# Community Intervention for HIV/AIDS Prevention among Youth in Guinea, West Africa

**Fannie Fonseca-Becker,** *Johns Hopkins University, Center for Communication Programs, 111 Market Place, Suite 310, Baltimore, M.D. 21202,USA*, *E-mail: ffbecker@jhuccp.org*
**Winnifriede Mwebesa,** *Save the Children, Washington, DC.,USA.*
**Jane Bertrand,** *Johns Hopkins University, Center for Communication Programs, Baltimore, MD,USA.*

## ABSTRACT

This quasi-experimental study evaluates the effectiveness of a community mobilization and behavior change campaign to prevent HIV and unintended pregnancies among youth (15-24) in Upper Guinea in 2001. Data were collected via a post-intervention survey 12 months after the campaign launch in both the intervention and a comparison area. The majority of respondents in the intervention area were exposed to the campaign with a higher proportion of males (83%) than females (63%) participating in at least one campaign activity. Campaign messages about abstinence had the highest spontaneous recall among both males (91%) and females (79%). Multivariate analysis of predictors of condom use at last sex for the intervention area indicated that exposure to the campaign was significantly related to condom use, among males, controlling for a series of socio-economic factors. Participation in campaign activities was a significant predictor of deciding to abstain for young women but not for young men. This study is one of the first efforts to evaluate the effectiveness of an HIV/AIDS communication program for youth in Francophone West Africa. Although results strongly suggest that the campaign had a positive impact on youth's preventive behavior, further research is needed on the dynamics through which community mobilization and communication activities interact to improve preventive behavior.

Keywords: adolescent sexuality, behavior change, abstinence, condom use, pregnancy prevention.

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Fannie Fonseca-Becker DrPH[1], MPH, Winnifriede Mwebesa, MD, MPH[2]
Jane Bertrand, PhD, MBA[3]

## Background

At present over 70 percent of the people living with HIV/AIDS in the world reside in sub-Saharan Africa, and of these approximately a third are men and women aged 15-24 (UNAIDS-WHO, 2002). Within sub-Saharan Africa, prevalence rates vary dramatically, from less than one percent in Senegal, a country that has successfully held HIV/AIDS at bay, to Botswana with over 38 percent. Typically, the epidemic is initially concentrated among groups with high risk behavior (e.g., commercial sex workers, truck drivers migrant workers). From these groups, it may spread into the general population. When a country reaches an HIV prevalence of 5 percent, the risk of spread throughout the population accelerates rapidly. Thus, countries that have yet to reach that level have strong incentive to contain the spread of HIV.

Guinea, a country of 8 million located in West Africa, currently has a prevalence rate of 2.5 percent among youth 15-24 years of age (ESSIDAGUI, 2001); among commercial sex workers, the rate is 43 percent. Given that half of all new infections occur to young people and that the majority (60 percent) of the population in Guinea is under 24 years of age, the government of Guinea is taking a concerted action for HIV/AIDS prevention programs.

[1] Fannie Fonseca-Becker is Sr. Research Associate, Department of Population and Family Health Sciences and Sr. Researcher at the Center for Communication Programs, Johns Hopkins Bloomberg School of Public Health, 111 Market Place, Suite 310, Baltimore, MD 21202. E-mail: ffbecker@jhuccp.org.
[2] Winnifriede Mwebesa is Sr. Research Officer at Save the Children, Washington, D.C. (previously with the Center for Communication Programs). [3]Jane Bertrand is Professor, Department of Population and Family Health Sciences, and Director, Center for Communication Programs, Johns Hopkins Bloomberg School of Public Health, Baltimore.

To date, AIDS prevention activities for adolescents in West Africa have lagged behind those in Eastern and Southern Africa, possibly because of lower overall prevalence rates and a conservative political environment. In Guinea, young people become sexually active at a relatively young age: 15.9 years for males, 15.0 for female (Guinea EDS, 2000). According to Görgen (1998), young people in Guinea see sex as a normal part of their lives and a sign of being modern. The majority do not use protection from unwanted pregnancies or for prevention of sexually transmitted disease (Görgen, 1998; JHU/CCP, 2000). As in other countries in sub-Saharan Africa, knowledge of HIV is high (over 90 percent) for both young men and women. However knowledge of specific prevention measures is much lower; in the 1999 Guinea DHS, only 50% of men and 30% of women knew that abstinence or condom use could protect against HIV/AIDS.

There is a growing literature on adolescent sexuality in sub-Saharan Africa (Castle, 2003; Hawken, 2002; Taffa, 2002; Gueye, 2001; MacPhail, 2001; Manzini, 2001; Miles, 2001; Rwenge, 2000; Maswanya, 1999; Stanton, 1999; Gage, 1998; Zabin, 1998; Rusakaniko, 1997; Meekers, 1994; Pattullo, 1994 ). However, relatively few studies have focused on adolescents and HIV/AIDS in Francophone West Africa (notable exceptions include: Speizer, 2001; Ouedraogo, 1996; Tankoano, 1994; Sicard, 1992). Fewer still describe and evaluate interventions designed to bring about behavior change among adolescents in Francophone West Africa (Van Rossen, 2000; Djire, 1997; Deniaud, 1993). The current study represents one of the first from this region to test the effectiveness of a multi-channel communication program on knowledge and practices related to HIV/AIDS. One earlier study among youth in Guinea (Agha, 2002) failed to show improvement in preventive behaviors after a social marketing campaign that promoted condoms and other preventative behavior through peer educators.

**The Community Intervention**

This study evaluates the impact of the PRISM[3] Behavior Change Communication (BCC) Youth Campaign, which operated in two regions in Upper Guinea: Kankan and Faranah. PRISM, which stands for *Projet pour renforcer les interventions en Santé Reproductive et MST/SIDA* or "Project to Promote Reproductive Health and STD/AIDS Prevention" was launched in 1998 with the objective of improving access, quality and demand of health services in Upper Guinea. The BCC component of the PRISM project started in 1999 and initially targeted community and religious leaders, as well as adults in the general public, to sensitize them to issues related to reproductive health and HIV/AIDS. This first campaign had significant impact on the target population's knowledge, attitudes and practices regarding reproductive health (JHU/CCP, 2002). Building on the initial phase, the youth campaign was launched in 2001.

The objectives of the youth campaign were:

1) to increase knowledge and awareness of STIs and HIV/AIDS;
2) to promote responsible sexual practices, including delay in sexual debut or (among sexually active youth) condom use; and
3) to reduce unintended pregnancies among young women.

The intervention consisted of multiple, mutually-reinforcing channels of communication The project drew heavily on well-established social networks, known as *seres* or *grains*, which are cohorts of men or women of the same age or with common interests who meet on a daily basis. Two hundred peer educators (equal number of boys and girls) identified by the community participated in the design of campaign materials and their dissemination through meetings with the *seres* and *grains,* street shows, community events or video screenings. All campaign materials included the project's logo and slogan " My right: information; my duty: abstinence or condom use." Approximately 150

[3] PRISM is a cooperative agreement managed by MSH, in partnership with JHU/CCP, to implement USAID's expanded support program to the Guinea Ministry of Health (MOH).

small business (hairdressers and tailors) in the project intervention area received orientation about reproductive health including HIV, STI and unintended pregnancy prevention. These small shop owners displayed and distributed educational materials, stimulated discussion and even referred clients to the local health center. Twenty two health care providers in 20 local health centers were trained to make the particular health centers "youth friendly" and to work closely with their assigned peer educators. This close relationship in turn supported referrals by peer educators to the health centers. These community mobilization activities were implemented at the same time as a multimedia campaign that promoted preventive behavior as well as the health center's youth friendly services. The campaign included 16 interactive rural radio shows featuring local youth and aired in both French and Malinke, as well as the distribution of: 500 posters covering different aspects of HIV infection prevention; 40,000 brochures on prevention of STI/HIV, 30,000 on abstinence and 30,000 on pregnancy prevention; 660 adolescent health flipcharts; and 8 district theater groups produced plays that were followed by discussion with youth and community members).

***Methodology***

Data for this evaluation were collected 12 months post-launch. The intended audience for this project was young people, aged 15 to 24, living in one of these two regions.
The study design used two theoretical models: Steps to Behavior Change (Piotrow et al., 1997) and Fishbein's (2000) Integrative Model. Both the Steps to Behavior Change (SBC) and the Integrative Model (IM) illustrate how an individual's behavioral and normative beliefs are influenced by socio-demographic individual background characteristics and how an individual can progress from the knowledge stage to a behavior change that is sustained.

The conceptual frameworks illustrating the hypothesized effects of the campaign appear in Figure 1 for prediction of condom use at last sex, and in Figure 2 for prediction of decision to abstain. Table 1 describes the indices used in the analysis. Ideally, the

researchers would have liked to use a pre-post test non-equivalent control group design (Fisher and Foreit, 2002). However, due to timing and funding constraints, it was not possible to conduct a true baseline. However, data from 15 enumeration units for the 1999 Guinea DHS provide proxy measures for the situation prior to the intervention in the states of Kankan and Faranah. Data for the post-test were collected from a random sample of youth in the intervention area and a reduced sample in a comparison area approximately 300 kilometers away in the state of Beyla. Many of the tables below present data from both the 1999 DHS (proxy for baseline) and the post-test for the intervention and comparison areas. However, we only tested for significant differences between the intervention and comparison groups on the posttest. However, the DHS cautions that data from sub-samples (such as those in the DHS for Upper Guinea) cannot be considered representative of the region.

The follow-up data were collected explicitly for the purposes of comparing key outcomes in the intervention areas and comparison areas. To maximize comparability with the 1999 DHS data, the research team used in the intervention area the same 15 enumeration areas as used in the 1999 DHS, as well as 16 additional ones. In each selected EA, the team compiled a list of all households and randomly selected a number using a sampling ratio proportional to the total number of households within the EA. At the household level, if more than one person was eligible, the interviewer randomly selected the one to be interviewed using a Kish grid (Kish, 1995).

Study procedures were approved by the Johns Hopkins Bloomberg School of Public Health IRB, as well as the Research Ethics Office of the Guinea Ministry of Health to ensure that the study protected anonymity and confidentiality of participants. The research team pilot tested the questionnaire in three communities that were not included in the study and revised the questionnaire accordingly. Trained interviewers administered the survey on a door-to-door basis, obtaining consent from all participants before the interview. They conducted the interviews in Malinke and French, the main languages in the intervention area.

**Results**

This analysis consists of: (1) descriptive data to establish the respondent profile and to test possible differences between the intervention and comparison groups; (2) bivariate analysis to measure differences between the intervention and comparison areas after the intervention, and (3) multivariate analysis to determine the relative importance of different factors that influenced the two outcomes of interest: decision to abstain and condom use, based on posttest data. For comparison between groups, we used $\chi^2$ tests for proportions and Student *t*-test on continuous variables.

Socio-demographic profile of the respondents.

Table 2 describes the age, education, urban/rural, and marital status of the respondents. For studies that use a comparison area (in contrast to a randomly allocated control group), it is important to test for differences between groups on socio-demographic characteristics that could affect outcomes. The asterisks indicate statistically significant differences at the .05 level between respondents in the intervention and comparison areas on the post-test. Data from the 1999 DHS in the same areas as the intervention group are included for reference only. There were no significant differences between the comparison and intervention areas on urban/rural residence or age. Approximately 60 percent of the respondents on the post-test survey lived in rural areas. Approximately half were youth 16-18 years old, the remainder 19-24. However, the intervention and comparison areas differed on marital status and education. The percentage of youth never married was higher in the intervention than comparison area and higher among males than females. Similarly, the percentage with some education was higher among young men in the intervention area than in the comparison area, and higher among young men than young women in both areas. It is notable that the majority of young men in the comparison area and of women in both areas reported no education, a figure that is consistent with the 1999 DHS. The higher percentage of educated males in the

intervention group as compared to the comparison would tend to favor behavior change, although we are able to control for education in the multivariate analyses.

In terms of sexual experience, a higher percentage of males in the intervention than comparison area had ever had sex (77 versus 50 percent). A much lower percentage of females reported having had sex: 53 and 52 percent, respectively, in the two groups (see Table 3).

Exposure to the communication program.

The survey contained several variables that measured exposure to the campaign:

- Participation in any of five community-based activities;
- Exposure to campaign messages through a variety of media including radio spots, measured by recall of messages about condoms, abstinence, and other topics.

The majority of respondents in the intervention area had participated in one of more of the campaign activities, though the percentage was much higher for males (83 percent) than females (63 percent); see Table 4. For both sexes, the three most frequently reported types of exposure were participation in community events (consisting of launch, community drama,[4] video projection, promo-party, soccer match, and slide projections), contact with peer educators, and street theater. Approximately two-thirds of males compared to 38-45 percent of female respondents had participated in these three activities. By contrast, far fewer reported contact with the program through hairdressers (27 percent, males; 17 percent, females) or tailors (16 and 13 percent, respectively). By contrast, only 20 percent of males and 12 percent of females in the comparison group reported participation in at least one campaign activity.

[4] C***ommunity dramas were organized by the peer educators and usually were short and message specific, whereas street theater was presented by a well trained group of young actors presenting a group of messages in a drama form.***

Table 5 reports campaign message recall from all media**.** The vast majority of respondents recalled one or more of these messages, and again males were more likely to have heard them than females (67-91 percent versus 42-79 percent, respectively); see Table 5. The message on abstinence had the highest level of recall for both males and females (91 and 79 percent, respectively), followed by messages on condoms, FP/pregnancy, and HIV/AIDS/STIs. The message on dialogue with parents was least well recalled (67 percent of males and 42 percent of females). Message recall in the comparison area was significantly lower for both males and females (22-47 percent and 6-33% respectively).

Bivariate analyses of differences between the intervention and comparison areas on outcome measures (posttest only).

Assuming comparability between the intervention and comparison areas prior to the intervention, we hypothesized that the two groups would differ significantly on outcomes corresponding to the objectives of the program. These variables included:

- Knowledge of condoms (where to get, how to use);
- Attitudes toward condoms (willingness to use, has recommended use to others);
- Ever use of a condom, among those who are sexually active;
- Use of a condom at last sex;
- Has heard of AIDS:
- Perception of personal risk of contacting AIDS;[5] and
- Perceptions of community's willingness to discuss youth's reproductive health questions**.**

Table 6 presents data on knowledge of and attitudes toward condoms. On all four variables, respondents in the intervention area were more likely than those in the comparison to report the desired result. The percentage that knew where to get condoms

[5] Technically, one contracts HIV, not AIDS. However, the survey used the common parlance of contracting AIDS.

was over 28 percent points higher in the intervention than comparison areas for both males and females. A similar gap of 22 percentage points was evident on the variable "knowing how to use a condom." In terms of attitudes, we found this same pattern with the intervention group of at least 16 percentage points higher than the comparison on willingness to use condoms and having recommended condoms to someone else. A second clear-cut pattern is that males were more likely than females to give the desired answers.

Among those who had ever had sex, the proportion that had ever used a condom was significantly higher in the intervention than comparison areas: 67 versus 41 percent for males, 33 versus 8 percent for females (see Table 7). (These percentages were also significantly higher than those reported for this region in the 1999 DHS.) The findings were similar in terms of the percent reporting condom use at last sex. For both males and females, the percent reporting condom use at last sex was over 23 percent points higher in the intervention than comparison areas, and far higher than the percentages from the 1999 DHS for the intervention region.

The survey also looked at differences in knowledge of HIV/AIDS. Over 90 percent of male and female respondents had heard of AIDS, with no significant difference between intervention and comparison areas. Similarly, over 90 percent of all respondents knew at least one mode of transmission, with no significant difference by group. However, respondents in the intervention area were far more likely than those in the comparison to know at least one means to prevent AIDS: 84 versus 61 percent for males, 69 versus 43 percent for females. On the final knowledge question related to AIDS ("knows that a healthy-looking person can have AIDS"), less than half of male or female respondents knew the correct answer, and there were no significant differences by intervention group. In sum, knowledge of AIDS was nearly universal, and the campaign does not appear to have increased knowledge on two of three issues. However, knowledge of how to prevent AIDS was far higher in the intervention than comparison area.

One of the objectives of the campaign was to increase the sense of personal risk of contracting HIV among youth in the target area. The data in Table 9 suggest that the campaign had the opposite effect, at least among males: 67 percent in the intervention area believed that they were at NO risk of contracting HIV/AIDS, compared to 49 percent in the comparison area. The findings among females are somewhat more encouraging, with a higher percent in the intervention than comparison areas considering themselves at "some" or "high" risk of contracting HIV/AIDS.

Finally, we expected the campaign to create a climate of greater openness to discussing reproductive health questions that youth might have. The data in table 10 suggest that the campaign was effective in this sense. Respondents in the intervention area – both male and female – were more likely than those in the comparison area to report that members of the community were more open now than 12 months earlier to discussing reproductive health questions. Young men in the intervention area considered that other youth and health workers were the most open, followed by religious leaders, parents, and community leaders; members of the *Sere* (friendship groups based on age cohort) were ranked lowest. Young women in the intervention area saw health workers as most approachable, followed by other youth, parents, and community leaders; religious leaders and members of *Sere* were lowest on their list. We also found significant difference in the level of social involvement between young men and women within the intervention areas, with 70 percent of men belonging to or having friends in at least one peer group, compared to only 49 percent for young women (data not shown).

Multivariate analyses of factors influencing condom use and decision to abstain.

The bivariate analyses indicated that young people in the intervention area had a high level of exposure to the campaign. Moreover, both males and females were more likely to know about, be favorable toward, and have used condoms than their counterparts in the comparison area. However, to demonstrate the effects of the campaign on behavior in this target group, it is necessary to establish that exposure to the campaign is significantly related to desired outcomes, after controlling for socio-demographic factors (possible

cofounders). In this analysis we looked at two outcomes: use of condom at last sex and decision to abstain. The variables in the model included socio-demographic factors (marital status, place of residence, educational level, and household amenities as a proxy for wealth); knowledge of and attitudes toward condoms; perceived risk of contracting AIDS; and exposure to the communication program.

The data in table 11 indicate the factors that influence use of condoms at last sex for both sexually active male and female respondents. For males, the strongest predictors are being single, knowing how to use a condom, having an inclination to use condoms, and having advised others to use them. Males who perceived themselves at higher risk of becoming infected with HIV were less likely to have used a condom at last sex, suggesting a possible reverse order of causation, that those who use condoms regularly perceive themselves to be at lower risk. Of particular interest to this analysis, males with higher levels of participation (more exposure) to the campaign were significantly more likely to have used condoms at last sex, controlling for the other variables in the model. In short, this result shows the effects of the campaign on behavior for young men. By contrast, exposure to the campaign did not result in a significantly higher level of condom use at last sex for women. (The odds ratio is very similar to that for men, but the lower number of cases may have resulted in its failing to reach statistical significance.) Rather, factors predictive of condom use at last sex for young women were knowing where to get condoms, being single, having advised others to use condoms, having completed secondary school, and living in a rural area.

In table 12, we examined a second desired outcome of the campaign: abstinence. This analysis was limited to youth who were not married or cohabiting with a partner.
For both females and males, knowing modes of HIV transmission and having thought about abstaining in the 6 months prior to the survey were very strong predictors of their having decided to abstain. Participation in campaign activities was also a significant predictor of the decision to abstain for the females but not for the males. We assumed that even if the respondents had already had sex, given their youth and single status deciding to abstain was a desired outcome. Having ever had sex was negatively

associated with decision to abstain for both males and females. Having a larger social network was also negatively associated with decision to abstain among the females but not for the males, whereas being more educated was negatively associated with deciding to abstain for the males but not for the females.

**Discussion**

It is difficult to unequivocally demonstrate the effects of a communication program, given that it does not lend itself to a randomized trial. At best, one can use a quasi-experimental design to compare levels of knowledge, attitudes, and practice between an intervention and comparison area.

The purpose of this study was to evaluate the effectiveness of the PRISM youth campaign, launched in Upper Guinea in 2001. Data from a post-intervention survey (12 months after the launch in both the intervention and a comparison area provided evidence of the effects of the campaign. Over 90 percent of young men and 80 percent of young women recalled the content of campaign radio messages. Slightly lower percentages – 83 percent of males and 63 percent of females – participated in one or more community-based activities. Knowledge of AIDS was already high in both areas, but those in the intervention group were more likely to know a mode of prevention. Similarly, levels of knowledge and favorable attitudes toward the condom were significantly higher in the intervention than in the comparison group for both sexes. Following the same pattern, young people of both sexes in the intervention group were significantly more likely (1) to have ever used a condom and (2) to have used a condom at last sex. Multivariate analysis of predictors of condom use at last sex for the intervention area indicated that exposure to the campaign was significantly related to condom use, among males, controlling for a series of socio-economic factors. The effect was only of borderline significance for young women. Participation in campaign activities was a significant predictor of deciding to abstain for young women but not for the young men.

This study reflects the realities of selecting existing populations to serve as intervention and comparison groups, given that random allocation is not feasible in evaluating full coverage communication programs. Some respondents from the comparison area reported exposure to the campaign activities that did not take place there. For example, 14 percent of males mentioned hairdressers and 6 percent of males in the comparison area cited tailors as sources of community-based information on HIV/AIDS. With respect to exposure via the media, 6 to 47 percent of respondents in the comparison area recalled messages on the topic of abstinence, condom use, HIV/AIDS, and STIs. The percentages reporting exposure were so much higher in the intervention than comparison group (at least double for both sexes for the mass media and even greater for community-based activities), suggesting that one group was reached in a way that the other was not. At the same time, these data reflect that the comparison area was by no means "virgin territory," but rather had exposure to AIDS-related messages via other sources of mass media. This finding is not surprising, given the pervasiveness of HIV/AIDS information via the mass media.

One curious result is that knowledge of condoms and attitudes toward them were consistently higher/more positive in the intervention area than in the comparison. Yet on four variables measuring knowledge of HIV/AIDS, only one showed a statistically significant difference between groups. This apparent explanation lies in the near universal awareness of HIV/AIDS and knowledge of at least one mode of transmission. In future studies, it may be preferable to exclude such variables that show little variation across groups.

Despite two decades of communication interventions for HIV/AIDS, there is a surprising dearth of research to measure the effects of these efforts. This study represents one of the first to evaluate the effectiveness of an HIV/AIDS communication program in West Africa. Despite the methodological difficulties (a limited number of cases in the comparison group, impossibility of collecting baseline data), the results are strongly suggestive that the campaign had a positive impact on behavior. Further research is needed to improve our understanding of the dynamics through which community

mobilization and communication activities interact to improve preventive behavior among youth in Francophone West Africa.

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**REFERENCES**


Agha, S. A. (2002) An Evaluation of the Effectiveness of a Peer Sexual Health Intervention Among Secondary-School Students in Zambia. AIDS Educ Prev, 14(4), pp.269-281.

Agha, S.A. (2002) Quasi-Experimental Study to Assess the Impact of Four Adolescent Sexual Health Interventions in Sub-Saharan Africa. International Family Planning Perspectives, 28(2), pp.67-70.

Castle, S. & Konate, M.K. (2003) Economic Transaction Associated Intercourse Among Malian Adolescents: Implications for Sexual Health. Reproductive and Social Context in Sub-Saharan Africa. A collection of Micro-Demographic Studies by Agyei-Mensah, S and J.B. Casterline. Westport, CT, J.B. Praeger Publishers.

Deniaud, F. (1993) Musical and Clothing Invitations to Protection. AIDS Health Promotion Exchange, 3, pp.12-4.

Djire, M. Gueye, M. & Konate, M.K. (1997) La sexualité des adolescents au Sahel. La Chronique du CEPED, Centre français sur la population et le développement, 25, pp.1-8.

ESSIDAGUI. (2001) Guinea National HIV Prevalence Survey, USAID [Internet] <http://www.usaid.gov/gn/health/news/021011_hivsurvey>

Fishbein, M. (2000) The role of theory in HIV prevention. AIDS CARE, 12(3), pp.273-278.

Fisher, A. A., Foreit, J.R. Laing, J. Stockel, J. & Townsend, J. (2002) Designing HIV/AIDS Intervention Studies: An Operations Research Handbook. New York, Population Council.

Gage, A.J. (1998) Sexual Activity and Contraceptive Use: the Components of the Decisionmaking Process. Studies in Family Planning, 29(2), pp.154-166.

Gorgen, R. Yansane, J.L. Marx, M. & Millimounnou, D. (1998) Sexual Behavior and Attitudes Among Unmarried Urban Youths in Guinea. International Family Planning Perspectives, 24(2), pp.65-71.

Gueye, S. Castle, S. & Konate, M.K. (2001) Timing of first intercourse among Malian adolescents: implications for contraceptive use. Family Planning Perspectives, 27(2), pp.56-62.

Guinee, EDS. (2000) Enquête Demographique et de Santé. Calverton, MD, Direction Nationale de la Statistique (Guinee) et Macro International Inc, 2000.

Hawken, M.P. Melis, R.D. et al. (2002) Opportunity for prevention of HIV and sexually transmitted infections in Kenyan youth: results of a population-based survey. J Acquir Immune Defic Syndr, 31(5), pp.529-35.

JHU/CCP (2000) La Sexualité des Adolescents dans les Regions Administratives de Faranah, KanKan et N'Zerekore. Baltimore, MD, Johns Hopkins University Center for Communication Programs, pp. 1-15.

JHU/CCP (2002) Impact of a Male Motivation Campaign, Field Report Number 13. Baltimore, MD, Johns Hopkins University Center for Communication Programs.

Kiragu, K. (2001) Youth and HIV/AIDS: Can We Avoid Catastrophe? Population Reports, Series L, No. 12. Baltimore, The Johns Hopkins University Bloomberg School of Public Health, Population Information Program.

Kish, L. (1995) Survey Sampling. New York, Wiley & Sons, Inc.

MacPhail, C & Campbel, C. (2001) I think condoms are good but, aai, I hate those things': condom use among adolescents and young people in a Southern African township. Soc Sci Med, 52(11), pp.1613-27.

Manzini, N. (2001) Sexual initiation and childbearing among adolescent girls in KwaZulu Natal, South Africa. Reprod Health Matters, 9(17), pp.44-52.

Maswanya, E.S. Moji, K. et al. (1999) Knowledge, risk perception of AIDS and reported sexual behaviour among students in secondary schools and colleges in Tanzania. Health Educ Res, 14(2), pp.185-96.

Meekers, D. (1994) Sexual initiation and premarital childbearing in Sub-Saharan Africa. Population Studies, 48, pp.47-64.

Miles, K. Paine, K. Hart, G. & Ceesay, S. (2001) Sexual health seeking behaviors of young people in the Gambia. Journal of Adolescence, 24 2001, pp.753-764.

Nzioka, C. (2001) Adolescent reproductive behavior in Kenya. Afr J Reprod Health, 5(3), pp.132-49.

Ouedraogo, A. Lorenz, N. et al. (1996) Sexuality and AIDS. KAPB study accomplished in 1989 in a school environment in Ouagadougou (Burkina Faso). Bull Soc Pathol Exot, 89(1) 1996, pp.41-44.

Pattullo, A.L. Malonza, M. et al. (1994) Survey of knowledge, behavior and attitudes relating to HIV infection and AIDS among Kenyan secondary school students. AIDS Care, 6(2), pp.173-81.

Peltzer, K. (2001) Factors affecting behaviors that address HIV risk among senior secondary school pupils in South Africa. Psychol Rep, 89(1), pp.51-6.

Piotrow, P.T. Kincaid, L. et al. (1997) Health Communication: Lessons from Family Planning and Reproductive Health. Westport, Praeger Publishers.

Rwenge, M. (2000) Sexual risk behaviors among young people in Bamenda, Cameroon. International Family Planning Perspectives, 26(3), pp.118-123.

Rusakaniko, S.M. Mbizvo, M.T. et al. (1997) Trends in reproductive health knowledge following a health education intervention among adolescents in Zimbabwe. Cent Afr J Med, 43(1), pp.1-6.

Sicard, J.M. Kanon, S. et al. (1992) The evaluation of sexual behavior and knowledge of AIDS in the schools of Burkina Faso. A knowledge, attitude, belief and practice (KABP) survey in Banfora among 474 adolescents of 14-to-25 years old. Ann Soc Belg Med Trop, 72(1), pp.63-72.

Speizer, I.S. Tambashe, B.O. & Tegang, S. P. (2001) An evaluation of the 'Entre Nous Jeunes' peer-educator program for adolescents in Cameroon. Studies in Family Planning, 32(4), pp.339-351.

Stanton, B.F, Fitzgerald, A.M. et al. (1999) HIV risk behaviors, intentions, and perceptions among Namibian youth as assessed by a theory-based questionnaire. AIDS Educ Prev, 11(2), pp.132-49.

Taffa, N. Klepp, K.I. et al. (2002) Psychosocial determinants of sexual activity and condom use intention among youth in Addis Ababa, Ethiopia. Int J STD AIDS, 13(10), pp.714-9.

Tankoano, F. (1994) Children take the lead in peer education in Burkina Faso villages. AIDS Anal Afr, 4(5), pp.4-11.

UNAIDS/WHO. (2002) Annual AIDS Epidemic Update, December 2002, Geneva, Joint United Nations Programme on HIV/AIDS (UNAIDS) and World Health Organization (WHO).

UNICEF, UW. (2002) Young People and HIV/AIDS. Opportunity in Crisis, New York, United National Children's Fund, Joint United Nations Program on HIV/AIDS and World Health Organization.

Zabin, L.S. & Kiragu, K. (1998) The Health Consequences of Adolescent Sexual and Fertility Behavior in Sub-Saharan Africa. Studies in Family Planning, 29(2), pp.210-232.

Van Rossen, R. & Meekers, D. (2000) An Evaluation of the Effectiveness of Targeted Social Marketing to Promote Adolescent Reproductive Health in Cameroon. AIDS Educ. Prev, 12(5), pp.383-404.

**Figure 1 - CONCEPTUAL FRAMEWORK FOR THE PREDICTION OF CONDOM USE AT LAST SEX AMONG SEXUALLY ACTIVE GUINEAN YOUTH**

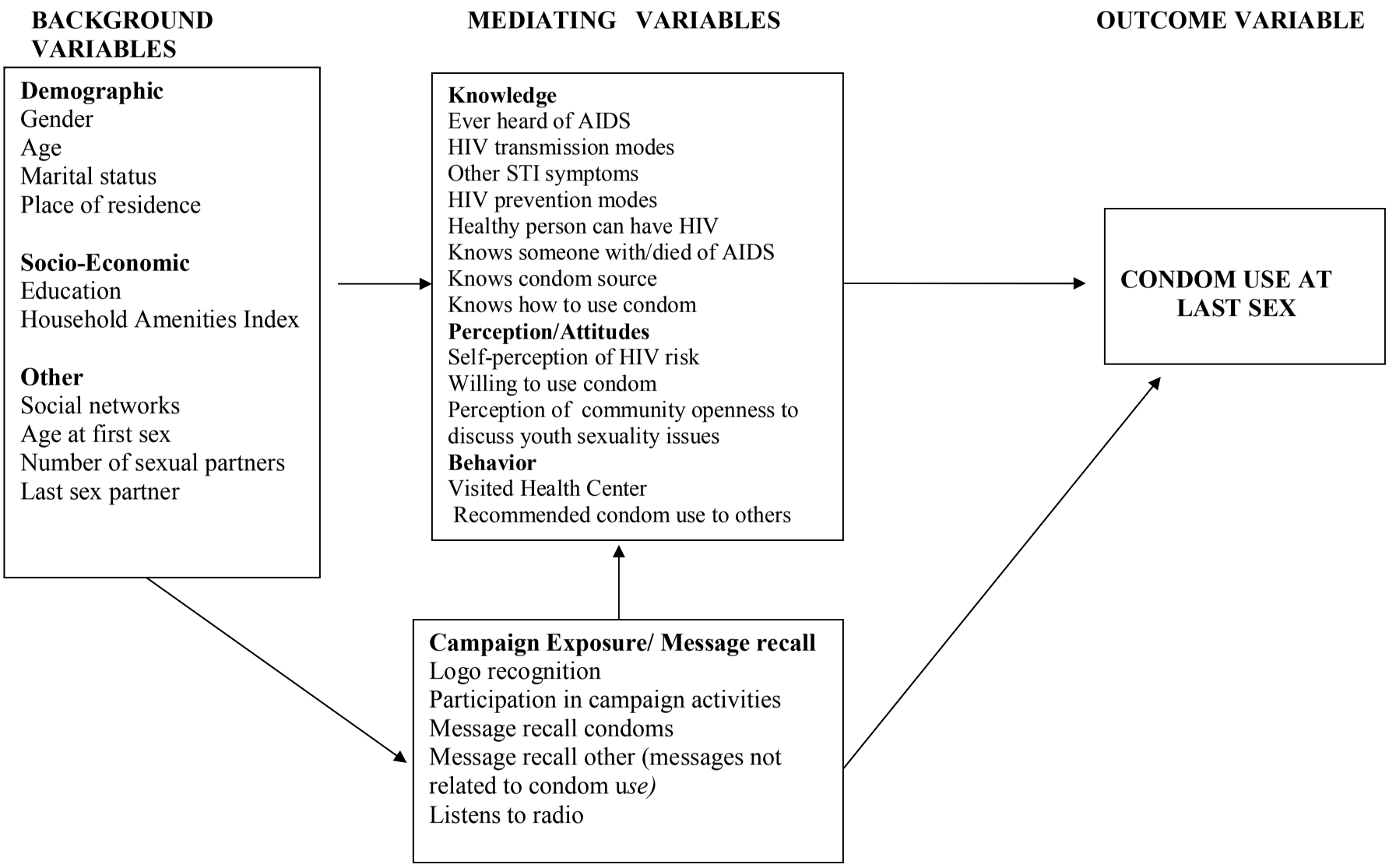
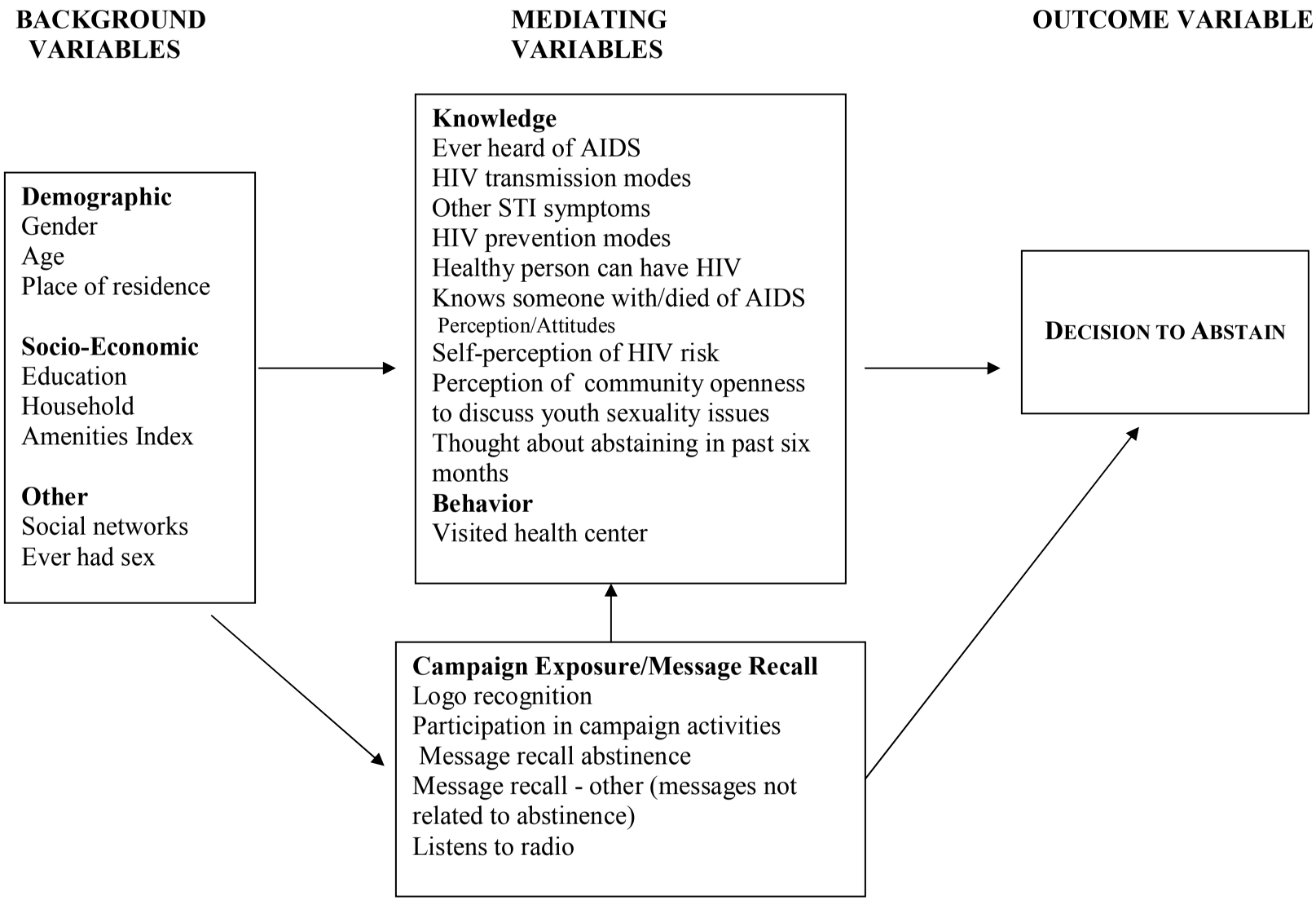


**Figure 2 - CONCEPTUAL FRAMEWORK FOR THE PREDICTION OF DECISION TO ABSTAIN AMONG GUINEAN YOUTH NOT MARRIED NOR IN UNION**



## Table 1. Description of Indices Used in Analysis

| DERIVED VARIABLE AND RANGE | QUESTIONNAIRE ITEMS USED IN DERIVATION |
|---|---|
| **BACKGROUND** | |
| **Household Amenities Index** (Range 0-14) | Owns any of the following assets: Radio; VCR; TV; home; farm; livestock; car; bicycle; motorcycle; corrugated roof; cement floor; water inside house; flush toilet; electricity. |
| **Social Networks** (Range 0-3) | - Belongs to Sere/Grain<br>- Has friends outside Sere/Grain<br>- Belongs to other organizations besides Sere/Grain |
| **MEDIATING** | |
| **Knowledge of HIV transmission modes** (Range 0 – 9) | Unprompted answers about modes of HIV transmission. |
| **Knowledge of other STI Symptoms** (Range 0-6) | Unprompted answers about symptoms of STIs. |
| **Knowledge of HIV prevention methods** (Range 0 – 10) | Unprompted answers about means of prevention. |
| **Perception of personal risk of acquiring HIV** (Range 0 – 2) | 0 = No risk<br>1 = Some risk<br>2 = High risk |
| **Perception of community member openness to discuss youth sexuality issues** (Range = 0 – 6) | Prompted answer about 6 types of community members: Parents; community leaders; religious leaders; health workers; Sere members; other young people. |
| **CAMPAIGN EXPOSURE/RECALL** | |
| **Participated in Campaign Activities** (Range 0 – 5) | Unprompted answers to participation in campaign activities: community events; theatre production; talks at hairdressers; talks at tailor shops; presentation by peer educators |
| **Recall of condom related messages** (Range 0 – 4) | Unprompted and prompted recall of 4 condom-related messages. |
| **Recall of abstinence related messages** (Range 0 – 8) | Unprompted and prompted recall of 8 abstinence-related messages. |
| **Recall of other messages not related to condoms** (Range 0 – 16) | Unprompted and prompted recall of messages regarding: family planning; HIV/AIDS; STIs; abstinence; dialogue with parents. |
| **Recall of other messages not related to abstinence** (Range 0 – 12) | Unprompted and prompted recall of messages regarding: family planning; HIV/AIDS; STIs; condoms; dialogue with parents. |

**Table 2. Percent distribution of background characteristics by region, survey and sex.**

| Background Characteristics | Upper Guinea | | | | Guinea Forestière | |
|---|---|---|---|---|---|---|
| | DHS[1] (Kankan & Faranah) | | YS'02[2] (Intervention) | | YS'02[2] (Comparison) | |
| | Male % (n=77) | Female % (n=340) | Male % (n=454) | Female % (n=454) | Male % (n=49) | Female % (n=51) |
| **Rural** | 77.9 | 76.2 | 60.8 | 60.4 | 61.2 | 60.8 |
| **Age:** | | | | | | |
| **16 – 18** | 29.9 | 35.3 | 50.1 | 62.3 | 57.1 | 53.0 |
| **19-21** | 41.6 | 36.2 | 23.8 | 22.5 | 24.5 | 19.6 |
| **22-24** | 28.6 | 28.5 | 26.1 | 15.2 | 18.4 | 27.4 |
| **Never married** | 90.9 | 15.6 | 92.5* | 71.2** | 81.6 | 52.9 |
| **Education:** | | | | | | |
| **None** | 64.9 | 85.9 | 27.1 | 56.0 | 53.1** | 68.6 |
| **Primary** | 11.7 | 8.5 | 18.3 | 21.4 | 26.5 | 23.5 |
| **Secondary** | 1.3 | 5.0 | 52.9** | 20.5* | 18.4 | 5.9 |

[1]Data from 1999 DHS for Kankan and Faranah are included for reference but are not used in measuring change
[2]YS'02 = Youth Survey, 2002
*p < .05, **p < .01 Test for differences between intervention and comparison groups.

**Table 3. Proportion of never married youth who report ever having had sex and mean age of first sex, by region, survey, and sex.**

| Sexual Experience | Upper Guinea | | | | Guinea Forestière | |
|---|---|---|---|---|---|---|
| | DHS | | [1]YS'02 (Intervention) | | [1]YS'02 (Comparison) | |
| | Male % (n=70) | Female % (n=53) | Male % (n=420) | Female % (n=323) | Male % (n=40) | Female % (n=27) |
| **Ever had sex** | 61.4 | 28.3 | 77.4** | 52.6 | 50.0 | 51.9 |
| **Mean age at first sex** | 15.9 | 15.0 | 15.8 | 16.0 | 16.7 | 15.1 |

[1]YS'02 = Youth Survey, 2002
**p < .01 Test for differences between intervention and comparison groups on the post-intervention survey.

## Table 4. Percent of respondents participating in community-based campaign activities, by area and sex

| Type of campaign activity | Upper Guinea [1]YS'02 (Intervention) | | Guinea Forestiere YS'02 (Comparison) | |
|---|---|---|---|---|
| | Male % (n=454) | Female % (n=454) | Male % (n=49) | Female % (n=51) |
| **Any campaign activity** | 83.0** | 63.2** | 20.4 | 11.7 |
| **Type of campaign activities:** | | | | |
| **Community events[2]** | 68.3** | 41.0** | 0.0 | 3.9 |
| **Peer Educators** | 65.4** | 38.3** | 2.0 | 2.0 |
| **Street theater** | 61.2** | 45.2** | 2.0 | 0.0 |
| **Hairdressers** | 27.3** | 17.2** | 14.3 | 2.0 |
| **Tailors** | 16.1** | 13.2** | 6.1 | 2.0 |

[1]YS'02 = Youth Survey, 2002
*p < .05, **p < .01 to test for differences between intervention and comparison groups.
[2] Community events include: launch, community drama, video projection, promo-party, soccer match, slide projections.

## Table 5. Percent of respondents who recall messages included in youth campaign from all media by region, type of message content and sex.

| Message | Upper Guinea YS'02 (Intervention) | | Guinea Forestiere YS'02 (Comparison) | |
|---|---|---|---|---|
| | Male % (n=454) | Female % (n=454) | Male % (n=49) | Female % (n=51) |
| **Message recall from <u>all</u> media**: | | | | |
| Abstinence | 91.2** | 79.0** | 47.0 | 33.3 |
| Condoms | 84.4 ** | 64.3** | 34.7 | 15.7 |
| FP/pregnancy | 76.0** | 62.1** | 28.5 | 21.5 |
| HIV/AIDS and STIS | 75.4** | 55.5** | 22.5 | 13.7 |
| Dialogue with parents | 66.5** | 42.0** | 22.3 | 5.9 |

**[1]YS'02 = Youth Survey, 2002
p<.01 Test for differences between intervention and comparison groups.

## Table 6. Knowledge and Attitudes toward Condoms by region and sex

| Condom related knowledge/advocacy | Upper Guinea YS'02[1] (Intervention) | | Guinea Forestière YS'02 (Comparison) | |
|---|---|---|---|---|
| | Male % (n=454) | Female % (n=454) | Male % (n=49) | Female % (n=51) |
| **Knows where to get condoms** | 85.5** | 59.0** | 57.1 | 21.6 |
| **Knows how to use condoms** | 70.0** | 33.7** | 36.7 | 11.8 |
| **Is willing to use condoms** | 77.5** | 43.8* | 53.0 | 27.3 |
| **Has recommended condom use to another** | 69.6** | 31.3* | 30.6 | 15.7 |

*p<0.05 , **p < 0.01 Test for differences between intervention and comparison groups

## Table 7. Proportion of youth reporting condom use among those who ever had sex by region and sex.

| Condom Use | Upper Guinea | | | | Guinea Forestière | |
|---|---|---|---|---|---|---|
| | DHS 1999 | | [1]YS'02 (Intervention) | | [1]YS'02 (Comparison - Beyla) | |
| | Male % (n=50) | Female % (n=302) | Male % (n=357) | Female % (n=296) | Male % (n=29) | Female % (n=37) |
| **Ever used condom** | 24.0 | 5.0 | 67.2** | 33.1** | 41.4 | 8.1 |
| **Condom use at last sex** | 24.0 | 2.3 | 47.6* | 27.0** | 24.1 | 2.7 |

[1]YS'02 = Youth Survey, 2002

*p < .05, **p < .01 Test for differences between intervention and comparison groups

**Table 8. Percent of respondents reporting knowledge regarding HIV/AIDS by region, survey and sex.**

| Knowledge about HIV/AIDS | Upper Guinea | | | | Guinea Forestière | |
|---|---|---|---|---|---|---|
| | DHS 1999 | | [1]YS'02 (Intervention) | | [1]YS'02 (Comparison) | |
| | Male % (n=77) | Female % (n=340) | Male % (n=454) | Female % (n=454) | Male % (n=49) | Female % (n=51) |
| **Has ever heard of AIDS** | 92.2 | 94.7 | 98.5 | 96.0 | 95.9 | 90.2 |
| **Knows at least one mode of transmission** | NA | NA | 98.5 | 95.8 | 95.9 | 90.2 |
| **Knows how to prevent HIV/AIDS** | 80.5 | 76.7 | 84.4** | 68.7** | 61.2 | 43.1 |
| **Knows that a healthy-looking person can have AIDS** | 32.5 | 52.4 | 46.5 | 27.5 | 44.9 | 21.6 |

[1]YS'02 = Youth Survey, 2002
**p < .01 Test for differences between intervention and comparison groups.

**Table 9. Percent distribution of respondent's self-perception of risk by region, survey, and sex.**

| Perception of personal risk of contracting HIV/AIDS | Upper Guinea | | | | Guinea Forestière | |
|---|---|---|---|---|---|---|
| | DHS 1999 | | [1]YS'02 (Intervention) | | [1]YS'02 (Comparison) | |
| | Male % (n=77) | Female % (n=340) | Male % (n=454) | Female % (n=454) | Male % (n=49) | Female % (n=51) |
| **None** | 40.3 | 25.3 | 66.7* | 53.7 | 49.0 | 62.7 |
| **Some** | 45.5 | 49.7 | 24.2 | 32.6* | 34.7 | 13.7 |
| **High** | 6.5 | 19.4 | 7.5 | 9.7 | 12.2 | 13.7 |

[1]YS'02 = Youth Survey, 2002
*p < .05, **p < .01 Test for differences between intervention and comparison groups.

**Table 10**. **Percent** of **respondents who report their community as being more open to discussing youth's reproductive health questions than a year prior to the survey by region and sex.**

| Community members | Upper Guinea | | Guinea Forestière | |
|---|---|---|---|---|
| | [1]YS'02 (Intervention) | | [1]YS'02 (Comparison - Beyla) | |
| | Male % (n=454) | Female % (n=454) | Male % (n=49) | Female % (n=51) |
| **Health workers** | 79.1** | 73.8** | 51.0 | 49.0 |
| **Other youth** | 80.0** | 60.8** | 59.2 | 35.3 |
| **Community leaders** | 60.4** | 41.4** | 32.7 | 13.7 |
| **Parents** | 60.5 | 57.3** | 46.9 | 37.8 |
| **Religious leaders** | 61.2** | 38.1** | 36.7 | 11.8 |
| **Members of SERE** | 50.0** | 37.4** | 28.6 | 23.5 |

[1]YS'02 = Youth Survey, 2002

**p < .01 Test for differences between intervention and comparison groups

**Table 11. Adjusted Odds Ratio (AOR) Estimates (at 95% CI) From Multiple Logistic Regression for Prediction of Condom Use at Last Sex by Gender Among Sexually Active Youth (16-24 years old) in Upper Guinea**.

| PREDICTOR | MALES (N=357) | | FEMALES (n=296) | |
|---|---|---|---|---|
| | AOR | 95 % CI | AOR | 95 % CI |
| Marital Status–Never married (ref. = ever married) | 5.52 * | 1.48, 20.4 | 7.30** | 1.69, 31.4 |
| Place of residence - Urban (ref. = rural) | 0.60 | 0.32, 1.12 | 0.24 * | 0.08, 0.74 |
| Educational level (ref. = none) | | | | |
| Primary | 0.86 | 0.32, 2.29 | 2.31 | 0.68, 7.82 |
| Secondary | 1.47 | 0.70, 3.09 | 5.33 ** | 1.36, 20.8 |
| Knows where to get condoms (ref. = does not know) | 1.14 | 0.28, 4.56 | 36.0 ** | 2.74, 47.3 |
| Knows how to use a condom (ref. = does not know how) | 5.51 ** | 1.81, 16.7 | 2.71 | 0.76, 9.56 |
| If condom available inclined to use it at next sexual encounter (ref. = not inclined to) | 5.43 * | 1.02, 28.8 | 1.95 | 0.39, 9.78 |
| Advised another to use condom (ref = did not advise) | 5.05 *** | 1.87, 13.6 | 6.87 *** | 2.13, 22.1 |
| Perception of personal risk of acquiring HIV (ref. = no risk) | 0.35 *** | 0.21, 0.27 | 0.45 | 0.20, 1.02 |
| Number of campaign activities participated in (ref. = 0) | 1.24 * | 1.01, 1.55 | 1.27 | 0.91, 1.78 |

*p < .05, **p < .01, *** < .001

**Adjusted for**: age, household amenities, social networks, age at first sex, number of sexual partners, type of last sexual partner, knowledge of HIV/AIDS means of transmission, knowledge of other STDs symptoms, knowledge of HIV/AIDS prevention methods, knows that a healthy looking person can be infected with HIV, knows someone who has AIDS or has died from AIDS, perception of community openness to discuss youth sexuality issues, campaign logo recognition, recall campaign messages condom and others, listens to radio.

**Table 12. Adjusted Odds Ratio (AOR) Estimates (at 95% CI) From Multiple Logistic Regression for Prediction of Decision to Abstain by Sex Among Youth (16-24 years old) Not Married Not in Union in Upper Guinea**.

| PREDICTOR | MALES (N=421) | | FEMALES (n=327) | |
|---|---|---|---|---|
| | AOR | 95 % CI | AOR | 95 % CI |
| Social Networks (ref. = none) | 0.79 | 0.59, 1.04 | 0.66* | 0.46, 0.96 |
| Educational level (ref. = none) | 0.67* | 0.49, 0.91 | 0.94 | 0.62, 1.42 |
| Ever had sex (ref. = never had sex) | 0.30*** | 0.16, 0.54 | 0.26*** | 0.13, 0.53 |
| Knows modes of HIV transmission (ref. = does not know) | 1.82 ** | 1.15, 2.82 | 1.68** | 1.16, 2.42 |
| Had contemplated abstinence in the past six month (ref.=had not contemplated abst.) | 1.19* | 1.02, 1.40 | 4.74* ** | 2.32, 9.68 |
| Participated in campaign activities (ref.=did not participate in any campaign activities) | 0.95 | 0.80, 1.13 | 1.29* | 1.01, 1.64 |

*p < .05, **p < .01, *** < .001

**Adjusted for**: age, urban/rural, household amenities, heard of AIDS, knowledge of other STDs symptoms, knowledge of HIV/AIDS prevention methods, knowing someone who has AIDS or has died from AIDS, self-perception of HIV risk, perception of community openness to discuss youth sexuality issues, visited health center, campaign logo recognition, recall campaign messages on abstinence and other than abstinence, listens to radio.