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ABSTRACT

This study examined students' knowledge associated with AIDS (Acquired Immune Deficiency Syndrome) and attitudes toward AIDS patients in three remote rural Oregon school districts. Subjects were 139 females and 149 males in 7th, 8th, 9th, and 10 grades. The questionnaire used in the study was designed to obtain information concerning knowledge and attitudes in the following areas: (1) modes by which AIDS is transmitted; (2) methods and importance of preventing the spread of AIDS; (3) identifying people with AIDS; and (4) interpersonal relationships with people diagnosed as having AIDS. An additional question addressed the source of student information about AIDS. Data was interpreted for the overall group, as well as for gender and grade. On the Knowledge of Transmission Scale the average percent correct was 84.5, with no significant differences between males and females. The average percent correct for seventh graders was significantly less than that for higher levels. On the Knowledge of Prevention Scale, students scored a mean of 68.6% correct, with significant differences in gender and grade. No gender or grade differences were found on the Recognition of AIDS Scale, with a mean score of 68.8% correct. The scale dealing with Attitudes Towards AIDS Victims yielded a mean score of 73.0%, with a significantly higher mean for females. The school was the most frequently cited source of knowledge about AIDS. Results suggest that schools must provide effective AIDS education to their students. (KS)

AIDS -- Knowledge and Attitudes of Students in Rural Schools Examined by Gender and Grade Level

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Objectives

The objectives of this descriptive-comparative study were: (1) to assess the knowledge of risk behaviors associated with AIDS, knowledge of transmission modes of the virus, and attitudes toward AIDS patients among students in three remote rural Oregon school districts; (2) to examine student attitudes by gender and grade level and (3) to examine selected relationships among these variables.

Perspectives

Education about AIDS should start early in elementary school and at home so that children can grow up knowing the behavior to avoid to protect themselves from exposure to the AIDS virus.

Those of us who are parents, educators, and community leaders, indeed all adults, cannot disregard this responsibility to educate our young. The need is critical, and the price of neglect is high. The lives of our young people depend on our fulfilling our responsibility. (Koop, in The Oregonian, 1987, p.C4)

Identified in the United States for the first time in 1981, the Acquired Immune Deficiency Syndrome (AIDS) is a deadly disease that destroys T-lymphocytes, and therefore the ability of the body's immune defense system to fight various infections,

including cancer, pneumonia, and meningitis (Surgeon General Koop in The Oregonian, 1987). It is possible to be infected with the AIDS virus and capable of transmitting the disease without exhibiting noticeable symptoms of the disease. Although those who test HIV+ (sero-positive) are infected with the virus, individuals may be infected and contagious but not test positive because antibodies have not yet formed in the blood (McAlister, 1990). The AIDS Related Complex (ARC) is a less severe form of the AIDS disease which may or may not progress to the disease itself. ARC patients are also capable of infecting others with the virus, even before they are aware that they are infected.

As a sexually transmitted disease, AIDS is contagious in a manner similar to other such diseases--gonorrhea, syphilis, etc. The virus is found in all body fluids. However, its level of concentration is quite low in saliva, tears, and sweat; no cases of AIDS being acquired from contact with these fluid have been documented (McAlister, 1990). The primary means by which an exchange of body fluids necessary for transmitting the AIDS virus occurs are: exposure to infected blood, the sharing of intravenous drug needles, sexual contact, and infected mother to her fetus or infant (Preston, Jehu-Shaw, & Zielinski, 1988).

Koop (The Oregonian, 1987, p. C4) said that "AIDS is a life-threatening disease and a major public health issue. . . . By the end of 1991, and estimated 270,000 cases of AIDS will have occurred with 179,000 deaths within the decade since the disease was first recognized." By March 15, 1988, a total of 55,315 adult cases were reported to the Center for Disease Control

(Preston, Jehu-Shaw, & Zielinski, 1988). Adding to this the reports of AIDS from Africa and Europe, AIDS is indeed an international, national, and state problem.

No state escapes this problem, including the one in which this study was done. The HIV Program Manager of the Oregon Health Division reported that, by 1990, there were in excess of 15,000 HIV+ cases in Oregon, with 720 being classified as AIDS patients (McAlister, 1990). With 135 deaths in 1989, AIDS is the 16th leading cause of death in Oregon; however, for young men (ages 25-34), it is third in the ranking (Heinz, 1991). Considering that the number of deaths resulting from AIDS increased 18.4 percent from 1988 to 1989 and that 90% of its victims are young men (Heinz, 1991), it has been said that this disease claims more years of potential life than do diseases such as arteriosclerosis and diabetes.

In 1985, Christopher and Cate reported that the number of pregnancies among teenage girls exceeded 1,000,000 each year and that the premarital intercourse rates are rising above the 70% level for both sexes. By age 19, about 63% of females and 78% of males will have had at least one sexual experience; of those between 12 and 17, 28% are currently active (The National Research Council, 1987). Since AIDS is transmitted sexually, it is critical that this younger age group also receive information about the transmission of AIDS (Preston, Jehu-Shaw, & Zielinski, 1988).

The introduction of sex education into the curriculum (Adame, 1985) has substantially increased student knowledge of

sexuality (Kirby, 1985). Research on its impact on sexual activity has produced mixed results; however, Furstenberg, Moore, and Peterson (1985) did find that youth who had experienced a sex education course had a lower frequency of intercourse than those who had not. Nevertheless, the sexual behavior of adolescents seems to be more influenced by the sexual behavior and attitudes of their friends (Billy & Udry, 1985; Pope, Westerfield & Walker, 1985) than by their religious beliefs or instruction in school (McCormick, Izzo, & Folcik, 1985).

Adolescents in general, and the younger and rural teenager in particular, are uncomfortable about purchasing and ineffective in using contraceptives (McCormick, et al., 1985). Recognizing that adolescents are sexually active, it is not surprising that about one in seven is carrying a sexually transmitted disease (STD). Unfortunately, activities that result in pregnancy and STD's also lead to being infected with AIDS (Mathison, 1986).

Students are especially vulnerable to AIDS when they begin exploring sex or experimenting with drugs. America's teachers make up the only professional, nationally dispersed network that can reach young people before they begin these behaviors. A new era of educating adolescents about healthy sexual and personal attitudes is beginning (The Health Information Network Senior Science Advisory Group, 1987).

If even a small percentage of the more than 7,000,000 teenagers who have experimented with cocaine, heroin, and stimulants have used needles, hundreds of thousands of teenagers may have been exposed to AIDS. Teenagers must be considered to be a high-

risk population. Many of the AIDS cases now diagnosed acquired the disease as teenagers (Mathison, 1986). Considering that 68% of all AIDS cases are in the 20-39 age range and that the incubation period for the virus is in the 2-7 year range, we must conclude that a relatively large number of individuals are becoming infected during their adolescent and college-age years (Goggin, 1988). Furthermore, those students with the least knowledge are also those most likely to engage in high-risk behaviors (Goggin, 1988).

Misconceptions make up a large part of the perceptions of adolescents prior to instruction. These misconceptions interact with instruction, thereby limiting its effectiveness. A study of the effectiveness of AIDS education with metropolitan high school students in Indiana discovered that high school students were reasonably well-informed about AIDS. However, three areas of critical misconceptions were identified: condoms eliminate the risk of AIDS; AIDS is likely to be contracted by casual and indirect contact, such as social kissing and donating blood; and AIDS is transmitted in the schools (McCoy & Calvin, 1989). Social problems in the school are likely to be aggravated by this latter misconception. Nevertheless, secondary and tertiary-level students believe that they are unlikely to contract AIDS (Goggin, 1988; Herting, et al., 1988; Moore, Chia, & Castellow, 1988). It would appear that the media has been somewhat effective in dispersing some factual information, but relating this factual information to personal self-perceptions and practices has not occurred.

In a study of the attitudes of university freshmen in eastern North Carolina, Moore, Chia, and Castellow (1988) found that females were more sensitive than males towards AIDS patients and were more willing to interact with them. Also, they were more likely than males to have changed some of their sexual practices; neither saw themselves at risk for AIDS. Nevertheless, most (80%) agreed that it was necessary to have a national screening program for AIDS. Also, 42% of the males and 31% of the females agreed that an AIDS epidemic in the heterosexual population would justify placing AIDS patients/carriers in camps or colonies; for 13% of the males and 7% of the females, the termination of AIDS patients would then be warranted.

The findings of a study of rural Oregon middle school students by Hales, McGrew, and Nizic-Anderson (1990) are similar to those reported above for university freshmen. Middle school females were found to have more positive attitudes and be more willing to interact with individuals who have AIDS than were the males. Although the question concerning quarantining AIDS patients was not conditional to the spread of AIDS in the heterogeneous population, 35% of the males and 15% of the females favored doing so (an additional 22% and 21%, respectively were undecided). Also, these students seem to confuse sexual practices to prevent pregnancy with preventive practices for AIDS. These findings indicate that AIDS is poorly understood; in order to decrease the possibility of fear and panic, widespread, simple, direct, immediately available educational programs are needed (Moore, Chia, & Castellow, 1988).

A study of West Pennsylvania teens showed that 7th grade students were more effected by an AIDS Education Program that dealt with knowledge and attitudes than were high school students. Providing AIDS education to students prior to their coming to terms with their own sexuality in effect forms attitudes and understandings rather than attempting to change them after they have been formed (Preston, Jehu-Shaw, & Zielinski, 1988).

Apparently, students receive most of their information on AIDS from the mass media [newspapers, magazines, television and radio commercials, and television programs], and the information presented is frequently superficial and provides inadequate information to secondary students (Price, Desmond, & Kukulka, 1985) -- a lack of accurate information could be fatal. However, an AIDS education program for middle and high school students in rural Pennsylvania seem to help reduce their dependency on media, replacing it with teachers (Preston, Jehu-Shaw, and Zielinski, 1988). Partially in response to this danger, there has been a growing recognition by educators, parents, state politicians, advocacy groups, and the Surgeon General of the urgency of introducing effective sex and AIDS education programs in our schools, beginning in the elementary grades.

Oregon public schools are mandated by OAR 581-22-412 to provide age-appropriate curricula for all grade levels on infectious diseases, including AIDS, ARC. HIV, and Hepatitis B. Similar activity is under-way throughout the United States.

Even though AIDS education is a common topic of concern, it is so new that there is little research available on its effectiveness. Much of the discussion has been in the hands of the news media, concerned educators, and other professionals. There has been a lot of sensationalism, but little accurate data. Schools are becoming increasingly involved in AIDS education, and it is important that the effectiveness of the school-based AIDS education programs be evaluated (McCoy & Calvin, 1989).

Methods and Data Sources

The questionnaire used in this study was designed to obtain information concerning the knowledge and attitudes of adolescents in the following areas: modes by which AIDS is transmitted, methods and importance of preventing the spread of AIDS, identifying people with AIDS, and interpersonal relationships with people diagnosed as having AIDS. An additional question addressed the source of student information about AIDS. The format and questions used were influenced by the Oregon State Health Department AIDS Questionnaire and evaluated by school nursing staff, district health educators, and school district administrators.

In May, 1990, it was administered to 7th (N=102), 8th (N=80), 9th (N=69), and 10th (N=37) grade students in three remote rural Oregon school districts. There were 139 females and 149 males. The distributions for grade-level and gender are presented in Table 1.

Table 1. Grade and Gender Distribution of the Student Sample

Variable	Level	Frequency	Percent
Grade	7	102	35.4
	8	80	27.8
	9	69	24.0
	10	37	12.9
Gender	Female	139	48.3
	Male	149	51.7

In constructing this instrument, the primary focus was on obtaining information concerning specific knowledge and attitudes of rural school children concerning AIDS; no attempt was made to construct a balanced, summative instrument. A subsequent examination of the instrument suggested that, with the exception of one question, each question could be scored on the basis of its agreement with the current knowledge-base in the field or recommend sexual/social practice, thereby permitting the creation of a summated total scale score. Since the instrument physically does not appear to be a test and students were not told to attempt each item, the treatment of blank items as "incorrect responses" is questionable. One solution to this problem would be to score "blanks" as "undecided." An alternative is to remove the influence of blanks by dividing the sum of the item scores by the number of items attempted and then to multiple this average by the number of items on the scale (29 in this case); this is the procedure used in this study. Further examination of the research instrument suggested that it could be partitioned into four somewhat different but related subscales: perceptions of the

modes of transmitting the AIDS virus (12 items); perceptions of methods of preventing the spread of the AIDS virus (10 items); perceptions of the ability to recognize people with AIDS (2 items); and attitudes concerning relating with people who have the HIV virus (5 items). Using the scaling procedure described for the total scale, scale scores were calculated for students on each of the above four subscales.

Item responses were summarized with descriptive statistics, primarily percentages. An analysis of variance approach was used to estimate the internal reliability of each scale (four subscales and total scale). Descriptive statistics were calculated for the scales, including means and standard deviations. Relationship between selected questions were also investigated, using Spearman's rank order coefficient of correlation. A multivariate factorial analysis of variance was performed, using grade and gender as independent variables and the subscales as dependent variables. A factorial analysis of variance was also performed on the total scale. Subsequently univariate analyses of variances were examined for gender and grade for each scale. Finally, analysis of variance was used to examine the scale differences associated with student perceptions of their primary source of information about AIDS. The .05 level was used for each inferential statistical test.

Results and Conclusions

The primary purpose of this study was to examine the perceptions of rural secondary school students concerning AIDS; therefore, the responses of the total sample are examined first and in

greater detail than one would likely enccunter in a causal-comparative study. Following this presentation is a discussion of the results of the various comparative analyses.

Total Sample

As indicated in Table 2, rural 7th-10th grade students were generally aware that the AIDS virus is spread by direct sexual contact: man to woman (96%), woman to man (86%), and man to man (83%). In the area of what might be considered to be by blood contact, they were aware that the virus is spread through the sharing of intravenous needles (99%). However, the spread from infected mother to unborn child was not as well recognized (78%), and with 13% undecided, their confidence in their knowledge was less. They correctly included receiving infected blood as a means by which AIDS is spread (97%) but failed to adequately differentiate this from simply receiving blood and blood products (62%). They tended to exclude donating blood as a means of becoming infected (30%, yes). Although today both giving and receiving blood is considered to be low risk, the virus has been spread by both means (using infected needles in the case of giving blood) and a rather large number of hemophiliacs have been infected by transfusions.

Students tended to view kissing as not being a means by which the virus is spread (78% no). Because the mucous membranes of the mouth is sensitive to the AIDS virus and blood may be present in irritated gums, etc., it is possible for the virus to be spread by kissing, but it is relatively low risk. Thus, their perceptions are reasonably consistent with current thought.