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HIV/AIDS Prevention-Related Social Skills and Knowledge Among Adolescents in Sierra Leone, West Africa

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ABSTRACT

This study examined the association between HIV/AIDS knowledge, attitudes, and perceptions among high school students age 14 years and older who attended school in two large urban towns, Bo and Freetown, Sierra Leone, West Africa. All subjects in the survey were Africans in grade two to ten in schools in Sierra Leone (n=137). The mean age of the respondents was 18 years; 55 percent were female and 45 percent were male. The AIDS Social Assertiveness Scale (ASAS) was used. There were five factors derived from the ASAS in the study, which are similar to those used in previous studies. The factors derived were: Disclosure-Help Seeking, Contact with Infected People, Sexual Negotiation, Difficult Social Interaction, and Refusal of Risk Behaviours. These data indicate that the sub-scale structure of the ASAS in students from Sierra Leone is almost identical to the sub-scale structure of the ASAS reported by Venier, Akande, and Ross for Kenya, Nigeria and Zimbabwe, and by Ross, Caudle, and Taylor for Australia. Some 52 percent of the subjects who had intercourse reported that they used condoms. Factors related to condom use were age, knowledge about HIV/AIDS, and anxiety about disclosure of HIV/STD problems. Data indicate that intercourse was common and that greater condom use was associated with less anxiety over sexual negotiation and greater anxiety over disclosure of having HIV or an STD. (*Afr J Reprod Health* 1997;1(1):37-44)

RÉSUMÉ

Aptitude et Connaissance de la prévention du VIH/SIDA parmi les adolescents en Sierra Leone

Cette étude a examiné la connaissance sur le VIH/SIDA, les attitudes et les perceptions chez des lycéens âgés de 14 ans ou plus dans deux grandes villes de Sierra Leone, Bo et Freetown. Tous les participants étaient des élèves des écoles primaires et des lycées de la Sierra Leone (n=137). 55 pourcent d'entre eux étaient des filles et 45 pourcent, des garçons avec une moyenne d'âge de 18 ans. Les critères du «AIDS Social Assertiveness Scale» (ASAS) ont été utilisés. Cinq facteurs de l'ASAS identiques à ceux utilisés dans des études précédentes par Venier, Akande et Ross au Kenya, au Nigeria et au Zimbabwe, ont été sélectionnés pour l'étude. Il s'agissait: «de la révélation et de la recherche d'aide», «du contact avec les sujets infectés», «de la négociation sexuelle», «de l'interaction sociale difficile» et «du refus du comportement à risque». Les résultats indiquent que ces facteurs de l'ASAS chez les lycéens de la Sierra Leone sont presque identiques à ceux rapportés dans les précédentes études africaines menées par Venier, Akande et Ross et par ce dernier avec Caudle et Taylor en Australie. 52 pourcent des lycéens qui ont eu des rapports sexuels, ont déclaré avoir utilisé des préservatifs. Les facteurs associés à l'utilisation des préservatifs étaient l'âge, la connaissance sur le VIH/SIDA et l'anxiété associée à la révélation des conséquences du VIH/SIDA. Les résultats indiquent que les rapports sexuels étaient fréquents et qu'une utilisation plus importante des préservatifs était associée à une anxiété moindre au cours de la négociation sexuelle et à une plus grande anxiété liée à la révélation d'une infection par le VIH ou d'une MST. (*Afr J Repro Health* 1997;1(1):37-44)

KEY WORDS: HIV/AIDS knowledge, adolescents, factor analysis, AIDS Social Assertiveness Scale, Sierra Leone, Africa

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AIDS in sub-Saharan Africa has reached pandemic proportions in many countries, and given the high prevalence of infection, it is important to educate the population before or as they become sexually active to prevent continuing high levels of infection. Gregson et al. suggest that the first AIDS case documented in sub-Saharan Africa was discovered in the Rakai District of Uganda in 1982;¹ however, it is suspected that HIV-1 may have been long present at low levels of prevalence in many African countries where it continues to spread rapidly, particularly in urban areas and among certain "high risk" population sub-groups. HIV-2 appears to be more common in West Africa.² Longitudinal studies suggest that the virus prevalence amongst women of childbearing age has been increasing at a near-exponential rate during the 1980s, with a doubling time of one to three years in some urban centres.¹ According to Ulin, current programs tend to rely on women's ability to change men's behaviour.³ Lamprey and Weir also point out that current programs have been criticised for avoiding direct discussion of sexuality and focusing mainly on high-risk populations such as commercial sex workers.⁴ In sub-Saharan Africa, heterosexual intercourse represents the principal mode of transmission of HIV-1 and HIV-2. In fact, more adolescents in Kenya now engage in premarital sex than ever and also have multiple sex partners.⁵ Feyisetan and Pebley reported similar findings in their study of urban Nigerian women.⁶

The prevalence of HIV-1 is high among women of childbearing age (15–49 years).¹ Despite high seroprevalence levels across much of Africa, HIV prevalence is still comparatively moderate in some West African countries where there is a window of opportunity for prevention efforts to succeed before HIV-disease begins to escalate; however, while the numbers of reported AIDS cases and deaths may still be low by comparison with other prevalent infections in Africa (e.g., malaria), they remain so, in part, because of the long incubation period between initial HIV infection and development of AIDS. Of 16,000 people tested in Sierra Leone, 492

(3%) tested positive for HIV, and 154 had AIDS (1%).

In the absence of a cure or vaccine, education provides the only means to prevent and control the spread of HIV, the causative agent of AIDS. However, information alone is insufficient to change the risk behaviour of target groups.⁷ While some research has been conducted on the relationship between AIDS education in schools and AIDS knowledge, little effort has been extended to the relationship between AIDS education and social skills that underlie AIDS risk-reduction activities.⁸ Kipp et al. found that for primary and secondary students in Kabarole District, Uganda, AIDS awareness did not vary by type of school (urban or rural), by the presence of co-education, or by gender.⁹

Venier, Akande, and Ross suggest that HIV intervention programs for adolescents in Anglophone African countries should be designed with common elements which reflect the factor structure of the AIDS Social Assertiveness Scale (ASAS): Condom Interaction and Sexual Negotiation, Refusal of Risk Behaviours, Disclosure and Help-Seeking, and Confiding in Significant Others.¹⁰ These areas were found to be common factors of AIDS anxieties as measured on the ASAS in Nigeria, Kenya, and Zimbabwe. Intervention programs should focus on the five areas which make students anxious.

According to the 1993 census, Sierra Leone's population is 4.5 million covering an area of some 28,000 square miles. Life expectancy is 42 years for males and 48 years for females. The capital of Sierra Leone is Freetown; there are also three provincial headquarters: Bo, Kenema, and Makeni. Forty percent of the population are between 10 and 29 years old. The government of Sierra Leone spends about two percent of its income on health. Although Sierra Leone exports diamonds, gold, and other precious minerals, the country remains one of the poorest in the world. Infant mortality is high and literacy is very low according to United Nations reports. Most of the money is spent

on prevention and eradication of malaria, yellow fever, and neo-natal diseases. Less than 0.2 percent is spent on HIV/AIDS education and prevention. Such a low priority on HIV/AIDS education and prevention means ongoing high risk of HIV transmission among people in the high risk and general populations.

The study was designed to investigate the hypothesis that HIV/AIDS education and awareness is needed among high school students in Sierra Leone. Specifically, the study determined the association between HIV/AIDS knowledge, attitudes, and perceptions among high school students 14 years and older who attended school in two large urban towns, Bo and Freetown, Sierra Leone. The findings from this study were compared to data in previous studies using the ASAS in Kenya, Nigeria, and Zimbabwe.

Methods

Two hundred questionnaires including the ASAS and an AIDS knowledge test were completed by students who were currently enrolled in public high schools in Bo and Freetown in 1994. Subjects had to be at least 14 years old, able to read and write in English (the official language in Sierra Leone) and attend public school in Bo or Freetown. Questionnaires were administered by trained teachers from different high schools in Bo and Freetown. These teachers were not paid for the time spent administering the survey. Subjects in the survey remained anonymous; all 33 ASAS items were completed by all subjects who participated in the survey. No identifying information (e.g., names and addresses) was placed on the questionnaires. All completed questionnaires were placed in envelopes collected from subjects and returned to the investigator for data analysis. Out of the 200 questionnaires sent for survey, 137 were completed and returned to the investigator (a response rate of 68.5%). Questionnaires were completed by the subjects as part of a larger study of the social aspects of HIV prevention in African adolescents.

The ASAS was designed based on the Scale for

Interpersonal Behaviour and reported by Ross, Caudle, and Taylor.^{7,8} It contains 33 items scored on a five-point Likert scale, and is self-administered under supervision. The questionnaire used in Sierra Leone also collected data on age, sex, hours of AIDS education completed, place subject lived, name of school, and year in school. Subjects were asked to complete several multiple-choice questions on their knowledge of AIDS, e.g., "What causes AIDS?" "Which part of the body does AIDS attack first?" and "Do your chances of getting the AIDS infection increase if you sleep around?" Subjects were also asked to complete true or false questions including: "AIDS is a type of cancer of the blood" and "You can have the AIDS virus in your blood without getting sick." Knowledge items were identical to those used by Ross, Caudle and Taylor.^{7,8}

The questionnaires were individually coded by the investigator and data entered into the computer and double checked for accuracy. SPSS^{*} was used for data entry and analysis. Data were analysed by means of factor analysis, principal components analysis followed by varimax rotation to simple structure as a confirmatory factor analysis, and scale scoring to determine whether the factor structure of the scale is similar to the other African countries from which data have been published. Pearson product-moment correlation coefficients and t-tests were also computed to determine relationships between variables.

Results

The mean age of participants in the survey was 18 years. Of the 137 respondents, 55 percent were female and 45 percent were male. All participants were Africans who attended school (grades 2–10) in Sierra Leone. Of the respondents, 87 (63.5%) reported that they had had sexual intercourse; of these, 45 (51.7%) reported that they had used condoms. Mean knowledge score was 8.67 on the scale of 14 items as previously used by Ross, Caudle, and Taylor.^{7,8}

Table 1 shows the factor analysis of data from

Table 1 Factor analysis of ASAS Sierra Leone data
rotated factor matrix

Factor 1: Disclosure-Help Seeking		Loading
V.23	Telling your parents that you may have a sexually transmitted disease	.65
V.20	Telling your parents that you think you have a problem with intravenous drugs	.63
V.21	Telling your friend that you think you have a problem with intravenous drugs	.62
V.25	Going to a clinic for a sexually transmitted disease or AIDS test	.61
V.09	Asking a friend if you can borrow a condom	.60
V.13	Going into a chemist and asking to buy condoms	.58
V.14	Buying condoms off the shelf in a shop	.58
V.08	Carrying condoms in your wallet or handbag	.52
V.11	Starting a social conversation about condom use	.48
V.24	Telling your boy/girlfriend that you may have a sexually transmitted disease	.46
V.12	Arguing with someone who makes negative comments about using condoms	.41
<i>percent of variance: 21.9</i>		
Factor 2: Contact with Infected People		Loading
V.31	Visiting a friend at home who has the Human Immunodeficiency Virus infection (i.e., who carries the AIDS virus)	.72
V.33	Visiting a close friend who is now an AIDS patient in the hospital	.71
V.32	Hugging a friend or family member who has the HIV infection	.67
V.02	Offering an opinion that differs from that of the person who you are talking to	.58
V.26	Phoning the sexually transmitted disease/AIDS clinic	.40
<i>percent of variance: 8.8</i>		
Factor 3: Sexual Negotiation		Loading
V.15	Asking boy/girlfriend about his/her previous sexual experiences	.70
V.18	Telling close friends that you won't share needles	.61
V.19	Turning down a "hit" because there are no clean needles	.57
V.16	Telling someone you know who has multiple partners that you don't want to have sex with them	.53
V.06	Telling your boy/girlfriend that you are fond of them	.51
V.10	Talking in social conversation (started by someone else) about condom use	.42
V.07	Thinking about condoms	.31
<i>percent of variance: 6.3</i>		
Factor 4: Difficult Social Interaction		Loading
V.01	Starting a conversation with a stranger	.70
V.03	Putting forward your opinion during a conversation with strangers	.65
V.04	Starting a conversation with a person you find attractive	.56
V.29	Telling your boy/girlfriend, with whom you are thinking about having sex, that you want to use condoms	.42
V.22	Seeking help for an intravenous drug problem from your school counsellor or drug clinic	.43
<i>percent of variance: 4.8</i>		

Factor 5: Refusal of Risk Behaviours		Loading
V.28	Telling a casual boy/girlfriend, with whom you are thinking about having sex that you don't want to have sex at present	.72
V.27	Telling a close boy/girlfriend who wants to have sex that you don't want to have sex at present	.57
V.17	Telling someone who you know uses intravenous drugs that you don't want to have sex with them	.50
V.30	Refusing to have sex with boy/girlfriend if they won't agree to use condoms	.45
<i>percent of variance: 4.4</i>		

Loadings are a measure of the extent to which an item relates to or is indicative of a factor. The higher the factor loading, the more the item is indicative of the factor. In the table above, "Telling your parents that you may have an STD" has a factor loading of .65, signifying that it is highly indicative of Disclosure-Help Seeking.

Sierra Leone. The first factor dealt with Disclosure-Help Seeking; in this area, subjects responded to questions ranging from telling parents that a respondent may have a sexually transmitted disease to telling a friend that the respondent thinks he/she has a problem with intravenous drug use. The second factor discussed Contact with Infected People; this area dealt with how willing subjects were to visit a friend with HIV or to hug a friend or family member who has HIV infection. The third factor involved Sexual Negotiation; this looked at how willing subjects were to ask boy/girlfriends about previous sexual experiences or to talk about condom use in social conversation (started by someone else). Factor four looked at Difficult Social Interactions; this factor described the likelihood that subjects will start a conversation with a stranger or seek help for an intravenous drug problem from a school counsellor or drug clinic. Finally, factor five, Refusal of Risk Behaviors, dealt with how willing subjects were to tell a casual boy/girlfriend, with whom he/she is thinking about having sex, that they don't want to have sex with someone they know uses intravenous drugs.

Factor analysis is a statistical technique based upon examination of the clusters of item responses derived from their intercorrelations. Factors describe the sub-structure of the questionnaire, where the factors represent clusters of items which

tend to be answered in the same pattern – items in each factor are highly intercorrelated. Loadings on a factor represent the correlation between the item and the factor.

When compared with previous studies carried out in Nigeria, Kenya, and Zimbabwe by Venier, Akande, and Ross,¹⁰ the data from Sierra Leone show that subjects from the three African countries are similar in some areas. However, there were interesting differences in the areas of Disclosure-Help Seeking and Social Negotiation. Subjects from Sierra Leone were more willing to talk about their sexual problems to their significant others than their counterparts in Kenya or Nigeria. The Sierra Leonean subjects were also more willing to visit or hug a friend or family member who was infected with HIV/AIDS. In the areas of anxieties over Sexual Negotiation, Difficult Social Interactions, and Refusal of Risk Behaviors, Sierra Leonean subjects scored lower than those in the other three African countries.

Table 2 shows the differences in ASAS factor scores in data collected from Sierra Leone reflecting all five factors. There was a significant difference in condom use on Disclosure-Help Seeking and Sexual Negotiation scores. Breakdowns by sex and whether respondents were sexually experienced showed no differences across the five factors.

Table 3 shows variables associated with knowl-

Table 2 Differences in ASAS factors: factor score means

Factor	Sex		Intercourse		Condom Use	
	Male	Female	Yes	No	Yes	No
Factor 1 Disclosure-Help Seeking	26.8	27.7	27.5	26.0	30.0*	25.0*
Factor 2 Contact with Infected People	13.0	12.5	13.0	12.1	13.6	12.6
Factor 3 Sexual Negotiation	18.2	16.3	18.2	15.3	17.3*	17.6*
Factor 4 Difficult Social Interactions	11.4	13.0	12.7	11.8	13.1	12.3
Factor 5 Refusal of Risk Behaviours	10.8	9.3	10.3	9.5	10.5	10.1

* $p < .05$

Factor score means are calculated based on an aggregate of individual scores for variables contributing to a particular factor.

edge between factors. On the AIDS knowledge test there were no significant differences in knowledge scored by age, factor score, sex, intercourse, or condom use.

Finally, Table 4 shows the regression analysis of predictors of condom use. The table shows that the three best predictors of condom use are Disclosure-Help Seeking anxieties, age, and knowledge of AIDS.

Discussion

These data indicate that the subscale structure of the ASAS in students from Sierra Leone is almost identical with the dimensions of the ASAS reported by Venier, Akande, and Ross for Kenya, Nigeria, and Zimbabwe,¹⁰ and by Ross, Caudle, and Taylor in Australia.^{7,8} In addition to further confirming the subscales of the ASAS, the anxieties of the respondents about Disclosure-Help Seeking, Contact with Infected People, Sexual Negotiation, Dif-

Table 3 Variables associated with HIV/AIDS knowledge

Knowledge	Age		Factor			
		1	2	3	4	5
Correlation coefficients between HIV/AIDS knowledge and factor scores	.03	-.01	-.08	-.08	-.01	-.13

Knowledge	Sex		Intercourse		Condom Use	
	Male	Female	Yes	No	Yes	No
Mean	8.5	8.8	8.7	8.7	9.0	8.5

No significant differences at $p < .05$

Table 4 Regression analysis of predictors of condom use

Variable	Regression Coefficient (β)	p-value
Factor 1: Disclosure-Help Seeking	-.25	.05
Factor 2: Contact with Infected People	-.05	.70
Factor 3: Sexual Negotiation	.16	.29
Factor 4: Difficult Social Interactions	-.12	.37
Factor 5: Refusal of Risk Behaviors	.06	.65
Age	-.29	.01
Knowledge of HIV/AIDS	-.19	.07

difficult Social Interactions, and Refusal of Risk Behaviors were also used in this study to determine their association with sexual experience and demographic variables. We report elsewhere the patterns of differences between the data from Sierra Leone and similar data from Kenya, Nigeria, and Zimbabwe.¹¹

Data indicate that there were no significant differences on any of the subscales across the variables of having had sexual intercourse or of sex. The significant differences in terms of condom use occurred on the subscale Disclosure-Help Seeking, where those who used condoms were significantly more anxious about disclosure about STDs/HIV and about obtaining condoms, and significantly less anxious about sexual negotiation. These data suggest that anxiety about STDs/HIV may play a significant role in the use of condoms. Anxieties about having to disclose may be avoided by not having to make such a disclosure by being protected through condom use. The relationship between sexual negotiation and condom use is that those who are less anxious about negotiating are more likely to use a condom. Provision of skills which may enhance sexual negotiation skills would thus be a useful educational intervention conducted within the context of HIV/STD knowledge. Multivariate analysis indicated that the combination of variables which best predicted condom use in this population was higher age, anxiety about

disclosure of HIV/STD infection, and greater knowledge of HIV/AIDS.

Variables significantly associated with knowledge included sex (females had slightly higher knowledge than males) and condom use, with condom users having higher knowledge. This last point reinforces the relationship between knowledge and protective behaviour, with knowledge probably being a necessary precondition of behaviour change.

These data suggest that measurements of AIDS-related anxieties are possible in Anglophone African adolescents, and that despite the relatively low level of knowledge about HIV/AIDS, knowledge about the disease and its transmission, along with anxieties about contracting it and the disclosure of infection, are associated with condom use. However, the rate of condom use (half the respondents reported that they had used a condom during sex, although we have no information about the accuracy of this) suggests that this is a preventive behaviour which has become established and which might become normative with additional interventions.

Several caveats attend the results of this study. Since the survey was done in Bo and Freetown, findings from this study cannot be generalised to all high school students in Sierra Leone. In addition, there is a potential for volunteer bias. Finally, since this is a cross-sectional study, causal

inferences are not warranted.

This high school population was aged on average between 18 and 19 years, and these data were collected during a civil war (which has been shown to increase STD risk behaviours).¹² Nearly two-thirds had had intercourse and, of these, half had used condoms at some time. Predictors of condom use included age, HIV knowledge, and anxieties over disclosing problems to others, which emphasises the stigmatising nature of HIV, STDs, and related problems. Further, the stigma appears to extend to discussion of and obtaining condoms. These data suggest that reducing the stigma associated with obtaining and using condoms and emphasising the personal and social impact of STD/HIV infection compared with condom use would comprise an appropriate intervention which would build on an already existing behaviour with a reasonable prevalence in this population.

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