE A MONTH

18. How many sexual partners you have had in the past year?

1 NONE
2 ONE
3 TWO
4 THREE
5 FOUR
6 MORE THAN FOUR

THANK YOU FOR YOUR COOPERATION

GENITAL HERPES ANSWER KEY

a. People who have genital herpes

1 CAN SPREAD THE DISEASE ONLY WHEN SORES ARE VISIBLE.
2 CANNOT SPREAD THE DISEASE EASILY TO OTHERS.
(3) MAY OCCASIONALLY SPREAD THE DISEASE TO OTHERS WHEN SORES ARE NOT VISIBLE.
4 SPREAD THE DISEASE AT ALL TIMES.

b. When a person gets genital herpes

1 THEY BECOME IMMUNE TO THE VIRUS AND WILL NOT GET INFECTED WITH HERPES AGAIN.
(2) THE VIRUS REMAINS IN THE BODY AND MAY PRODUCE SORES AFTER A VARYING TIME OF DORMANCY.
3 THE VIRUS LEAVES THE BODY, BUT SINCE THERE IS NO PERMANENT IMMUNITY A PERSON CAN BE REINFECTED.
4 THE VIRUS REMAINS IN THE BODY AND CONTINUALLY PRODUCES SORES.

c. Genital herpes is

1 USUALLY TRANSMITTED THROUGH THE SPREAD OF THE ORAL HERPES VIRUS.
(2) USUALLY TRANSMITTED FROM PERSON TO PERSON BY DIRECT CONTACT WITH THE VIRUS.
3 LIMITED TO SPREAD BY SEXUAL INTERCOURSE.
4 TRANSMITTED FREQUENTLY BY CONTACT WITH CONTAMINATED INANIMATE OBJECTS.

d. After a person has an initial attack of genital herpes

1 THEY WILL NEVER HAVE HERPES SORES AGAIN.
(2) RECURRENCES OF THE DISEASE ARE LIKELY TO BE LESS SEVERE THAN THE FIRST OUTBREAK.
3 RECURRENCES OF THE DISEASE ARE LIKELY TO BE MORE SEVERE THAN THE FIRST OUTBREAK.
4 RECURRENCES OF THE DISEASE ARE NOT RELATED TO THE FIRST OUTBREAK.

e. The major symptom of genital herpes is

(1) SHALLOW SORES WHICH HEAL WITHOUT SCARRING.
2 DEEP SORES WHICH HEAL WITH SCARRING.
3 RED RASH ON THIGHS AND BUTTOCKS.
4 HIGH FEVER.

f. If a person has genital herpes

1 THE SYMPTOMS ARE ALWAYS PRESENT.
(2) RECURRENCES OF THE DISEASE MAY BE TRIGGERED BY STRESS.
3 THE SYMPTOMS HEAL AND RARELY RECUR.
4 THE SYMPTOMS WILL RECUR ABOUT EVERY SIX WEEKS.

g. An outbreak of genital herpes

(1) MAY BE SO MILD THAT THE OUTBREAK IS UNNOTICED.
2 IS ACCOMPANIED BY A PAINFUL RED RASH.
3 IS ACCOMPANIED BY A SWELLING ON THE LIP.
4 IS ACCOMPANIED BY SEVERE HEADACHES.

h. People can spread the genital herpes virus from one part of the body to another by

1 MASTURBATION
2 WASHCLOTHS
(3) BOTH OF THE ABOVE
4 NONE OF THE ABOVE

i. During an outbreak of herpes on the genitals

1 KISSING CAN SPREAD THE HERPES VIRUS BETWEEN PEOPLE.
(2) ANY KIND OF SEX PLAY INVOLVING THE GENITALS CAN SPREAD THE HERPES VIRUS BETWEEN PEOPLE.
3 EATING THE SAME FOOD CAN SPREAD THE HERPES VIRUS BETWEEN PEOPLE.
4 ONLY SEXUAL INTERCOURSE WILL SPREAD THE HERPES VIRUS BETWEEN PEOPLE.

j. Women with the genital herpes virus

1 CANNOT BEAR CHILDREN.
2 MUST DELIVER BY CESAREAN SECTION TO AVOID INFECTING THE CHILD.
3 WILL USUALLY TRANSFER THE VIRUS TO THEIR OFFSPRING.
(4) CAN BEAR CHILDREN NOT INFECTED WITH THE HERPES VIRUS IF PRECAUTIONS ARE TAKEN.

k. There is medical treatment which

1 PREVENTS A PERSON WHO HAS GENITAL HERPES FROM TRANSMITTING THE DISEASE TO ANOTHER PERSON.
(2) SHORTENS THE NORMAL COURSE OF THE DISEASE AND REDUCES THE NUMBER OF RECURRENCES.
3 IS IN THE FORM OF A SMALLPOX VACCINE WHICH IS EFFECTIVE AGAINST GENITAL HERPES.
4 A PHYSICIAN CAN ADMINISTER THE NEXT DAY TO GREATLY REDUCE THE LIKELIHOOD OF BECOMING INFECTED WITH GENITAL HERPES.

l. Women with genital herpes

1 ARE AT HIGHER RISK FOR YEAST INFECTIONS.
(2) ARE AT HIGHER RISK FOR CERVICAL CANCER.
3 ARE AT HIGHER RISK FOR OVARIAN CYSTS.
4 ARE AT HIGHER RISK FOR INFLAMMATION OF THE UTERUS.

m. If you have oral herpes on the lips

1 YOU ARE LIKELY TO ALSO HAVE GENITAL HERPES.
2 YOU CANNOT ALSO HAVE GENITAL HERPES.
3 YOU MUST HAVE HAD GENITAL HERPES ALREADY.
(4) YOU MAY OR MAY NOT HAVE GENITAL HERPES, BECAUSE THE TWO INFECTIONS ARE NOT NECESSARILY RELATED.

n. Untreated genital herpes can cause

1 SERIOUS BRAIN DAMAGE.
2 BLADDER INFECTIONS.
(3) EXTERNAL SORES WHICH MAY BE PAINFUL.
4 STERILITY.

o. A warm soapy wash of items that have come in contact with herpes sores

1 IS NOT EFFECTIVE IN PREVENTING THE SPREAD OF THE HERPES VIRUS.
(2) IS EFFECTIVE IN REDUCING THE LIKELIHOOD OF SPREADING THE VIRUS.
3 WILL CREATE AN ENVIRONMENT WHICH NURTURES THE GROWTH OF THE HERPES VIRUS.
4 WILL REDUCE THE VIRULENCE OF THE VIRUS.

p. When genital herpes sores or scabs are present

(1) INTERCOURSE MUST BE COMPLETELY AVOIDED TO PREVENT THE SPREAD OF HERPES.
2 WEARING A CONDOM DURING INTERCOURSE WILL PREVENT THE SPREAD OF HERPES.
3 MUTUAL GENITAL PETTING IS AN ALTERNATIVE WHICH WILL PREVENT THE SPREAD OF THE VIRUS.
4 MASTURBATION IS AN ALTERNATIVE WHICH WILL PREVENT THE SPREAD OF THE VIRUS.

q. If a person has genital herpes

1 STRENUOUS EXERCISE MAY TRIGGER LATER OUTBREAKS.
2 FATIGUE MAY TRIGGER LATER OUTBREAKS.
3 MENSTRUAL PERIODS MAY TRIGGER LATER OUTBREAKS.
(4) ALL OF THE ABOVE.

r. People with genital herpes

1 USUALLY HAVE OTHER VENEREAL DISEASES AS WELL.
2 ARE IMMUNE TO OTHER VENEREAL DISEASES.
(3) CAN CONTRACT OTHER VENEREAL DISEASES.
4 ARE LESS LIKELY TO CONTRACT OTHER VENEREAL DISEASES.

s. Recurrences of genital herpes are eliminated by the use of

1 CONTRACEPTIVE JELLIES, FOAMS, AND CREAMS.
2 ADENINE ARABINOSIDE.
3 ACYCLOVIR.
(4) NONE OF THE ABOVE.

t. Symptoms of genital herpes are

1 PAINFUL SHALLOW SORES.
2 SWOLLEN LYMPH NODES IN THE GROIN AREA.
3 FLU-LIKE SYMPTOMS.
(4) ALL OF THE ABOVE.

u. People who contract genital herpes

1 COULD HAVE PREVENTED THE DISEASE BY PRACTICING BETTER HYGIENE.
2 ARE GENETICALLY SUSCEPTIBLE.
(3) HAVE USUALLY EXPERIENCED SEXUAL CONTACT.
4 HAVE HAD MORE THAN ONE SEXUAL PARTNER.

v. The best way to prevent genital herpes is

1 WASH OR DOUCHE IMMEDIATELY FOLLOWING INTERCOURSE.
2 USE A CONDOM DURING INTERCOURSE.
(3) ASK BEFORE INTERCOURSE WHETHER HE/SHE HAS THE DISEASE, AND USE A CONDOM DURING INTERCOURSE.
4 SEE YOUR DOCTOR IMMEDIATELY UPON DEVELOPING SYMPTOMS.

w. The herpes virus lives

(1) IN THE NERVE CELLS.
2 UNDER THE SURFACE OF THE SKIN.
3 IN THE MUSCLE CELLS.
4 IN THE MUCUS SECRETING GLANDS OF THE GENITAL TRACT.

x. Genital herpes

1 WAS DISCOVERED IN THE 1950'S.
(2) HAS BEEN DOCUMENTED FOR 2,000 YEARS.
3 IS A DISEASE DISCOVERED TEN YEARS AGO.
4 IS A VIRUS RELATED TO THE OUTBREAK OF AIDS (ACQUIRED IMMUNODEFICIENCY SYNDROME).

y. The likelihood of a person diagnosed with genital herpes having another outbreak is

1 25% to 30%.
2 55% to 60%.
(3) 75% to 80%.
4 95% to 100%.

z. Within the first year of the initial occurrence, the average number of outbreaks is

1 ONE.
(2) TWO.
3 FOUR.
4 SIX OR MORE.

aa. An initial herpes infection clears more rapidly with

1 ACYCLOVIR.
2 INTERFERON.
3 ANTIBIOTICS.
4 MEDICATED DOUCHES.

bb. Generally, the number of recurring herpes outbreaks

1 DECREASES WITH TIME.
2 INCREASES WITH TIME.
3 REMAINS CONSTANT THROUGHOUT LIFE.
4 IS UNPREDICTABLE.

cc. Most doctors recommend

1 KEEPING THE SORES WET.
2 KEEPING THE SORES DRY.
3 KEEPING THE SORES COVERED WITH A STERILE DRESSING.
4 KEEPING THE SORES COVERED WITH VASELINE PETROLEUM JELLY.

dd. Symptoms usually appear on the infected area

1 WITHIN 12 HOURS AFTER CONTACT WITH THE VIRUS.
2 THE DAY AFTER CONTACT WITH THE VIRUS.
3 2 TO 12 DAYS AFTER CONTACT WITH THE VIRUS.
4 2 TO 3 WEEKS AFTER CONTACT WITH THE VIRUS.

ee. The most unreliable method of diagnosing genital herpes is a

1 PAP SMEAR.
2 BLOOD TEST.
3 CULTURE.
4 VISUAL INSPECTION.

ff. Medical researchers

1 ARE DEVELOPING AN IMMUNIZATION FOR GENITAL HERPES.
2 ARE DEVELOPING AN ANTIBODY FOR GENITAL HERPES.
3 PREDICT A CURE IN 12 YEARS FOR GENITAL HERPES.
4 PREDICT THAT THE VIRUS WILL EVENTUALLY GENETICALLY CORRECT ITSELF.

gg. Resources available for herpes patients include

1 HOTLINES.
2 SUPPORT GROUPS.
3 HERPES RESOURCE CENTER.
(4) ALL OF THE ABOVE.

hh. Usually, the time between the first infection of genital herpes and later eruptions

1 IS 36 TO 48 HOURS.
2 IS 6 TO 8 DAYS.
3 IS 30 DAYS.
(4) MAY BE MONTHS.

ii. A person who has genital herpes

1 WILL ALSO HAVE SORES ON THEIR LIPS.
2 WILL EVENTUALLY DEVELOP SORES IN THEIR MOUTH.
3 WILL HAVE OUTBREAKS THAT INCREASE OVER THE YEARS.
(4) NONE OF THE ABOVE.

jj. The risk of contracting genital herpes

(1) INCREASES WITH THE NUMBER OF SEXUAL PARTNERS.
2 INCREASES IF YOU HAVE A ROOMMATE WITH GENITAL HERPES.
3 INCREASES WITH THE USE OF PUBLIC HOT TUBS.
4 INCREASES FOR THOSE WHO HAVE ORAL INTERCOURSE.

kk. People with genital herpes

1 MUST REPORT THIS TO A PHYSICIAN.
2 MUST REGISTER WITH THE COUNTY HEALTH DEPARTMENT.
3 BOTH OF THE ABOVE.
(4) NONE OF THE ABOVE.

ll. Initial outbreaks usually last

1 24 HOURS.
2 2-3 DAYS.
3 1 WEEK.
(4) 2 OR MORE WEEKS.

Appendix B

HIV/AIDS Survey Instruments

INFORMED CONSENT

This project involves research which has been approved by the Committee for the Protection of Human Subjects of the OSU Research Office. The purpose of the research is to gather data about knowledge and attitudes concerning sexually transmitted diseases. This information will potentially improve the quality of education for college students concerning these diseases.

At this time, I invite you to participate in this study. Participation is strictly voluntary, anonymous, and confidential. You are free to decline for any reason, without affecting your grade in this class. No attempt will be made to identify the participants in this study.

Participation involves filling out four survey instruments. The instruments ask for demographic data, and knowledge and attitudes concerning sexually transmitted diseases.

If you have any questions, feel free to contact me at 737-2686. Thank you for taking the time to consider this request.

Kathy Mix
Graduate Student, Public Health
Oregon State University

I have read and understand the above description, have received a copy of this consent form for my records, and agree to participate in this survey. I understand that participation is voluntary, confidential and anonymous, and that I may withdraw at any time.

Student signature_____Date_____

OREGON STATE UNIVERSITY
STUDENT SURVEY ON AIDS
MAY 1990

1. For this list of statements about AIDS, please indicate if you think each statement is true or false. **Circle one number for each item.**

	TRUE	FALSE	DON'T KNOW
a. Use of a natural skin condom during intercourse greatly reduces the risk of transmitting AIDS. . .	1	2	3
b. The AIDS virus can be present in vaginal fluid	1	2	3
c. Unprotected heterosexual intercourse carries a risk of transmitting the AIDS virus from a man to a woman.	1	2	3
d. Unprotected heterosexual intercourse carries a risk of transmitting the AIDS virus from a woman to a man.	1	2	3
e. The AIDS virus can be transmitted by anal intercourse.	1	2	3
f. The AIDS virus can be transmitted in semen	1	2	3
g. Having sex with fewer partners decreases the risk of getting AIDS	1	2	3
h. A person can contract the AIDS virus through oral-genital sex . .	1	2	3
i. Receiving a blood transfusion with infected blood can give a person AIDS.	1	2	3
j. You can get the AIDS virus by sharing a needle with a drug user who has the disease.	1	2	3
k. Shaking hands with someone who has AIDS can give it to you. . . .	1	2	3

	TRUE	FALSE	DON'T KNOW
l. The AIDS virus can be spread by using someone else's personal belongings like a comb or hairbrush	1	2	3
m. AIDS is a medical condition in which the body has a difficult time fighting off infection. . .	1	2	3
n. You can get the AIDS virus from casual contact (such as shaking hands, coughing, using the same telephone or toilet seat). . . .	1	2	3
o. Some babies born to mothers with AIDS will carry the virus .	1	2	3
p. Stress causes AIDS	1	2	3
q. If you kiss someone with the AIDS virus, you will get the disease.	1	2	3
r. The majority of gay men have AIDS	1	2	3
s. If you touch someone with AIDS without exchanging bodily fluids, you can get AIDS	1	2	3
t. What you eat can give you AIDS .	1	2	3
u. AIDS can be cured.	1	2	3
v. AIDS is not at all serious; it is like having a cold	1	2	3
w. AIDS is caused by a bacteria . .	1	2	3
x. AIDS is caused by the same virus that causes gonorrhea.	1	2	3
y. Having unprotected sexual intercourse with someone who has AIDS is one way of getting it. .	1	2	3
z. The majority of people with AIDS die from the disease. . . .	1	2	3
aa. The majority of lesbian women have AIDS	1	2	3

	TRUE	FALSE	DON'T KNOW
bb. People with AIDS usually develop other diseases as a result of AIDS	1	2	3
cc. I can avoid getting AIDS by exercising regularly.	1	2	3
dd. You can get the AIDS virus by sharing plates, forks or glasses with someone who has AIDS . . .	1	2	3
ee. There is a vaccine available which prevents AIDS	1	2	3
ff. It is possible to get the AIDS virus by donating blood	1	2	3

2. Please answer the following questions. **Circle one number for each item.**

a. How often do you talk to people about AIDS?

1 MORE THAN ONCE A WEEK
2 ONCE A WEEK
3 ONCE A MONTH
4 LESS THAN ONCE A MONTH
5 NEVER

b. Do you know someone who has tested positive for the AIDS virus?

1 YES
2 NO

c. Have you ever tested positive for the AIDS virus?

1 YES
2 NO

(PLEASE GO ON TO THE NEXT PAGE)

3. Please respond to each statement according to your present belief. Do not spend more than 15-20 seconds on each item. The entire inventory should take no more than 8-10 minutes. Please do not omit any items.

Please answer each item according to the following scale. A score of 1 = Strongly Agree. A score of 6 = Strongly Disagree. **Circle one number for each item.**

	STRONGLY AGREE					**STRONGLY DISAGREE**
a. When choosing a marriage partner, it would not matter to me if the person has AIDS. . . .	1	2	3	4	5	6
b. People with AIDS should have to be registered with a governmental medical agency .	1	2	3	4	5	6
c. My friendship with a person of the opposite sex would not be adversely affected by their contraction of AIDS	1	2	3	4	5	6
d. People who have AIDS have been unjustly victimized	1	2	3	4	5	6
e. Dating people who have AIDS is acceptable	1	2	3	4	5	6
f. I could love a person who has AIDS.	1	2	3	4	5	6
g. People with AIDS are unclean.	1	2	3	4	5	6
h. There is no reason that a person should be ashamed of having AIDS.	1	2	3	4	5	6
i. I would still be interested in developing a friendship with a person of the opposite sex who told me they had AIDS	1	2	3	4	5	6
j. People with AIDS should not be allowed to try on clothing in stores	1	2	3	4	5	6
k. Public facilities should be open to people with AIDS. . .	1	2	3	4	5	6

	STRONGLY AGREE					STRONGLY DISAGREE
l. Persons who have AIDS should not be allowed to use public restrooms.	1	2	3	4	5	6
m. My friendship with a person of the same sex would not be adversely affected by their contraction of AIDS . . .	1	2	3	4	5	6
n. I would not date a person with AIDS	1	2	3	4	5	6
o. I would not even consider getting to know a person with AIDS.	1	2	3	4	5	6
p. A person with AIDS can be a good marriage partner . .	1	2	3	4	5	6
q. I would not want my child to marry a person with AIDS.	1	2	3	4	5	6
r. I would not want my child to date a person with AIDS .	1	2	3	4	5	6
s. AIDS will adversely affect a marriage.	1	2	3	4	5	6
t. Labeling AIDS as the "Gay Plague" is unfair	1	2	3	4	5	6
u. People who have AIDS would not make a good marriage partner . .	1	2	3	4	5	6
v. Persons who have AIDS have been treated unfairly . .	1	2	3	4	5	6
w. I would welcome a person with AIDS into my home	1	2	3	4	5	6
x. AIDS need not interfere with marriage	1	2	3	4	5	6
y. I would not choose a person who has AIDS for my marriage partner .	1	2	3	4	5	6
z. I would still be interested in developing a friendship with a person of the same sex who told me they had AIDS.	1	2	3	4	5	6

4. Please read the following paragraph. After you have read it, respond to the statements that follow it.

Chris first came to OSU in the fall of 1987, and after consistent hard work, did well in classes. As a person who made friends easily and enjoyed social activities, Chris especially liked dancing and downhill skiing, and did both with skill and vigor. Always healthy, Chris was surprised in the summer of 1988 by weight loss, feelings of fatigue, and recurrent minor infections. After developing pneumonia the following winter, Chris sought help from a family doctor. The illness was diagnosed as AIDS, for which there is no cure. Despite this, Chris enrolled in school and is attending classes, but appears lonely and depressed. Friends and family members have difficulty dealing with the illness. Chris spends much time alone, but occasionally goes out.

(PLEASE GO ON TO THE NEXT PAGE)

Please respond to the following statements according to your present belief. Do not spend more than 15-20 seconds on each item. A score of 1 = Strongly Agree. A score of 6 = Strongly Disagree. **Circle one number for each item.**

	STRONGLY AGREE					STRONGLY DISAGREE	CAN'T SAY
a. Chris is responsible for the illness	1	2	3	4	5	6	7
b. Chris deserves sympathy and understanding . . .	1	2	3	4	5	6	7
c. Chris deserves what has happened.	1	2	3	4	5	6	7
d. Chris' illness has been traumatic	1	2	3	4	5	6	7
e. Chris has a lot of pain and suffering	1	2	3	4	5	6	7
f. Chris is dangerous to other people. . . .	1	2	3	4	5	6	7
g. Chris deserves the best medical care possible .	1	2	3	4	5	6	7
h. Suicide might be the best solution for Chris	1	2	3	4	5	6	7
i. Chris should be quarantined	1	2	3	4	5	6	7
j. Chris has been sexually promiscuous. .	1	2	3	4	5	6	7
k. Chris has engaged in homosexual activity . .	1	2	3	4	5	6	7
l. Chris has abused drugs	1	2	3	4	5	6	7

(PLEASE GO ON TO THE NEXT PAGE)

5. Thinking about the preceding paragraph, please score the following items on the this scale. A score of 1 = Not At All. A score of 6 = Very Much. **Circle one number for each item.**

	NOT AT ALL					**VERY MUCH**	**CAN'T SAY**
a. If you met Chris, would you be willing to strike up a conversation?.	1	2	3	4	5	6	7
b. Would you be willing to attend a party where Chris was present? . . .	1	2	3	4	5	6	7
c. Would you be willing to attend a party where Chris was preparing dinner? .	1	2	3	4	5	6	7
d. Would you be willing to work in the same office with Chris?. . .	1	2	3	4	5	6	7
e. If you were a friend of Chris' before the disease was contracted, would you be willing to continue the friendship?	1	2	3	4	5	6	7
f. Chris' lease is up in two months. If you were the landlord, would you renew the lease?	1	2	3	4	5	6	7
g. If you had children, would you be willing to allow them to visit Chris in Chris' home?.	1	2	3	4	5	6	7

6. Chris is: **(circle one number)**

   1 MALE
   2 FEMALE

7. In responding to the statements about Chris, what factor(s), if any, influenced your responses? (Use the space below, or write on the back of this page.)

Please answer the following questions about yourself. This information will be used to evaluate the data by groups, not to identify any one individual. **Circle one number for each item.**

8. Gender:

   1 FEMALE
   2 MALE

9. What was your class standing at the beginning of Spring Term 1990?

   1 FRESHMAN
   2 SOPHOMORE
   3 JUNIOR
   4 SENIOR
   5 FIFTH YEAR
   6 GRADUATE STUDENT
   7 OTHER (SPECIFY)_____

10. What was your age on your last birthday?

    _____Age

11. What is your marital status?

    1 MARRIED
    2 SEPARATED
    3 DIVORCED
    4 WIDOWED
    5 SINGLE, NEVER MARRIED

12. What would you say was your family's yearly household income the last few years that you lived at home?

    1 UNDER $12,000
    2 $12,000 TO $24,000
    3 $24,001 TO $36,000
    4 $36,001 TO $48,000
    5 $48,001 TO $60,000
    6 $60,001 AND ABOVE

13. About how often, if at all, do you attend church activities or services?

1 MORE THAN ONCE A WEEK
2 ONCE A WEEK
3 2-3 TIMES A MONTH
4 ABOUT ONCE A MONTH
5 SEVERAL TIMES A YEAR
6 ABOUT ONCE A YEAR
7 LESS THAN ONCE A YEAR
8 NEVER

14. Has your religious participation changed since leaving your parents home?

1 NO **(Skip to question 15)**
2 YES

14a. About how often did you attend church activities or services while living at home?

1 MORE THAN ONCE A WEEK
2 ONCE A WEEK
3 2-3 TIMES A MONTH
4 ABOUT ONCE A MONTH
5 SEVERAL TIMES A YEAR
6 ABOUT ONCE A YEAR
7 LESS THAN ONCE A YEAR
8 NEVER

15. What, if any, is your religious preference?

1 NONE
2 CATHOLIC
3 CHRISTIAN OTHER THAN CATHOLIC
4 JEWISH
5 OTHER (SPECIFY)_____

16. Which one of the following comes closest to describing your own sexual intercourse experience?

1 NEVER HAVE HAD SEXUAL INTERCOURSE
(Skip the next question)

2 HAVE SEXUAL INTERCOURSE RARELY
3 HAVE SEXUAL INTERCOURSE OCCASIONALLY
4 HAVE SEXUAL INTERCOURSE ONCE A MONTH
5 HAVE SEXUAL INTERCOURSE TWICE A MONTH
6 HAVE SEXUAL INTERCOURSE MORE THAN TWICE A MONTH

17. How many sexual partners have you had in the past year?

1 NONE
2 ONE
3 TWO
4 THREE
5 FOUR
6 MORE THAN FOUR

THANK YOU FOR YOUR COOPERATION

AIDS ANSWER KEY

	TRUE	FALSE
a. Use of a natural skin condom during intercourse greatly reduces the risk of transmitting AIDS. .	1	(2)
b. The AIDS virus can be present in vaginal fluid	(1)	2
c. Unprotected heterosexual intercourse carries a risk of transmitting the AIDS virus from a man to a woman.	(1)	2
d. Unprotected heterosexual intercourse carries a risk of transmitting the AIDS virus from a woman to a man.	(1)	2
e. The AIDS virus can be transmitted by anal intercourse.	(1)	2
f. The AIDS virus can be transmitted in semen	(1)	2
g. Having sex with fewer partners decreases the risk of getting AIDS	(1)	2
h. A person can contract the AIDS virus through oral-genital sex .	(1)	2
i. Receiving a blood transfusion with infected blood can give a person AIDS.	(1)	2
j. You can get the AIDS virus by sharing a needle with a drug user who has the disease.	(1)	2
k. Shaking hands with someone who has AIDS can give it to you. . .	1	(2)
l. The AIDS virus can be spread by using someone else's personal belongings like a comb or hairbrush	1	(2)
m. AIDS is a medical condition in which the body has a difficult time fighting off infection. . .	(1)	2

	TRUE	FALSE
n. You can get the AIDS virus from casual contact (such as shaking hands, coughing, using the same telephone or toilet seat). . . .	1	(2)
o. Some babies born to mothers with AIDS will carry the virus .	(1)	2
p. Stress causes AIDS	1	(2)
q. If you kiss someone with the AIDS virus, you will get the disease.	1	(2)
r. The majority of gay men have AIDS	1	(2)
s. If you touch someone with AIDS without exchanging bodily fluids, you can get AIDS	1	(2)
t. What you eat can give you AIDS .	1	(2)
u. AIDS can be cured.	1	(2)
v. AIDS is not at all serious; it is like having a cold	1	(2)
w. AIDS is caused by a bacteria . .	1	(2)
x. AIDS is caused by the same virus that causes gonorrhea.	1	(2)
y. Having unprotected sexual intercourse with someone who has AIDS is one way of getting it. .	(1)	2
z. The majority of people with AIDS die from the disease. . . .	(1)	2
aa. The majority of lesbian women have AIDS	1	(2)
bb. People with AIDS usually develop other diseases as a result of AIDS	(1)	2
cc. I can avoid getting AIDS by exercising regularly.	1	(2)

	TRUE	FALSE
dd. You can get the AIDS virus by sharing plates, forks or glasses with someone who has AIDS . . .	1	(2)
ee. There is a vaccine available which prevents AIDS	1	(2)
ff. It is possible to get the AIDS virus by donating blood	1	(2)