AIDS CARE (1998), VOL. 10, NO. 5, pp. 571–582

Sexual and reproductive health among primary and secondary school pupils in Mwanza, Tanzania: need for intervention

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Abstract *A cross-sectional questionnaire survey was conducted among 892 randomly selected pupils, aged 12 and above, attending 18 primary schools (PS) and five secondary schools (SS) in four communities of Mwanza Region in Tanzania. The goals were to assess the level of knowledge adolescents have about sexual and reproductive health (SRH), to assess the magnitude of SRH problems and to help design appropriate interventions. Median age of respondents was 15 years (range 12–20 years) and 14 years (range 12–19 years) for PS boys and girls, respectively, and 19 years (range 16–24 years) and 17 years (range 14–19 years) for SS boys and girls. Eighty per cent of PS boys and 68% of PS girls were already sexually active; the corresponding figures were 89% for SS boys and 48% for SS girls. Vaginal sex was the most common first sexual act reported by SS pupils, but 40% of PS pupils reported orogenital sex and 9% of PS pupils reported anal sex as their first sexual act. Almost half of PS girls have had sex with adults, including teachers and relatives. 'Forced sex' was reported by nearly half of PS and SS girls. Fourteen per cent of PS girls had already been pregnant, and over half of these pregnancies ended in illegally induced abortions. Despite a rather high (30%) lifetime rate of condom use, 33% and 25% of PS boys and girls, respectively, reported past experience of sexually transmitted diseases (STDs). STD rates were lower among SS pupils who had a better knowledge of STDs/HIV and fertility issues and reported higher condom use. The survey demonstrated the great vulnerability of school-going adolescents of Mwanza Region to consequences of sexual intercourse. The response should urgently come in the form of comprehensive adolescent SRH programmes.*

Introduction

Young people constitute a large proportion of the society in many developing countries like Tanzania. While there has been increasing recognition of the importance of adolescent health in policy, developing intervention strategies that are effective and feasible for implementation on a large scale represents a difficult challenge. This is particularly the case of programmes

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0954-0121/98/050571-12 $9.50

addressing the sexual and reproductive health (SRH) needs of adolescents with the aim of preventing HIV/STD infections and unwanted pregnancies (WHO/UNFPA/UNICEF, 1995).

Previous work in Tanzania and elsewhere in Africa has shown that young people suffer from high prevalence and incidence of HIV and other STDs (Brabin *et al.*, 1994). A regional survey conducted in Mwanza in 1992 (Grosskurth *et al.*, 1995a) showed that HIV prevalence among young women and men aged 15–24 years was 4.1% and 1.8%, respectively. During a subsequent STD intervention trial in this region, annual HIV incidence rates were at 1.1% (females) and 0.6% (males) in the age group 15–24 years (Grosskurth *et al.*, 1995b). High prevalence of other STDs were also recorded: prevalence of active syphilis was around 6% for each sex, with annual seroincidence rates of 2–3%. Overall, 17% and 10% of young rural women and men, respectively, had already been infected by syphilis. In addition, 6% and 12% of young women and men, respectively, reported having at least one episode of either genital discharge syndrome (GDS) or genital ulcer syndrome (GUS) within the past year (Mayaud *et al.*, 1997). A detailed sexual survey undertaken in a random sub-sample of 1,117 individuals from the same population (Munguti *et al.*, 1997) revealed that sexual activity begins either when adolescents are still at school or soon after leaving: 50% of women and 46% of men reporting first sexual intercourse at 15 years of age or earlier. Moreover, young people reported high rates of partner change: 74% of men and 39% of women aged 15–19 reported more than one lifetime partner, and 34% of the young men reported five or more partners.

There are few appropriate mechanisms in place for young people to be educated about self-protection from adverse reproductive health outcomes. In addition, young people do not make much use of existing services for contraception and STD care (WHO/UNFPA/UNICEF, 1995). Thus, adolescents are at risk of early unsafe sex which, combined with low contraceptive use, may lead to adolescent pregnancy with often poor obstetric outcomes and high rates of often unsafe abortions (Mpangile *et al.*, 1993; WHO/UNFPA/UNICEF, 1995).

As over 80% of Tanzanian children attend primary school, but very few attend secondary school (Leshabari *et al.*, 1996; Ministry of Education & Culture (MoEC), 1994), it may be more appropriate for SRH education to be included in the primary school curriculum. The MoEC has recently developed a Family Life Education curriculum for primary schools, including a focus on AIDS prevention. The African Medical & Research Foundation (AMREF), an East African non-governmental organization, has developed a regional Adolescent Sexual and Reproductive Health (ASRH) programme to support and complement this initiative and to promote safer sex practices among adolescents. Implementation of this programme started in Mwanza Region in 1996.

In order to measure the impact of this three-year programme, operations research will be conducted in the Mwanza Region by comparing two of the four communities receiving the intervention with two communities not receiving the intervention, which will act as control communities. We present here the results of a baseline descriptive survey conducted among school-going adolescents in Mwanza Region whose aims were: (1) to assess the level of knowledge adolescents have about sexual and reproductive health (including STDs/HIV and their prevention); (2) to assess the magnitude of sexual and reproductive health problems they are experiencing; and (3) to help design appropriate intervention to address identified problems. A similar survey will be conducted at the end of the third year of the programme.

Methodology

Survey sites

The survey was conducted in four of the district headquarters of Mwanza Region, on the

southern shores of Lake Victoria, Tanzania. These semi-urban settlements are similar in terms of general demographic characteristics, location on main roads leading to Mwanza town and school composition, with the exception of one community which did not have a secondary school. The population living in these communities is approximately 50,000, half of them being under 18 years of age. There are about 6,000–8,000 registered children in the primary schools of each community, of which half are enrolled in standards 3 to 7. The coverage for primary school enrollment is at least 50% (Leshabari *et al.*, 1996; MoEC, 1994).

Subjects and selection

Regional and district educational authorities provided a list of all primary and secondary schools in the respective communities. Within each community, four to five primary schools (about 50% of all primary schools) were randomly selected. All secondary schools in each community were included.

Lists of pupils aged 12 and above were prepared by school head teachers. Pupils were randomly chosen from each of the selected primary schools, across all classes from standard 4 and above. The total number selected (range 30–50) from each school was weighted according to the size of the school. About 50 students were selected from each of the secondary schools. A slight over-sampling was admitted to compensate for expected losses in the study.

Overall, about 150 primary school (PS) students and 50 secondary school (SS) students in each community were selected, giving a minimum total sample of 600 primary and 200 secondary pupils. This would give adequate precision to measure the prevalence of sexual practices and attitudes, and would allow some comparisons to be drawn between communities.

Questionnaire survey

Focus group discussions (FGDs) were held in each community prior to the study to identify issues that are important to adolescents and other members of the community regarding adolescents' health. HIV, STDs and their complications were well known by all members of the community. The issue of unwanted pregnancy of adolescent girls, particularly if school-going, appeared as a significant problem and its resolution through abortion, though illegal in Tanzania, was a frequent reality, since pregnancy results in expulsion of the girl (sometimes the boy) from school. There was broad consensus between older and younger members of the community for the need for an ASRH intervention in the region, and the schools were seen as a main vector for dissemination of information and services.

During the FGDs, young people with a good understanding of the SRH needs of their peers were identified as 'key informants' and eight of them (two from each community) were invited to participate in facilitating a quantitative SRH survey in the schools. A standardized questionnaire had been developed in English by AMREF project staff, was translated in Kiswahili and modified as appropriate with the help of the 'key informants', with particular attention paid to include language that would be understood by young people because of its simplicity and its familiarity. The questionnaire was back-translated into English by independent translators and finally piloted with pupils from primary and secondary schools near Mwanza town. Key informants were also trained to facilitate the process of self-administration of the questionnaires by pupils.

The survey was carried out in two weeks, with not more than one day in each school. Questionnaires were self-administered by pupils with young key informants playing a facilitation role in preliminary explanations and assisting adolescents with problems to read or understand. All questionnaires were reviewed by the investigators for completeness and

consistency, and open-ended questions were coded in predefined categories. For example, Knowledge on HIV, STDs and pregnancy was coded as 'Some knowledge' (one or two correct answers); 'Good knowledge' (more than two or all possible correct answers); 'No knowledge' (no correct answers or no answers at all). For most other questions, pupils were requested to select from a range of pre-coded answers.

Univariate analysis was carried out using EPI-INFO package (CDC, Atlanta). The prevalence of various indicators were displayed in four group categories, PS boys, PS girls, SS boys and SS girls. Owing to the small number in each category it was not meaningful to carry out any statistical tests. The study hypothesis was to uncover any differences in knowledge, practices or experiences between communities prior to intervention, so we checked for such differences, which will be presented.

Ethical considerations

Parents were informed about the survey through community/school meetings and gave their consent to the study. Informed verbal consent was sought from individual pupils at the time of the survey.

Questionnaires were distributed to selected individual pupils in a sealed envelope, by teachers, according to the established random list. Guidelines and supervision during the self-administration of questionnaires were provided confidentially by the trained adolescents, and the collection of completed questionnaires was done in anonymous sealed envelopes. Teachers, other students at the school or trained adolescents were not allowed to read the completed questionnaires.

Results

Demographic characteristics and school composition

A total of 1,052 pupils from 18 primary schools and five secondary schools were selected for inclusion in the study; 676 PS and 376 SS pupils. Of the PS pupils selected from the lists, 14 (1.3%) were under the age of 12 and were excluded from the study. Of the 1,038 questionnaires given out in the schools, 926 (89%) completed questionnaires were returned by school pupils. Thirty-four (3.4%) of the returned questionnaires were excluded from analysis, either because they were illegible, or the questions had clearly not been understood: these questionnaires were mostly from younger children in more rural schools. A total of 892 (86%) of distributed questionnaires were acceptable for analysis and are included in the results.

In primary schools, 276 boys and 308 girls were included; with PS boys being slightly older (median age 15 years, range 12–20 years) than girls (median age 14 years, range 12–19 years). In secondary schools, 206 boys and 102 girls were included, with boys outnumbering girls in all forms. SS boys were older (median age 19 years, range 16–24 years) than their female counterparts (median age 17 years, range 14–19 years).

Experience with sexual activity

Eighty per cent and 68% of PS boys and PS girls, respectively, and 89% and 48% of SS boys and SS girls, respectively, were already sexually experienced (Table 1). The median age at first sexual intercourse was 15 years for PS boys and PS girls, 16 years for SS boys and for SS girls (Figure 1).

Vaginal sex was the most common first sexual act reported by SS pupils, but a substantial

Table 1. *Reported sexual experience, by school type and sex*

	Primary schools		Secondary schools	
	Boys $N = 276$	Girls $N = 308$	Boys $N = 206$	Girls $N = 102$
Never had sex	56 (20%)	99 (32%)	23 (11%)	53 (52%)
Ever had sex	220 (80%)	209 (68%)	183 (89%)	49 (48%)
Of those who ever had sex	220	209	183	49
First sexual act				
Was forced	19 (9%)	65 (31%)	9 (5%)	10 (20%)
Vaginal sex	110 (50%)	96 (46%)	178 (97%)	42 (86%)
Anal sex	18 (8%)	19 (9%)	1 (0.5%)	0
Oral sex	86 (39%)	83 (40%)	4 (2%)	6 (12%)
Sexual partners				
Peers only	164 (75%)	112 (54%)	159 (87%)	37 (76%)
Adults	10 (4.5%)	22 (11%)	8 (4%)	7 (14%)
Teachers	0	13 (6%)	1 (0.5%)	0
Relatives	9 (4%)	16 (8%)	7 (4%)	1 (2%)
Strangers	38 (17%)	48 (23%)	9 (5%)	3 (6%)
Forced sex ever	30 (14%)	59 (28%)	24 (13%)	22 (45%)
With teacher	3	9	2	6
With student	14	36	9	11
Ever pregnant [1]	13 (6%)	30 (14%)	19 (10%)	3 (6%)
Result of pregnancy				
Live birth	1	4	5	0
Stillbirth (or dead)	1	3	0	0
Miscarriage	3	5	2	0
Abortion	5	9	4	2
Still pregnant	1	5	3	1
Unknown/miss.	3	4	3	0
Ever used a condom	69 (31%)	53 (25%)	113 (62%)	26 (53%)
Ever had STDs	73 (33%)	61 (29%)	30 (16%)	3 (6%)
STDs treated at [2]:				
Govt. hospital	51	44	14	1
Private hospital	13	8	11	0
Traditional healer	21	15	4	1
Pharmacy	6	6	6	1

[1] For girls = Ever been pregnant, For boys = Ever got a girl pregnant.
[2] Treatment may be sought in more than one place.

number of PS pupils reported orogenital sex or anal sex as their first sexual act. The questionnaire did not distinguish between active or passive role in orogenital sex for boys or girls and anal sex for boys. The majority of school children have had sex only with their peers, but almost half of PS girls have had sex with adults including teachers and relatives.

'Forced sex' was reported by a large number of girls (47% and 37% of sexually experienced PS and SS girls, respectively) and was the first sexual experience of 31% and 20% of PS and SS girls, respectively. 'Forced sex' was reported by a smaller proportion of boys as well. In the majority, 'forced sex' was exerted by fellow students, but also occurred in some instances with teachers.

The places where sexual intercourse occurs were varied. The most frequently cited were 'at home' or 'at some other house' for about 40% of boys and 30% of girls, followed by 'traditional dance places (*Ngoma*)' (between a quarter and a third); sex could also take place

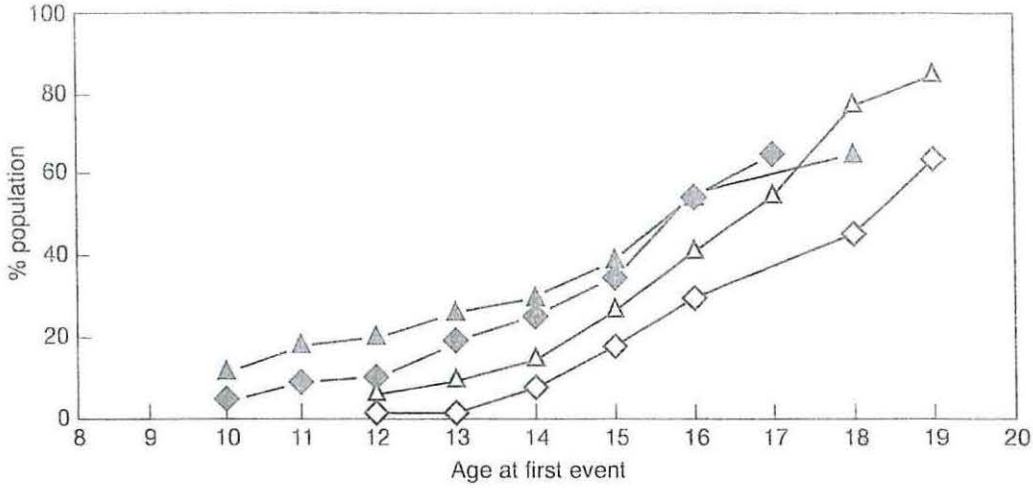

FIG. 1. *Age at first sexual intercourse, by school type and sex (Boys: ▲ primary school, △ secondary school; Girls: ◆ primary school, ◇ secondary school).*

in 'guest houses' (about 10% of both sexes), 'at school' (about 5%), and outside 'on the way to school', to 'fetch water or firewood' (24% of boys and 20% of girls).

Pregnancy, condoms and sexually transmitted diseases

Outcomes of sexual activity are displayed in Table 1. Twenty-five PS girls (12%) reported a pregnancy at some time, with over half of these girls having had an abortion, a miscarriage or a stillbirth. Although there were only three (6%) pregnancies reported by SS girls, two ended in abortions. All abortions were reported to have been induced ('*ilitolewa*' in Kiswahili). Seventy per cent of boys responsible for a pregnancy stated that abortion was performed at a health facility; however, the majority of girls reported that abortions were performed by traditional healers, by health workers outside their office or even by (female) parents.

A high proportion of sexually active school children (over 25% of PS and over 50% of SS pupils) have already used a condom. One-third of sexually experienced PS boys reported having contracted an STD at some time. Reports of STD rates were much lower in the other groups. In case of occurrence of an STD, the majority of PS students reported going to government health facilities (75%), whilst SS boys preferred visiting private clinics or pharmacies (57%). There were too few SS girls to report an STD to make a meaningful analysis.

Knowledge and attitudes towards sexual activity

Knowledge of the effect of early sexual activity on health did not vary much between PS or SS students (Table 2). There was good awareness of the risks of STDs and infertility, but less than 50% of respondents cited pregnancy as a possible consequence of sexual activity. Awareness of the most common types of STDs was relatively good for PS pupils and better for SS students. Only SS boys, however, displayed satisfactory knowledge of the actual nature of transmission of STDs. Consequently, knowledge about STD prevention was highest in this group and poor in other groups. 'Abstinence' and 'use of condoms' were the most frequently cited ways of avoiding STDs by all groups.

Knowledge about the prevention of HIV and AIDS was similar for boys and girls, but

Table 2. *Knowledge and attitudes regarding sexual activity, by school type and sex*

	Primary schools		Secondary schools	
	Boys $N = 276$	Girls $N = 308$	Boys $N = 206$	Girls $N = 102$
Knowledge of the effects of early sexual activity				
Infertility	123 (45%)	128 (42%)	121 (59%)	47 (46%)
STDs	177 (64%)	186 (60%)	118 (57%)	56 (55%)
Pregnancy	92 (33%)	134 (44%)	96 (47%)	50 (49%)
Other effects	22 (8%)	29 (9%)	36 (17%)	14 (14%)
No knowledge	48 (17%)	56 (18%)	15 (7%)	18 (18%)
Knowledge of STDs and their transmission				
Good knowledge	10 (4%)	9 (3%)	66 (32%)	5 (5%)
Some knowledge	70 (25%)	66 (21%)	86 (42%)	27 (26%)
No knowledge	196 (71%)	233 (76%)	54 (26%)	70 (69%)
Knowledge of different types of STD				
AIDS (Ukimwi)	151 (55%)	143 (46%)	132 (64%)	65 (64%)
Gonorrhoea (Kisonono)	98 (36%)	93 (30%)	174 (84%)	67 (66%)
Syphilis (Kaswende)	128 (46%)	118 (38%)	177 (86%)	68 (67%)
Chancroid (Pangusa)	8 (3%)	8 (3%)	5 (3%)	3 (3%)
Knowledge of prevention of STDs				
Abstinence	115 (42%)	101 (33%)	140 (68%)	37 (36%)
Condoms	95 (34%)	104 (34%)	140 (68%)	50 (49%)
Faithful partner	39 (14%)	35 (11%)	82 (40%)	25 (25%)
Knowledge of HIV/AIDS prevention				
Good knowledge	17 (6%)	12 (4%)	55 (27%)	19 (19%)
Some knowledge	142 (51%)	129 (42%)	136 (66%)	71 (70%)
No knowledge	117 (42%)	167 (54%)	15 (7%)	12 (12%)
Number of safe sex methods known				
None	202 (73%)	248 (81%)	92 (45%)	67 (66%)
One	55 (20%)	48 (16%)	72 (35%)	32 (31%)
More than 1	19 (7%)	12 (4%)	42 (20%)	3 (3%)
Number of contraceptive methods known				
None	135 (49%)	176 (57%)	62 (30%)	31 (30%)
One	71 (26%)	80 (26%)	36 (17%)	20 (20%)
More than 1	70 (25%)	52 (17%)	108 (52%)	51 (50%)
Feelings towards masturbation				
Good	26 (9%)	26 (8%)	59 (29%)	4 (4%)
Bad	15 (5%)	8 (3%)	36 (17%)	1 (1%)
Unknown	235 (85%)	274 (89%)	111 (54%)	97 (95%)

differed between PS and SS pupils and was better than corresponding knowledge of STD prevention, with over 50% of PS pupils and 90% of SS pupils displaying 'Some' or 'Good' knowledge on this topic. There appears to be no real relationship between knowledge of STD prevention and sexual activity (data not shown). There was a gradient in knowledge of HIV with sexual activity and condom use, with better knowledge among sexually experienced pupils and those using condoms (data not shown). However, methods for 'safe sex' were not well known by most pupils. In contrast, there was better knowledge about methods for contraception in all groups. In general, there was reportedly very little knowledge and few 'positive feelings' about masturbation among school pupils.

Discussion about sex and sexuality was restricted almost exclusively to age-peers for most school children (Table 3). However, male respondents were apparently more open to discuss such matters with friends from both sexes. Most children would welcome the idea of having a teacher or health worker conducting sexual education sessions. The majority of sexually

Table 3. *Reported sex education and information, by school type and sex*

	Primary schools		Secondary schools	
	Boys $N = 276$	Girls $N = 308$	Boys $N = 206$	Girls $N = 102$
Discussed sex ever	96 (35%)	84 (27%)	137 (67%)	49 (48%)
With whom do you discuss matters related to sex and sexuality?				
Girl friend	108 (39%)	123 (40%)	113 (55%)	37 (36%)
Boy friend	116 (42%)	74 (24%)	116 (56%)	28 (27%)
Relative	13 (5%)	13 (4%)	35 (17%)	11 (11%)
Teacher	9 (3%)	6 (2%)	19 (9%)	9 (9%)
Parent	10 (4%)	11 (4%)	24 (12%)	8 (7.8%)
Who should teach you about sexual education?				
Parents	15 (5%)	17 (5%)	26 (13%)	11 (11%)
Teacher	58 (21%)	45 (15%)	57 (28%)	30 (29%)
Preachers	2 (0.7%)	1 (0.3%)	1 (0.5%)	0
Health officers	49 (18%)	16 (5%)	65 (32%)	23 (23%)
Others	49 (18%)	38 (12%)	86 (42%)	42 (41%)
Knows/sees the importance of sexual education				
Important	165 (60%)	126 (41%)	180 (87%)	83 (81%)
Reasons for having sex[1]	$N = 220$	$N = 209$	$N = 183$	$N = 49$
Feels good	132 (60%)	71 (34%)	163 (89%)	37 (76%)
Friends do	44 (20%)	49 (23%)	25 (14%)	5 (10%)
Copy adult behaviour	30 (14%)	22 (11%)	8 (4%)	1 (2%)
To get a present	4 (2%)	27 (13%)	4 (2%)	2 (4%)
To get money	22 (10%)	82 (39%)	3 (2%)	3 (6%)
Reasons for not having sex[2]	$N = 56$	$N = 99$	$N = 23$	$N = 51$
Not wanting to	15	35	2	13
Waiting until marriage	24	46	15	37
Sin	12	35	10	17
Afraid of parents	7	24	0	6
Afraid of pregnancy	1	29	1	14
Afraid of HIV/STDs	29	51	14	24

[1] Questions asked of those who have started sexual activity, more than one response possible.
[2] Questions asked of those who have not yet started sexual activity, more than one response possible.

experienced pupils had sex because of the pleasure it gave them, except PS girls who cited more often peer pressure and monetary or gift reward as a reason. Fear of STDs or HIV for boys and girls and fear of pregnancy and parents for girls were given as the main reasons for not having sex.

Community differences

There were some differences between the four communities, especially in the knowledge of the different STDs and the use of condoms by PS pupils. There was little variance between the answers of boys and girls within the same community, suggesting that the answers given were both reliable and representative for each community. There were no notable differences between SS pupils of different communities.

Discussion

There is evidence that adolescents are highly susceptible to consequences of poor sexual and reproductive health in developing countries (Brabin *et al.*, 1994; Gikaru & Kinoto, 1996;

Wasserheit, 1989). Moreover, in countries where HIV and STDs are a major health problem, adolescents may be at increased risk for such infections. Interventions to promote the SRH of adolescents are therefore increasingly promoted (Leshabari *et al.*, 1996; Ndeki *et al.*, 1995; WHO/UNFPA/UNICEF, 1995). However, there is little methodologically sound evidence of the efficacy of such interventions outside the industrialized world (Oakley *et al.*, 1995) and policy makers in developing countries have often remained unconvinced and undecided about intervention. The sensitive nature of sexual matters in many cultural settings, the complexities of adult–adolescent relationships and the traditionally often conservative place of the school in many societies have further hampered efforts to introduce such needed programmes.

Our study intended to highlight the high vulnerability of adolescents in an area of rural Tanzania where STDs and HIV are prevalent and where services are not adequate to deal with adolescents' problems. The aim was to obtain data that would support the need for introduction of SRH education and services for adolescents at schools and surrounding communities. The study was descriptive in nature and did not intend to test any scientific hypothesis. However, it yielded some interesting findings.

It is likely that the answers we received were representative of the pupils' population as the response rate was high and our sample was randomly selected. However, the results must be interpreted with caution as some of the younger PS pupils may have had difficulty in understanding some of the more sensitive questions (in particular questions on orogenital and anal sex). Furthermore, as the questionnaire was self-administered, pupils had little opportunity to ask for help. It is also recognized that shame, or the desire to give socially acceptable answers, may lead to under-or over-reporting of certain behaviours. However, the use of peers in the design, translation and administration of this questionnaire survey may have minimized some of these biases.

Our study indicates that pupils start sexual activity during primary school years, and that adolescents are sexually experienced during the final years of primary school and at secondary school. In contrast there is still a lack of knowledge about the implications of sexual activity, the transmission and prevention of STDs and HIV and of pregnancy among PS children. The same pupils also reported a low condom use, a higher rate of unintended pregnancies and STD episodes. The knowledge of the prevention of HIV/AIDS was higher in secondary schools: this may reflect the impact of several HIV campaigns conducted in secondary schools in Tanzania and was also recorded in secondary schools in Arusha Region (Lugoe *et al.*, 1996).

'Forced sex' appears to be a major problem in rural Mwanza. For both boys and girls, teachers feature as agents of forced sex, but it is also evident that fellow students are also implicated. Sexual intercourse with adults seems very common for primary school girls and may even be traded for money or a present. Research done in the Magu district of Mwanza Region, using a 'performative' methodology, reported the importance of the transactional component to sex among school children (Nnko & Pool, 1995). The authors claimed that the exchange component was not always motivated by economic necessity but this assertion could not be supported by the methodology used in our study.

It is also apparent that sex and sexuality are most exclusively discussed at the peer level, and there is little positive input from adults. The peer influence accounts for some early sexual activity but could be used as a positive strategy for information and behaviour formation. There is evidence that this is the only reliable approach in motivation for behaviour modification among adolescents (WHO/UNFPA/UNICEF, 1995).

The fear of pregnancy emerges as an important theme, as was also recorded during the focus group discussions that preceded our study and from the Magu district research (Nnko & Pool, 1995). Evidence of sexuality in schools often results in the expulsion from school, especially for girls. Thus, suppression of sexuality may be important if girls are to continue

in the education system. This may partly explain the finding of a higher percentage of reported virgins in secondary schools than in primary schools. This natural selection may be a contributing factor to the under-representation of girls in the higher levels of education in Tanzania (Leshabari *et al.*, 1996; Lugoe *et al.*, 1996). Although some girls are still at school after a pregnancy, the majority of girls had miscarriages or abortions, which were often self-induced. The effects and the conditions of those terminations of pregnancies have not been assessed in this study, but they are known to include life-threatening infections or uterine perforations and infertility (Gikaru & Kinoto, 1996; Mpangile *et al.*, 1993; Wasserheit, 1989). The frequency of sexual relationships between adolescents and adults with higher prevalence of HIV and STDs may partly explain the high prevalence and incidence of STDs/HIV noted among young girls aged 15–19 in a large survey in Mwanza Region (Grosskurth *et al.*, 1995a; 1995b).

Sex and sexuality among school children cannot and will not be suppressed. Programmes must be designed to prevent HIV/STD transmission and the occurrence of unwanted pregnancies or unsafe abortions. School programmes to encourage the delay of sexual activity, safe sex and respect for sexual rights of individuals, especially for females, must form part of the education of the youth. Methods to enhance skills-building (communication skills, negotiating skills), self-esteem and assertiveness should also be taught. This is supported by the findings of a recently published randomized trial in Zimbabwe (Mbizvo *et al.*, 1997), which demonstrated the impact of primary school-based reproductive health education on knowledge and safer behaviour of adolescents, particularly with regard to contraception. Moreover, recent stabilization of the HIV epidemic in neighbouring Uganda has been attributed to declines of HIV incidence among the younger sector of the sexually active population through changes in sexual behaviour (Asiimwe-Okiror *et al.*, 1995).

Adults, teachers and parents, should be targeted by education programmes in a constructive way about their roles and responsibilities in the sexual development of children. They should be informed about the possible consequences (both for themselves and for their partners) of unprotected sex with school pupils, and possibly be discouraged from such practices.

The recent demonstration that improved services for early and effective management of STDs can reduce the transmission of HIV (Grosskurth *et al.*, 1995b) by reducing the duration of symptomatic STDs (Mayaud *et al.*, 1997), has given new support to the strengthening of such services. This intervention is also reported to be one of the most cost-effective in health (Gilson *et al.*, 1997; World Bank, 1993). Effective STD services as well as preventive measures for STDs or fertility control methods should be made available to young people in an appropriate and accessible manner in the form of 'youth-friendly services'. These should include health promotion and counselling services regarding issues of sexuality and reproductive health.

The promotion of condom use among school pupils (and adults who have sex with them) should be given special attention, as this seems to be a realistic and very cost-effective intervention in reducing both STD/AIDS but also unwanted pregnancies which appear to be of greater concern to the target group. However, great care is necessary since this topic is still highly sensitive in Tanzanian society (Mpangile *et al.*, 1993).

Advocacy for girls' rights for access to safe abortion services and counselling, for their reintegration in schools after pregnancy, and for their protection from forced and perhaps transactional sex should also be integral parts of such a programme. The debate about legalizing abortion may be a sensitive issue that can however no longer be overlooked in this context (Mpangile *et al.*, 1993). The absence of girls in secondary schools creates a system which is dominated by males and does not promote equal development opportunities.

Conclusion

This survey demonstrated the vulnerability of school-going children of Mwanza Region to consequences of early sexual intercourse. The response should come in the form of a comprehensive adolescent sexual and reproductive health programme to be implemented in schools, within the health sector and in the community at large. This would help trigger the global societal response that is needed to face the challenge of controlling AIDS and STDs and improving reproductive health.

Acknowledgements

The authors would like to acknowledge the support of regional, district and school authorities of Mwanza. School staff, parents and participating pupils are also thanked for their help in conducting the survey. This work was supported by a grant from the Norwegian Agency for Development Co-operation (NORAD).

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