

HIGH SCHOOL STUDENTS' KNOWLEDGE OF AIDS

THESIS

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## Chapter I

### Introduction

Since the first case of AIDS was reported in 1981, the number of reported cases has grown in excess of 60,000 adults and 500 children (US Public Health Department). Within two years of diagnosis of AIDS, 70% of these people will die as a result of AIDS. It has been estimated that one and a half million people are unknowingly infected with the AIDS virus ("If you test", 1987). AIDS is a life threatening disease that will be the number one killer of the young exceeding the number of deaths due to automobile accidents (Reed, 1988).

The teaching of AIDS involves a sound health education program that is coupled with the moral and ethical aspects for the transmission of AIDS. "The teaching of AIDS is a parental responsibility but we in the schools must act in loco parentis to educate the public about AIDS. The urgency of the issue demands that time and energy not be wasted. Many have recovered from a lack of formal education but none have recovered from AIDS" (Washburn, J., cited in Reed, 1988, p. 357).

The teenage population is a high risk group for AIDS. As they reach sexual maturity, they are more likely to explore their sexuality. Many adolescents are very naive about safe sex as indicated by the large number of teenage pregnancies out of wedlock, The schools remain the most effective means of educating the young and through them their parents about AIDS.

Effective health education demands that students receive accurate scientific information about AIDS: What it is, how it is transmitted, how it can be treated, and how it can be prevented. With an effective AIDS education along with an ethical foundation, student behaviors may be safely guided before they develop the behaviors that spread AIDS. The prevention of AIDS depends upon what people know about the behaviors that increase the risk of AIDS and how they choose to behave. Our most effective weapon against both AIDS and the fear of AIDS will be our understanding of how the virus is spread ("The Facts", 1987).

To date there is no cure or vaccine to prevent the spread of AIDS. Since education is our only weapon against the spread of AIDS, it is this investigator's intent to measure the level of student knowledge about the facts, concepts, and understandings about AIDS within a senior high school population. With this purpose in mind, a survey of a sample population of students within one year of completion of their junior high health requirement and a sample population of senior high school students within one year of completion of their senior high health requirements was conducted. From these results, the students' level of knowledge about AIDS was assessed to determine if additional educational programs beyond the present health curriculum are needed and for the pertinent group. The process of informing our youth might better be served if AIDS education was supported by outside groups

such as scouts, religious youth groups, and programs presented by health professionals.

The basic questions addressed in this study are as follows: What is the level of knowledge for a heterogeneous sample population at the end of both the ninth year and eleventh year of schooling? Is there a relationship between the gender of the student and his level of knowledge? Will the level of student knowledge about AIDS increase with each additional year of AIDS instruction? Can the level of student knowledge be enhanced through outside readings and discussions about AIDS?

## Chapter II

### Background

AIDS, or acquired immune deficiency, is caused by the virus labeled HIV (human immuno deficiency). It has been previously labeled as human T-lymphotrophic virus type III or HTLV - III, lymphadenopathy associated virus or LAV, and AIDS related virus or ARV. Infection with the virus does not always lead to AIDS suggesting there may be other cofactors that trigger the disease.

It was first diagnosed in the US in 1981. Since that time more than 60,000 victims have been diagnosed as infected with the HIV virus. The virus attacks the white blood cells that protect the body from infection rendering its victims vulnerable to numerous bacteria, funguses, parasites and some forms of cancers. These "opportunistic" illnesses take advantage of the weakened condition of the immunity system.

The image of a pyramid is often used to describe those infected with the AIDS virus ("AIDS Facts", 1987). At the bottom is the largest group, estimated at one and a half million. They unknowingly carry the virus and spread the virus to others but show no symptoms of the disease. The middle group is described as having the AIDS related complex (ARC). They may experience chronic bouts of fever, diarrhea, weight loss, and swollen glands for many years without developing full blown AIDS. Those at the top will develop full blown AIDS. In addition to the symptoms

experienced by the ARC group, those with AIDS may develop breathing difficulties leading to pneumocystis pneumonia, a rare skin cancer, such as Kaposi's sarcoma, deterioration of vision, and mental disorders. For these victims, death usually occurs within two years of diagnosis of the disease. AIDS is 100% fatal (Koop, 1987 cited "AIDS Facts").

There are no high risk groups just high risk behaviors for spreading AIDS. Approximately 90% of the US AIDS infected populace are homosexuals or IV drug users or both ("AIDS, Sex and You", 1986). The remaining 10% are hemophiliacs and patients receiving tainted blood transfusions, males and females whose partner was infected, or infants born to infected mothers. AIDS is not a function of an individual's genetics or of sexual preference but rather a function of behavior.

The AIDS virus has been found in the blood, semen, vaginal fluids, and in trace amounts in the saliva, tears and urine of the infected person. The virus can be passed from one person to another by sexual contact, sharing needles and other personal equipment of infected persons, and from mother to unborn child. The AIDS virus is very weak and fragile and is easily destroyed outside the body by heat, bleach and other disinfectants. It can not be spread by casual contacts such as hugging, social kissing, coughing, or sneezing. It is not spread by using swimming pools, baths, or toilet facilities used by AIDS victims.

Furthermore, the virus is not spread by mosquitoes or other insect bites.

A person who has engaged in risky behaviors is at risk for getting AIDS. It only takes one encounter to become infected. The chances of acquiring AIDS from an infected person greatly increase as the disease progresses. The ELISA test is 98% accurate for testing for the AIDS antibody. The Western Blot test is used to confirm the findings of the ELISA test. The problem of extensive testing for the AIDS antibody and, therefore, the AIDS carriers, is that the virus may not manifest itself in the person for as much as 14 months. A positive antibody test does not determine who will develop AIDS. The diagnosis of AIDS depends upon the presence of certain opportunistic diseases. Abstinence or a mutually monogamous relationship is the best protection against sexually transmitted AIDS. Use of both a diaphragm and condom treated with a nonoxydol-9 spermicide from beginning to end of sexual intercourse can minimize the spread of AIDS.

AIDS is a life long disease. To date there is no vaccine or cure. Although many drugs are being developed to slow down the virus replication such as azidothymidine (AZT) none have been proven to stop or eliminate the disease. For the present, the medical community has only been able to treat the various symptoms for the AIDS victims. Antibodies, drugs, radiation and surgery have been used against the many opportunistic diseases. The only

cure for the spread of AIDS is an informed public. An informed public can avoid the behaviors that spread AIDS and can act without hysteria towards those afflicted by the disease. The schools are an excellent place to disseminate that information.

The above information was obtained from the following sources: AIDS Facts: A Primer on the Disease, The Facts About AIDS, and Acquired Immune Deficiency: 100 Questions and Answers. These articles are fully cited in Additional Resources.

### Chapter III

#### Statement of the Problem

With the rapid spread of AIDS from Africa to the United States since 1981, the public awareness of this disease is an issue of life and death. No one recovers from AIDS. Since there is no cure or vaccine against AIDS, our only defense against the spread of AIDS is to be informed. The schools are an excellent place to educate the school age population about AIDS.

It has been documented that the AIDS virus can only be transmitted through blood and sexual contacts. The teenage population is a high risk group. As they reach sexual maturity, they are more likely to explore their sexuality. It has been estimated that more than half of the teenage population are sexually active (Koop, cited in "Teen AIDS", 1988). Many adolescents are naive about safe sex as indicated by the large number of teenage pregnancies out of wedlock. Due to the life threatening nature of AIDS compounded by the sexual activity of the teenage population, it is imperative that a high school student be knowledgeable about AIDS: what it is, how it is transmitted and how it can be prevented. The more informed a person is about AIDS, the more likely he will act in a manner to avoid the behaviors that will put him at risk for AIDS. The level of student knowledge should be directly related to the number of exposures to AIDS information.

In an attempt to measure a high school student's level of knowledge of the facts, concepts and understandings about AIDS, a survey instrument of 35 items was constructed. This survey was administered to a ninth year population after the completion of the junior high health requirement and to an eleventh year population after the completion of both the senior high health requirement and American Studies, in which the social issue of AIDS is further addressed. In addition to formal instructional programs within the schools, the investigator allowed approximately two weeks for students and families to read and discuss the postal publication from the Surgeon General's Office, "Understanding AIDS". Since education is our only weapon against the spread of AIDS, the more exposure a student has to AIDS information, the more knowledgeable he should become about AIDS.

## Chapter IV

### Method

#### Subjects

The sample populations consisted of a heterogeneous population of ninth and eleventh year students in a suburban western Monroe County public high school with an enrollment of approximately 1300. The major distinction between the two groups was the level of schooling. A total of 79, ninth year students and 77, eleventh year students participated in this study.

#### Materials

Initially a survey instrument of 55 items was constructed from information within the literature. So that this survey could be accurately and completely administered in a 20 minute time interval, the final survey contained only 35 questions. The original survey was field tested with a pilot population of twelve, tenth year local biology students. The purpose of this field test was to check items for vocabulary and item difficulty. The students in the pilot population were to answer to the best of their ability the 55 questions. A statement was retained if at least 10% but no more than 90% of the pilot population answered it correctly. This procedure was conducted to reduce the standard error of measurement for this survey and enhance its reliability as a measurement tool. From the 41 items, 35 statements were randomly selected. The revised survey appears in Appendix A.

### Procedure

The principal of the high school was contacted by the investigator and permission was obtained to administer the survey during class time for a selected ninth and eleventh year teacher. A ninth year earth science teacher and an eleventh year American Studies teacher were selected to administer the survey. Both of these subjects are required. The social studies teacher was selected since the social issue of AIDS is covered in the curriculum of this subject. The classroom teacher administered the survey to all of her teaching classes on June 10, 1988 for a period of 20 minutes. By this method, a cross section of students from low to high ability could be polled. The cover sheet of each survey explained the purpose of the survey and instructions for answering each question. Each student agreed to complete the survey including information of gender, level of schooling, personal acquaintance with AIDS victims and if he or she had read the public health publication "Understanding AIDS". Each of the 35 questions were to be answered as (1) agree, (2) disagree and (3) uncertain. Their responses were recorded on an NES answer sheet and machine scored by Monroe #2 - Orleans BOCES. A response recorded as uncertain was scored as an incorrect answer.

### Data Analysis

A population of 79 ninth year students and 77 eleventh year students completed the survey. The collected data was adjusted to exclude any survey that was incomplete or was completed by a student who was not at the ninth or eleventh year level of schooling. A tabulation of the survey results is in Appendix B. The mean score for both populations was 22 with a standard deviation of 5.00. A score of 21 correctly answered questions was established as the minimum acceptable score on the AIDS survey. For the 35 item survey, a score of 21 or more was categorized as acceptable and a score of 16 or less as unacceptable. These results are categorized along with the variable, student grade level-gender. In addition, the scores were categorized along with the variable, outside input, which will include students receiving AIDS information from the publication, "Understanding AIDS" and/or having acquaintance with an AIDS victim.

From these results, it was determined if there was a statistically significant relationship between the grade level-gender variable and a student's level of knowledge about AIDS. In addition, it was further determined if there was a statistically significant relationship between outside input and a student's level of knowledge about AIDS. If a moderately strong relationship exists (Cramer's Phi .3 or greater), it is

the recommendation of this investigator that additional educational programs beyond the present high school programs are needed for the appropriate grade level-gender group.

## Chapter V

### Results

#### Null Hypothesis I

There will be no statistically significant relationship between the grade level-gender variable and a student's level of knowledge about AIDS at the 95% confidence level with a critical  $\chi^2$  no greater than 7.81 for three degrees of freedom. If a relationship does exist, a value for Cramer's Phi of .3 or greater would indicate a need for additional AIDS educational programs for the appropriate grade level-gender group.

Table 1  
Contingency Table: Null Hypothesis I  
AIDS Score/Grade Level-Gender

Score Grade Gender	Acceptable 20	Unacceptable 16	Row Margin
Ninth Female	28 25.874	3 5.126	31
Ninth Male	24 28.378	10 5.622	34
Eleventh Female	27 26.709	5 5.291	32
Eleventh Male	27 25.039	3 4.961	30
Column Margin	106	21	127

Table 2

Chi Square Table: Null Hypothesis I

Cell	$f_o$	$f_e$	$(f_o - f_e)$	$(f_o - f_e)^2$	$(f_o - f_e)^2 \div f_e$
$R_1C_1$	28	25.874	2.126	4.520	.175
$C_2$	3	5.126	-2.126	4.520	.882
$R_2C_1$	24	28.378	-4.378	19.167	.675
$C_2$	10	5.622	4.378	19.167	3.409
$R_3C_1$	27	26.709	.291	.085	.003
$C_2$	5	5.291	-.291	.085	.016
$R_4C_1$	27	25.039	1.961	3.846	.154
$C_2$	3	4.961	-1.961	3.846	.755

Obtained  $\chi^2 = 6.089$ Critical value of  $\chi^2$  at 95% confidence level is 7.81 for three degrees of freedom.

Null Hypothesis II

There will be no statistically significant relationship between the grade-level/outside input variable and a student's level of knowledge about AIDS at the 95% confidence level with a critical  $\chi^2$  no greater than 7.81 for three degrees of freedom. If a relationship does exist, a value for Cramer's Phi of .3 or greater would indicate a need for additional AIDS educational programs for the appropriate group.

Table 3  
Contingency Table: Null Hypothesis II  
AIDS Score/Outside Input

AIDS Score Grade Outside Input	Acceptable 20	Unacceptable 16	Row Margin
Ninth + input	40 13.354	2 2.646	16
Ninth - input	38 40.898	11 8.102	49
Eleventh + input	13 11.685	1 2.315	14
Eleventh - input	41 40.063	7 7.937	48
Column Margins	106	21	127

Table 4

Chi Square Table: Null Hypothesis II

Cell	$f_o$	$f_e$	$(f_o - f_e)$	$(f_o - f_e)^2$	$(f_o - f_e)^2 \div f_e$
$R_1C_1$	14	13.354	.646	.417	.031
$C_2$	2	2.646	-.646	.417	.158
$R_2C_1$	38	40.898	-2.898	8.398	.205
$C_2$	11	8.102	-2.898	8.398	1.037
$R_3C_1$	13	11.685	1.315	1.729	.148
$C_2$	1	2.315	-1.315	1.729	.747
$R_4C_1$	41	40.063	.937	.878	.022
$C_2$	7	7.937	-.937	.878	.111

Obtained  $\chi^2 = 2.459$ Critical value of  $\chi^2$  at 95% confidence level is 7.81 for three degrees of freedom.

## Chapter VI

### Conclusions and Recommendations

#### Null Hypothesis I

Since the critical value of  $\chi^2$  for three degrees of freedom at the 95% confidence level is 7.81 and since the obtained value for  $\chi^2$  is 6.089, the null hypothesis I was retained and it was concluded that there is no statistically significant relationship between the grade level-gender variable and a student's score on the AIDS survey. (Table 1, Table 2)

#### Null Hypothesis II

Since the critical value of  $\chi^2$  for three degrees of freedom at the 95% confidence level is 7.81 and since the obtained value for  $\chi^2$  is 2.459, the null hypothesis II was retained and it was concluded that there is no statistically significant relationship between the grade level-outside input variable and a student's score on the AIDS survey. (Table 3, Table 4)

Of the 144 participants in this study, 106 of them or approximately 75% had retained at least 60% of the AIDS information one year after the completion of their formal health program. (21 correct out of a possible score of 35) From the results of this study, the number of exposures to AIDS information within the classroom setting has no statistically significant relationship to a student's level of knowledge: ninth and eleventh year

students scored equally well regardless of the gender of the participant.

Furthermore, a student's level of knowledge is not affected when AIDS information is presented outside of the classroom. Public mailings of AIDS information to all postal patrons does not seem to be the answer to increasing student knowledge. Of those surveyed, approximately 21% of this population took advantage of this outside information. (Appendix B) There is a need for additional AIDS materials for all students in both the ninth and eleventh year who scored less than 60% correct on the AIDS survey. This group might benefit from assembly programs both in and out of the schools by organizations such as religious youth groups, scouts, PTAs, concerned citizen groups who would present information in line with community values by high school students of the same peer group. AIDS information could be tastefully presented in the minute long public health broadcasts on the television networks.

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## Appendix A

## Student Survey: Understanding AIDS

Your class has been randomly selected to participate in a survey to determine a high school student's understanding of AIDS. Your careful responses to the following questions are confidential and are greatly appreciated.

Directions: Use a # 2 pencil to complete this survey. On your answer sheet fill in the following information: name, sex, and grade and then mark sense the appropriate bubbles.

Answer each of the first 35 statements with either (1) agree or (2) disagree. If you are unsure of the answer to the statement answer with (3) uncertain.

## SURVEY: Understanding AIDS

Record your responses on the provided answer sheet as:

(1) agree                      (2) disagree                      (3) uncertain

1. AIDS is caused by a bacteria.
2. For people with AIDS, the body's natural immunity system fails to operate properly.
3. AIDS most often occurs among married, faithful, male/female relationships.
4. AIDS is common among IV drug users.
5. AIDS is the result of a weakness within a person's genetic code.
6. AIDS can be spread from one person to another by sneezing, coughing, touching, or by sharing food, clothing and shelter with the victim.
7. The few women who have contracted AIDS are either prostitutes or IV drug users or both.
8. The AIDS virus has been found in blood, semen, vaginal fluids, saliva, tears and urine samples.
9. The high number of AIDS cases among African nations are caused by insect bites.
10. The risk of getting AIDS from blood transfusions has been totally eliminated since 1985.
11. If your blood tests negative for AIDS, you are definitely not an AIDS carrier.
12. People living in certain geographic regions such as New York City or San Francisco are more likely to get AIDS.
13. AIDS is spread by direct contact with blood or semen of the infected person.
14. AIDS is a fatal disease.

15. The number of AIDS cases diagnosed to date in the US is in excess of 60,000 victims with an estimated one and a half million unknowing carriers of the disease.
16. There is no vaccine or cure for AIDS.
17. The AIDS virus can alter its form within the human body making it difficult for scientists to develop a vaccine.
18. The AIDS victim will suffer from "opportunistic" infections that take advantage of the weakened state of the immunity system.
19. Public workers, such as teachers, cooks, hair dressers, medical personnel infected with AIDS must be removed from their jobs to prevent the spread of AIDS.
20. The risk of AIDS can be greatly reduced if both a condom and diaphragm treated with a spermicide are used from the beginning to end of the sexual act.
21. There is little risk of an infected mother passing the AIDS virus to her new born baby.
22. Educating the public to the behaviors that cause the spread of AIDS is the only means of stopping the AIDS epidemic.
23. Everyone infected with the HIV virus will develop AIDS.
24. The onset of symptoms following infection with the AIDS virus may appear within a few weeks or many years later.
25. The incidence of AIDS among newborn infants of AIDS infected parents is about 50%.
26. People donating blood are at risk for getting AIDS.
27. The medical costs for treating an AIDS victim are very high. One must pass the blood test to acquire medical insurance.
28. There is a high incidence of suicide among AIDS victims.
29. AIDS is more contagious than measles, TB, small pox, or the common cold.
30. Heat, bleach or alcohol can safely destroy the AIDS virus.
31. Infection with the AIDS virus lasts a lifetime.

32. AZT is the only drug available in the US for the treatment of AIDS.

33. The AIDS disease is found in certain groups of people such as Hispanics and Blacks.

34. A person can get the AIDS virus by just one sexual encounter with an infected person.

35. An AIDS carrier must show the symptoms of the disease in order to be infectious.

36. Within the past two weeks, the US Government has mailed to each home the pamphlet "Understanding AIDS". Have you and/or your family read or discussed the information within this pamphlet?

(1) yes           (2) no

37. Do you personally know anyone who has AIDS?

(1) yes           (2) no

