

Knowledge attitude and practice toward STI, HIV/AIDS among high school students in Gao (Northern-Mali in West Africa).**Connaissances, attitudes et pratiques face aux IST VIH-SIDA chez les lycéens de Gao (Nord-Mali Afrique de l'Ouest).**

Cissoko Y¹, Traoré A^{1,2}, Sidibé LN^{1,3}, Maiga YI², Coulibaly M², Maiga Z², Diamoye S², Ly AB⁴, Sidibé AF⁵, Dao S⁵, Diarra D¹.

1- HIV management team, Hospital of Gao, Mali.

2- Department of Gynaecology and obstetrics, Hospital of Gao, Mali.

3- Department of Paediatric, Hospital of Gao, Mali.

4- Army Health Service, Firhoun Camp, Gao, Mali..

5- Infectious diseases ward Point G teaching Hospital, Bamako, Mali

Corresponding author : Yacouba Cissoko, Hôpital de Gao route de l'Aéroport, Sossokoira, BP:107, tél :21820254, email : ycissoko@hotmail.com

Abstract:

HIV prevalence increased from 0.6 to 1.1 % between 2001 and 2006 in the region of Gao. In Africa the HIV/AIDS pandemic affects mainly young people and spread by sexual transmission. We conducted a cross sectional study among high school students of Gao to evaluate their knowledge, attitude and practice toward HIV infection and STI. Subject enrolment was exhaustive or randomly sampled depending on the school population size. An individual and anonymous form was filled by students after an informed consent.

We interviewed 446 students. Their mean age was 16.6±1.35 years, the majority were male (66.5%), 6.1% were married and 5.2% already had a child.

Forty-eight percents of student already had sexual relations. The proportion of boys who already had sexual relations was significantly higher than girls (56.6% vs 30.8%) ($p < 10^{-3}$). The mean age at the first sexual relation was significantly lower in boys (13.4±2.5 vs 15.5±1.8 years) ($p < 10^{-3}$).

Sixty eight percent of student said they have already heard about STI; 87.4% esteemed they knew about HIV, but the proportion of student who knew the different ways of HIV transmission was lower: 78.7 % for sexual transmission; 71.3% for blood transmission and only 30.8 % for mother to child transmission.

As source of information about HIV, TV was the most frequent (82.1%); followed by radio (66.4%); and discussions with friends (48%) or parents (23.3%). The proportion girls who talk with parents is significantly higher than boys (29.5% vs 20.2%: $p = 0,028$).

The fight against AIDS and STI should be based on prevention by providing proper information to youths before they start sexual activity and school can be the right place to help them to have correct knowledge and safe practice.

Key word: Young, STI, HIV/AIDS, knowledge, practice, Mali

Résumé:

La prévalence du VIH a augmenté de 0,6 à 1,1 % entre 2001 et 2006 dans la région de Gao. En Afrique, la pandémie du VIH/SIDA affecte surtout les jeunes et se transmet en grande partie par voie sexuelle. Nous avons menée une étude transversale chez les lycéens de la ville de Gao pour évaluer leur connaissances attitudes et pratiques par rapport à l'infection par le VIH. L'inclusion des sujets s'est faite de façon exhaustive ou par un échantillonnage aléatoire selon la taille de l'effectif des écoles. Un questionnaire individuel et anonyme a été rempli par les élèves après obtention de leur consentement éclairé.

Nous avons interviewé 446 élèves. La moyenne d'âge était de 16,6±1,4 ans, la majorité était des hommes (66,5%), 6,1% était marié et 5,2% avait déjà eu un enfant.

Quarante et huit pourcent des élèves avaient déjà eu des relations sexuelles. La proportion de garçons qui avait déjà eu une relation sexuelle était significativement plus élevée que celle des filles (56,6% vs 30,8%) ($p < 10^{-3}$). La moyenne d'âge à la première relation sexuelle était significativement plus basse chez les garçons (13,4±2,5 vs 15,5±1,8 ans) ($p < 10^{-3}$).

Soixante et huit pourcent des élèves ont dit avoir déjà entendu parler des IST; 87,4% ont estimé connaître le VIH, Mais la proportion des élèves qui connaissait les différents modes de transmission du VIH était plus faible: 78,7 % pour la transmission sexuelle; 71,3% pour la transmission sanguine et seulement 30,8 % pour la transmission mère enfant.

Comme source d'information sur le VIH, la télévision a été la plus fréquemment citée (82,1%); suivi de la radio (66,4%); et des discussions avec les amis (48%) ou les parents (23,3%). La proportion des filles qui parlait avec leurs parents était significativement plus élevée que celle des garçons (29,5% vs 20,2%: $p = 0,028$).

La lutte contre le SIDA et les IST doit se baser sur la prévention en donnant les informations appropriées aux jeunes avant qu'ils ne commencent l'activité sexuelle et l'école est un lieu indiqué pour acquérir les connaissances correctes et les pratiques sûres.

Mots clés: Jeunes, VIH/Sida, Connaissances, attitudes et pratiques, Mali

Introduction:

The HIV/AIDS pandemic mainly affects the young population with a predominance of sexual transmission in Africa.

About the third of the 34 million people infected by HIV in the world are between 10 and 24 years of age. In most regions of the world, teenagers, girls in particular, are the victims of this infection. In sub-Saharan Africa, an important number of teenagers are seropositives for HIV [1]. About thirty percents of the 333 million cases of sexually transmitted infections (STI) yearly declared, HIV excluded, is observed in youths less than 25 years of age [2]. Moreover, recent data suggest the STI epidemic is in progression in this class of the population [3].

Prevention of HIV infection in teenager constitutes an excellent strategy to slow down the AIDS pandemic [4].

Teenage, is the period when youth particularly develop sexual experiences that can lead to STI and AIDS. High risked sexual practices in this population are early sexual experiences, multiple sexual partners, non-protected sexual relation, and sexual relation with older sexual partners. Thus the prevalence of HIV/AIDS in sub-Saharan Africa is high among youths and particularly females as risk group. The

reason of the susceptibility to these infections in females is biological and socio-economic, on the other hand, males have a higher number of partners [5,6,7,9,9].

School is a melting pot of the two genders, a place where a lot of influence out of the family can affect the behaviour of the students, but also a place where classically useful knowledge for social and professional life is acquired.

In Mali, Demographic and Health Survey shows that the Gao region has known an increased prevalence of HIV infection from 0.6% in 2001 to 1.4 % in 2006 [10,11]. The town of Gao, has three high school where all the students of the region are enrolled for their studies.

The aim of this cross sectional study among young students of Gao, is to identify main behavioural risk factors of STI and HIV, but also the suitable information channel to use in order to improve prevention of STI/HIV/AIDS in this population.

Material and method:

We had conducted a cross sectional survey in May 2008, among students of forms one and two in the three high-school of Gao in northern Mali. The sampling was exhaustive in “Bonféré” and “Modibo Kéïta” high schools that had a low population of students. In “Yana Maïga” high school that has a larger population (1718 students) we made a randomized sampling of the students with a step of 1/10 using computer generated list with Epi Info (version 6.04 fr) software. After a collective informed-consent obtained with the help of the school administration, an individual and anonymous self-report form was given to each student. An investigator explained the meaning of each question and the way to fill the form to students split in small groups of ten. Then half an hour was accorded to allow each student to fill his form. Four investigators all young medical doctors were involved in this process. The school administrative board were involved in the organisation of the interviews.

The form had closed questions with multiple choices, in order to obtain standardized responses. Data were collected about socio-demographic characteristics of the students, their knowledge, attitude and practice toward HIV and STI transmission.

SPSS 16.0 software was used to compute and analyse data. Mann-Whitney test was used to compare means and Chi square to compare proportions. A value $p \leq 5.10^{-2}$ was set as level of significant difference.

Results :

In all, 446 students were interviewed: 181 from Yana Maïga high school, 172 from Bonféré's and 93 from Modibo Kéïta's. The mean age of the population was 16.57 ± 1.35 years; the sex-ratio (M/F) was 2.06. Among the students 6.1% were married and 5.2% were already parent.

To the question about first sexual intercourse, 47.8% of students answered they had already experienced sexual

relations; in this group, the majority was boys (167 vs 46). There were statistically significant difference ($p < 10^{-3}$) between boys (167 out of 297 i.e 56.6%) and girls (46 out of 149 i.e 30.8%) that declared having already experienced sexual relations. The mean age of first sexual intercourse was significantly lower in boys (13.4 ± 2.5 years) than girls (15.5 ± 1.8 years) ($p < 10^{-3}$).

In our population, 68.2% said to have heard about STI; 87.4% esteemed to know about AIDS. Nevertheless as transmission ways of HIV: 78.7 % evoked sexual transmission; 71.3% blood and only 30.8% mother to child transmission [Graph 1].

As information sources on HIV/AIDS, TV was mentioned in first position by 82.1% of students, followed by radio 66.4%, discussions between friends 48% and 23.3% with parents. 15.7% of students affirmed discussing about sexuality with their parents [Graph 2]. The proportion of girls who had information about HIV/AIDS from their parents is significantly higher than boys (29.5% vs 20.2%: $p = 0,028$).

Only 35.1% of students said they always use condoms during sexual relation; 21.1% use it sometime and 43.8% never use it. The number of sexual partner they have had since their first sexual intercourse varies between 1 and 8 (2.64), this means is significantly higher in Boys (2.85) than girls (1.84), ($p < 10^{-3}$).

Discussion:

This study conducted among high school students of Gao, where the prevalence of HIV has doubled in six years, aimed to describe their knowledge about this pandemic, determining risky behaviours and practices relative to the transmission of HIV infection and other sexually transmitted diseases. The majority of interviewed teenagers were youths (mean age of 16.6 years), more often male (66.5 %). Those two characteristics of the population are related to the enrolment that was made in school. The age to attend high

school is well ruled by the recruitment at school and exclusion in case of repeated failure of school exams. The schooling of girls is very low in Africa principally in secondary school where many girls have abandoned their studies to consecrate their life to home activities. The fact that females are most exposed to HIV infection could raise discussions on our choice to conduct this study in a population with few proportion of female. Nevertheless, the method of a self-report form is known to be the most relevant way to transcribe the knowledge attitude and practice of a subject and it is difficult to apply such a method to an illiterate population. Moreover school represents the best relay for diffusion of the results found in this study and a good place to take actions to correct wrong knowledge, attitude and practice we have met. The general knowledge of student son HIV/aids was quite good principally regarding the way of transmission (71-78%) and the prevention. Other studies in Mali and West Africa had shown a good level of students knowledge on HIV transmission [12,13,**Erreur ! Source du renvoi introuvable.**]. Results of the last Demographic and Health Survey IV [11] in Mali point out good knowledge in youths aged between 15 and 19 years interviewed in Gao. The comparison with the lowest level of knowledge observed in the past [10], as in other countries can be a demonstration of the efficacy of information campaign through the years [14]. The important place hold by medias (television and radio) as source of information of knowledge on HIV/STI has also been found by many other studies [12,14,16]. On the other hand, the role of parents in the acquisition of knowledge about sexuality is weak, in our population, sexuality is a taboo, and this subject is very rarely evoked between parents and children, but students often talk about sexuality between themselves [13,14,15,18,18], 48% in our study. This result shows the strategy of peer education can be a good way to

spread right information among our students as recently experimented in South Africa [19]. No student has mentioned school to be a source of knowledge about sexuality and HIV/AIDS, and we have found no such answer in any other study, that justify by the way the interest to conduct such a study in school population. School is by excellence the place of acquisition of every kind of knowledge. These findings can help to take action to fill the gap of information about those topics in school programmes.

Most of the student had already experienced sexual relations, and the mean age of first sexual intercourse was 15 years. Similarly, different studies conducted in sub-Saharan Africa, noted the occurrence of first sexual relation at a young age during teenage [14,16] ; moreover, in some study in general population a lower mean age (13.7 years) for first sexual experience was found [17]. The multiplicity of sexual partners and lack of the use of condoms is also common [12,13,14]. Among the students of high-school of Gao, despite the majority of interviewed teenagers (89.2 %) who knew condoms as a mean of prevention, only a few of them often used it. We have not evaluated the subjective motivation of this non utilisation of condom but the motifs frequently evoked in the other studies was a decrease of pleasure during coitus or the disagreement of the partner to use it [21]. We have not also evaluate the knowledge about the correct use of condom in our population, but some studies shown the theoretical good knowledge of the use of condom was not correlated with the reduction of risky sexual relations among teenagers [20]. We were mostly attached to evaluate the knowledge and accessibility of the places where teenagers can be provided with condoms. We found that in Gao condoms are available in pharmacies and a few stores, thus to get them is not confidential.

School, is the best place for the acquisition of knowledge, but unfortunately, we found

this place to be not sufficiently used to spread information on sexuality. In Mali, despite of the youth of the population and the prevalence of HIV/aids, the role of educative system remains insufficient in the fight against aids. Even if there are courses on human reproduction during the teaching of biology in the last classes of secondary school, there is no teaching about sexuality or prevention of STI and HIV. One of the keys in the fight against aids is its prevention among teenagers through an early health education before puberty, for a safe sexuality. According to a study about sexual behaviour and reproduction in teenagers in developed countries, the more teenagers receive information, the less they have risky sexual behaviours. Relatively low rates of pregnancy and STI in teenager in Canada, in France and in Sweden, seem to reflect the success of adapted school program, applied at a national level, including notions of dangerous sexual behaviour [22, 25, 26]. In Africa, some countries like Togo choose a global approach of prevention in school by the development of national teaching program about sexuality [15]. School is a good place for teenagers to acquired not only professional instruction but also good behaviour like low risk sexual one's, that is important for their future. Education and health authorities should conjointly elaborate sexual and reproductive health teaching modules and include them at the suitable level in the education program taking in account parameters like mean ages of first sexual intercourse found in such a study.

Conclusion:

The knowledge of high school students of Gao about AIDS and STI should be centred on prevention by providing proper information to youths before they start sexual activity and by the use of appropriate media of communication to help them to have correct knowledge and safe practice.

References :

1. UNAIDS: Report on the global AIDS epidemic: *A UNAIDS 10th Anniversary, special edition*. Geneva 2006.
2. WHO. Young People and Sexually Transmitted Diseases, Fact Sheet No. 186. Geneva: World Health Organization, 1997;
3. Orji EO, Esimai OA: Sexual behaviour and contraceptive use among secondary school students in Ilesha South West Nigeria. *Obstet Gynaecol* 2005, 25(3):269-72.
4. Monasch R, Mahy M: Young people: the centre of the HIV epidemic. *World Health Organ Tech Rep Ser* 2006, 938:15-41
5. Eaton L, Flisher AJ, Aaro LE: Unsafe sexual behaviour in South African youth. *Soc Sci Med* 2003, 56(1):149-6
6. Dancy BL, Kaponda CP, Kachingwe SI, Norr KF: Risky sexual behaviours of adolescents in rural Malawi: evidence from focus groups. *J Natl Black Nurses Assoc* 2006, 17(1):22-8.
7. Urassa W, Moshiro C, Chalamilla G, Mhalu F and Sandstrom E. Risky sexual practices among youth attending a sexually transmitted infection clinic in Dar es Salaam, Tanzania. *BMC Infectious Diseases* 2008, 8:159-65
8. Kelly RJ, Gray RH, Sewankambo NK, Serwadda D, Wabwire-Mangen F, Lutalo T, Wawer MJ: Age differences in sexual partners and risk of HIV-1 infection in rural Uganda. *J Acquir Immune Defic Syndr* 32(4):446-51.
9. Longfield K, Glick A, Waithaka M, Berman J: Relationships between older men and younger women:

- implications for STIs/HIV in Kenya. *Stud Fam Plann* 2004; 35(2):125-34.
10. Planning and Statistic Cluster (CPS) Ministry of Health Mali. Third Demographic and Health Survey Mali, Bamako, Mali, 2001pp.
 11. Planning and Statistic Cluster (CPS) Ministry of Health Mali. Fourth Demographic and Health Survey Mali, Bamako, Mali, 2006pp.
 12. Touré B, Koffi K, Kouassi-Gohou V, Kokoun E, Angbo-Effi O, Koffi NM, Diarra-Nam AJ. Knowledge, attitudes and practices in high school students toward HIV/AIDS in Abidjan. *Med Trop* 2005; 65 : 346-348[French].
 13. Konaté FO et Cissé P. Teen and sexuality: the case of high-school students of Bamako (Mali). *Recherches Africaines*, 2003;02: [French].
 14. Sidibe T, Sangho H, Traore MS, Cisse MB, Diallo B, Keita MM, Gendrel D. Connaissances et pratiques des élèves d'un lycée de Bamako en matière de contraception et prévention des IST. *Mali Médical* 2006;21(1):39-43[French]
 15. Adjahoto EO, Hodonou KA, De Souza AD and al. Information des jeunes en matière de sexualité. *Cahiers Sante* 2000 ; 10:195-9[French].
 16. Courtois R, Mullet E, Malvy D. Comparison of sexuals behavior of congolese and french high-school students in the era of aids. *Santé*. 2001;11(1):49-55. [French].
 17. Ba MG, Sangare M, Moreira P And Al. Connaissance, pratique et perspectives de la contraception chez les adolescentes. *Med Afr Noire* 1999 ; 46 : 300-302[French].
 18. DiClemente RJ, Wingood GM, Crosby R, Cobb BK, Harrington K, Davies SL. Parent-adolescent communication and sexual risk behaviors among African American adolescent females. *J Pediatr*. 2001 Sep;139(3):407-12.
 19. Visser MJ. HIV/AIDS prevention through peer education and support in secondary schools in South Africa. *Sahara J*.2007;4(3):678-94.
 20. Crosby R, DiClemente RJ, Wingood GM, Sionean C, Cobb BK, Harrington K and al. Correct condom application among African-American adolescent females: the relationship to perceived self-efficacy and the association to confirmed STDs. *J Adolesc Health*. 2001 Sep;29(3):194-9.
 21. Fleisher JM, Senie RT, Minkoff H, Jaccard J. Condom use relative to knowledge of sexually transmitted disease prevention, method of birth control, and past or present infection. *J Community Health*. 1994 Dec;19(6):395-407.
 22. Wellings K., Wadsworth J., Johnson A.M., Field J., Whitaker L., Field B. Provision of sex education and early sexual experience: the relation examined. *British Medical Journal*. 1995;311:417-20.
 23. Kilian AH, Kipp W, Jhangri GS, Saunders LD, Ndyanabangi B, O'Connor H, Baryomunsi C, Rubaale T, Kabagambe G: Trends in HIV infection: prevention-related attitudes and behaviors among secondary school students in western Uganda. *J Acquir Immune Defic Syndr* 44(5):586-93

24. Paul-Ebhohimhen VA, Poobalan A and Van Teijlingen ER. A systematic review of school-based sexual health interventions to prevent STI/HIV in sub-Saharan Africa. *BMC Public Health* 2008, 8:4-17
25. Mellanby A.R., Phelps F.A., Crichton N.J., Tripp J.H. School sex education: an experimental programme with educational and medical benefit. *British Medical Journal*. 1995;311:414-7.
26. Sangani P, Rutherford G, Wilkinson D. Population-based interventions for reducing sexually transmitted infections, including HIV infection. *Cochrane Database Syst Rev*. 2004;(2):CD001220.

Variables	Female	Male	P
Sample size	146	296	
Mean age	16.4±1.2	16.7±1.4	0.27
Students that are married	12.8%	2.7%	<10 ⁻³
Students that are parent	7.5%	4.0%	0.1
Students that had already heard about HIV	82.9%	91.6%	0.007
Mean number sexual partners	2.64	2.85	p<10 ⁻³
Students that discuss about sexuality with their parents	29.5%	20.2%	0,028



