

**Urban slum residence, HIV risk-perception and constraints to
Protective behavior among young people in Ibadan, Nigeria**

Adebola A. ADEDIMEJI, Ph.D., MPH
Harvard School of Public Health

Femi O. OMOLOLU, Ph.D.
University of Ibadan, Department of Sociology

Oluwole ODUTOLU, MD, MPH
Harvard AIDS Prevention Initiative in Nigeria

*Correspondence and reprint
request should be addressed to:*

Adebola A. Adedimeji
Harvard School of Public Health
665 Huntington Avenue,
Building I, 12th Floor
Boston, MA 02115
Tel: 617-432-1700
Email: aadedime@hsph.harvard.edu

Abstract

This paper examined the relationship between urban slum residence, risk perception and protective behavior young urban slum dwellers in Ibadan, Nigeria. Multi-stage sampling techniques were used to select 1042 respondents aged 15-24 years. Findings show universal basic Knowledge of HIV/AIDS, high levels of STIs and high risk perception. Despite this, risky behavior was common and protective behavior was poor. All respondents had engaged in unprotected sexual intercourse in the 3 months preceding the survey and 48% of boys and 12% of girls had multiple partners. Similarly, considerable proportions of respondents were engaged in transactional sex. Only 14% of boys and 5% of girls however initiated a protective behavior with fewer proportions reporting condom use. Structural and environmental constraints were identified as barriers to adopting protective behavior. Therefore, program and policy interventions should be designed to address the peculiar circumstances of young urban slum dwellers to curtail the HIV epidemic.

Key Words: Urban slum residence; Risk perception; Risky sexual behavior; Protective behavior; Structural and environmental constraints; Nigeria.

INTRODUCTION

The HIV prevalence rate in Nigeria is estimated to reach between 18 and 26 percent by 2010⁽¹⁾. This means that if the current trend is not checked, Nigeria will have the largest absolute numbers of people living with HIV/AIDS in Africa within the next few years. Although available statistics do not provide accurate estimates of group prevalence, there is ample evidence to suggest that infection rates are higher in urban areas and among young people aged 15 to 24 years^(2, 3). Thus, young people living in urban areas constitute a significant risk group.

The last 30 years witnessed enormous increases in the population of people living in urban areas in developing countries⁽⁴⁾. Poor economic conditions, however, make it difficult for cities to adequately manage this increasing population, thus leading to economic and social inequality^(5, 6) that make poor people vulnerable to acute health problems thereby creating challenges for health care and overstressing existing infrastructure⁽⁷⁾. Young people constitute a huge proportion of the population of urban areas⁽⁴⁾ and the need to focus on the sexual behavior of young people in urban settings is informed by deteriorating living conditions, pervasive poverty^(4, 8) and the urban character of the HIV/AIDS epidemic⁽⁹⁾. Zulu, et. al.⁽⁷⁾ Ulin⁽¹⁰⁾ and Carael and Allen⁽¹¹⁾ provided evidence suggesting that deteriorating economic and living conditions in urban areas has increased the likelihood that women, especially adolescent girls will engage in behavior that make them susceptible to HIV/AIDS infection. Similar research⁽¹²⁻¹⁴⁾ showed that low socio-economic status and gender inequality explain women's involvement in risky sexual behavior such as commercial sex work. Therefore, extreme conditions of poverty in urban slum communities may compel residents, especially adolescents, to engage in sexual risk behaviors. Yet, in spite of the established link between economic deprivation and risk behaviors, there has not been a systematic investigation regarding how conditions of deprivation in urban slums influence HIV risk perception and sexual behavior among adolescents in Nigeria.

Similarly, knowledge of AIDS and associated risks is almost universal among Nigerian adolescents, but how such knowledge influence risk perception and sexual behavior among slum dwellers is not known. As research⁽¹⁵⁻²¹⁾ suggests, the disparity between knowledge and behavior may be responsible for the continuing spread of the epidemic in Africa. It is therefore useful to examine how knowledge of AIDS influence people's construction of generalized and personalized risk⁽²²⁾ as this might help to explain the disparity between knowledge and behavior. Smith⁽²³⁾ argued that 'conception of risk in ethical and moral terms and the complex intertwining of collectively shared moralities with individual assessments of ethics of personal behavior account for much of the seeming disconnect between what young people know about HIV/AIDS and what they do' (p.345).

Using empirical data, this paper examined the relationship between knowledge of HIV/AIDS, risk perception and how this influence protective behavior among high-risk sexually active slum dwellers aged 15-24 years in Ibadan, Nigeria. The goal is to highlight the factors that influence risk perception and risk behavior and highlight barriers to adoption of protective behavior.

MATERIALS AND METHODS

Study setting

Ibadan, one of the largest indigenous metropolitan areas in sub-Saharan Africa has an estimated population of about 2 million inhabitants made up of people from different parts of Nigeria and other parts of the world. The city, located on a major transport route to the northern parts of Nigeria, is the largest of contemporary traditional Yoruba towns.

The residential structure of the city can be divided into three homogenous groups: the core, the periphery and the intermediate areas. The core area is the traditional area of the city; characterised by high levels of poverty, high population density, lack of physical planning, dilapidated buildings, poor sanitation, inadequate health facilities, slum settlements, high level of illiteracy and low level of socioeconomic activities. The intermediate areas, including Molete, Oke-Ado, Mokola, Eleyele, Agbowo, etc., are areas of late development and are mainly inhabited by migrants from other Yoruba towns and other ethnic groups or those who moved out of family compound houses which were once favoured at

the inception of the city. Population density here is moderate than those of the traditional areas and housing is also moderately scattered although, these are not well laid out as those found in the peripheral areas. Apart from Yorubas from other towns who reside in these areas, people from other ethnic groups: Efiks, Igbos and Hausas also reside in these areas. The periphery, including Bodija Housing Estates, University of Ibadan, Jericho and Iyaganku Government Reservation Areas and other emerging well planned areas of the city are inhabited mostly by the elite and is characterised by well laid out residential apartments, low population density and the availability of essential social services. Health care needs of the population of the metropolis is provided by the University College Hospital, two State Hospitals and several private medical facilities in addition to traditional medical practitioners scattered all over the city.

Ibadan metropolis used to be under one local government; the Ibadan Municipal Government, before it was split into 5 distinct local government areas (LGA) in 1991. The five LGAs are Southeast, Northeast, Southwest, Northwest and North Central. Respondents for the study were drawn from selected enumeration areas in two of the five local government areas, Northeast and Southeast. These two LGAs contain the largest slum areas in the city. The characteristics of these two LGAs which fit the criteria set for selection of slums include, high population density, inadequate social amenities and services including health and educational facilities, crowded residences, poor sanitation at both individual and community level, inadequate and inaccessible road network, lack of potable water, and erratic electricity supply. Residential patterns in these areas show no distinction between buildings, located in large family compounds (with up to three or four families in one building). Buildings are lumped together and there are no clearly demarcated streets or well laid out neighborhoods, making it easy to move from within the area by crossing compounds. Environmental sanitation is poor and in most parts of the communities, human and animal waste, waste products from food and other consumables litter pathways and households.

The population structure of these communities consists of predominantly young people with the majority between the ages of 15-30, and most of these are involved in trades such as cobblers, seamstresses, tailors, barbers, and other handicrafts. Although indigenous inhabitants are predominantly Moslem with the largest Central Mosque in the city located in one of the communities, there is an active worship of deities among the people. Overall, majority of young people in these communities have some form of education, but most are currently out of school. Though there were several primary schools scattered around communities, very few of the communities have secondary schools situated within them.

The lack of government health facilities is obvious within these communities and, in places where they exist there are few qualified staff and equipment to run the facilities. The most reliable government hospital that inhabitants patronize is the state-owned general hospital¹, and this is several kilometers away from many of these communities. Consequently, patent medicine stores, (chemists) and itinerant medicine sellers serve the health needs of residents in these communities. Often, only emergencies force people to go the distance of the general hospital. Similarly, leisure or recreational facilities are non-existent in all the communities except for open spaces within secondary schools, which are converted to football fields by young people in the areas. The absence of recreational facilities might be responsible for the strong community organizations found in the areas and these cooperative societies afford residents the opportunity to come together and implement community development activities.

Subjects

Respondents were selected through multi-stage sampling techniques. Stage one involved a purposive selection of 2 LGAs consisting the slum communities; these are Northeast and southeast. Stage two involved a mapping exercise to generate a list of communities in the 2 LGAs. This mapping yielded a list of 72 communities from which 8 were selected by systematic sampling. Systematic sampling techniques

1. Adeoyo Maternity Hospital is the nearest state government owned health facility that is available to the communities. It is nearer than the more popular federal government owned University College Hospital, where special services are rendered.

were further applied to select 5 enumeration areas (EAs) from each of the 8 selected communities. With this procedure, a total of 40 enumeration areas were selected. Forty respondents equally divided between males and females and age groups 15-19 and 20-24 years were selected from each EA making a total of 200 respondents from each community. Individual participants were selected by simple random techniques from a list of households containing at least one eligible respondent.

Quantitative data

A self administered questionnaire, containing one hundred and fourteen items on sexual experience, reproductive health knowledge, knowledge of STIs/HIV/AIDS, condom knowledge attitude and use, risk perception and health seeking behavior was used in obtaining information. Respondents were briefed on the objectives of the study and informed consent was obtained before interviews commenced. All interviews were conducted in the local language and average completion time was 50 minutes

Data from the questionnaires were processed using EPI INFO version 6 and analyzed with SPSS version 12. The analysis focused on one thousand and forty-two (505 boys and 537 girls) sexually active respondents who reported unprotected sexual behavior in the 3 months preceding interviews. Bivariate and multivariate analysis was conducted. Bivariate analyses assessed the differences that existed between males and females with respect to awareness of STIs/HIV/AIDS, perceptions of risk, risk-taking behavior and protective behavior as well as on identifying how boys and girls differ with respect to risk perception when they have unprotected sex with a casual partner or regular partner. Multivariate analysis, using logistic regression models, examined the relationship between respondents' background, knowledge, risk perception and protective behavior. The dependent variable, 'risky behavior', was derived from a score of reporting any two or more of the following: unprotected sex with multiple partners, the last partner being non-regular, not using condoms at last intercourse, engaging in sex for economic reasons or having sex despite symptoms of STIs within 3 months before the survey. Respondents were coded '1' if they reported any two or more of these and '0' if otherwise. The logistic regression model was used to interpret the odds ratios, which represent the effect of a one-unit change in the explanatory variables on the indicator of risky behavior. Odds ratios larger than one indicate a greater likelihood of involvement in risky behavior than for the reference category. All analyses were estimated separately for male and female respondents to demonstrate important differences that may exist between the sexes.

Qualitative Data

Focus Group Discussions (FGDs) along with other Participatory Learning and Action (PLA) activities were conducted with male and female adolescents in each community, making a total of 16 FGDs. Selection of participants in the FGDs was done in conjunction with community leaders and young people based on identified homogeneous criteria, including residence within the community, age and sex. Participants were selected from households, to encompass both in-school and out-of-school respondents.

Two research assistants, along with the investigators facilitated each FGD session consisting of eight participants. Discussions were taped after consent had been obtained from participants. All discussions were conducted in Yoruba language. Tape-recordings were transcribed and translated verbatim and transcripts were reviewed for accuracy by re-listening to them while checking for anomalies. Analysis was done with 'Open Code', software for analyzing qualitative data. The coding focused on identifying consistent themes during the discussions, views from different transcripts were contrasted, and commonly held perceptions established. A validity check on this process was conducted, which involved the transcript being read by 3 persons who did not participate in the interviews and there was complete agreement on the themes, which emerged. Findings from the qualitative data were used to complement those from the quantitative data.

RESULTS

Table 1 presents respondents' demographic and socioeconomic information. Older adolescents aged 20-24 years make up the majority of respondents. The large proportion of Moslem respondents reflects the dominant religion among residents in the study areas. Results on educational status show that 2% of girls reported not having any formal education whereas all boys attained some level of formal education.

Sixty-six percent of girls as opposed to forty-nine percent of boys were not in school at the time of the study. The majority of respondents reported secondary education as the highest attained at the time of the study. Due to the poor economic conditions, it is common to find young people engaged in income generating activities either to meet own needs or supplement family income. More girls (53%) than boys (47%) were involved in income generating activity. The majority live with one or both parents however, more girls (41%) reported living with other relatives while more boys (18%) reported living alone.

Results in table 2 show that awareness of Sexually Transmitted Infections (STIs) and HIV/AIDS is high. For instance, knowledge of STIs and AIDS and the belief that AIDS is real is almost universal. The results also suggest that STIs are common among young slum dwellers. Although, this finding should be interpreted with caution since they are not based on clinical reports, that 27% of boys and 10% of girls reported being previously infected, and almost half of boys (49%) reported knowing another adolescent with a STI may indicate a high prevalence.

Table 2 also shows that 58% of boys and 36% of girls were worried about being infected with AIDS. This is not surprising considering the reported levels of STIs. Although risk perception is high, it does not appear to have an effect risk-taking behavior. All respondents reported unprotected intercourse in the last 3 months before the survey. Similarly, multiple partnerships during the same period were reported by 48% of boys and 12% of girls. Evidence that risk perception may not affect risk-taking behavior is also shown in the proportion of male (29%) and female (38%) respondents who reported having economic-related sex, suggesting high levels of transactional sex. Further disparities between risk perception, sexual behavior and preventive actions was established in the proportion of respondents (14.7% of males and 4.5% of females) who reported initiating a protective behavior to avoid infection or using a condom during the last intercourse.

Assessment of respondents' knowledge of risks associated with unprotected sex show that risk perception varies by gender and or the type of partner involved. In figure 1, nearly equal proportion of females and males reported 'great' or 'moderate' risk in unprotected intercourse with casual partners. In figure 2, risk perception differed between boys and girls when a regular partner was concerned. Nearly 60% of boys compared with 20% of girls reported 'great' risk, while about 16% of girls, compared with 30% of boys reported 'moderate' risk. Reasons for these differences were highlighted during focus group sessions. Girls who mentioned 'little' or 'no' risk talked about having only one partner or trusting such partners, while those who mentioned 'moderate' or 'high' risk talked about lack of trust and inability to protect themselves. Boys who reported 'moderate' or 'high' risk identified lack of trust as a reason.

The foregoing shows risk perception is high and so is risky behavior. This necessitated logistic regression analysis to further examine the relationship between risk perception and risky behavior. Separate models were calculated for boys and girls to control for gender.

Among girls, table 3 model 1 shows that marital status and current residence were significantly associated with the odds of risky behavior. Those who are single and live alone were significantly more likely to engage in risky behavior defined as having unprotected intercourse with one or many partners whose sero-status is unknown. Similarly, older girls, who are Muslims, out of school and who earn an income were more likely to engage in risky behavior, though this relationship is not significant. In model 2, respondents who reported knowledge of abstinence, mutual faithfulness use of condom, avoiding commercial sex workers or casual sex were less likely to engage in risky behavior. In model 3, respondents who reported a high risk perception were less likely to engage in risky behavior. Similarly model 4 shows those who had initiated a preventive behavior were also less likely to engage in risk behavior. Generally among girls, marital status, current residence and knowledge of mutual faithfulness as a preventive measure were significantly associated with the odds of risk behavior.

The association between risk perception and risky behavior is also significant among males. In table 4 model 1, boys who were older, Muslims, single, out of school, living with relatives and who earn an income were more likely to engage in risky behavior. Both schooling status and current residence were

significantly associated. In model 2, religion, income and knowledge of abstinence as a preventive method were significantly associated with risky behavior. This model suggests that though knowledge is high among boys, it does not act to lower the odds of risky behavior. Boys reporting use of condoms, avoiding commercial sex or infected blood were more likely to engage in risky intercourse. The effect of risk perception in model 3 also suggests that having high risk perception was more likely associated risky behavior. For instance, believing that AIDS is curable was about 11/2 times more likely associated with risky intercourse. In model 4, initiating a protective behavior (predominantly abstinence or condom use) was also associated with lower odds of engaging in risky behavior. Generally among boys, current schooling status, income, knowledge of abstinence and being worried about getting AIDS were significantly associated with the odds of risky behavior

As the foregoing results show, there is a contrast between high-risk perception and risky sexual behaviors. Findings from focus group discussions shed some light on the constraints and/or fatalism associated with transforming knowledge and risk perception into preventive behavior. For example, some respondents reported that...

Boys visit sex workers to avoid the commitment of maintaining a girl friend. They know there is a risk of catching disease but they choose to ignore this ... [Boys, 20-24].

'I don't worry about condoms because we only do it [sex] when I know I cannot get pregnant [safe period]. So to ask for condom now means I suspect him and that will bring trouble. Moreover, I don't expect him to infect me if he is not clean.[not infected with an STI]' [Girl, 20-24]

Moreover, maximizing sexual pleasure has been cited as a reason for poor protective behavior among men. Boys alluded to this when they said...

'I enjoy it [sex] if I do it naturally...so if I pay to enjoy myself, using condoms will reduce my pleasure. So, I immediately urinate or clean myself after ejaculation to avoid any infection if I don't trust the person'. [Boy, 20-24]

Such statements provide further insights into the widely held misconceptions, and perhaps, the prevailing practices among boys. The perception that STIs could be prevented by washing the genitals soon after ejaculation in unprotected sex is probably the reason for the reported rate of STI among half of boys. Another plausible reason for the disconnection between knowledge, risk perception and behavior is the casual nature of sexual activity and because sex is not anticipated, young people are unable to plan to take appropriate prevention even though they want to avoid the negative outcomes. The absence of social and recreational facilities in the slum communities was highlighted as leaving young people with little else to do than engaging in sex as a means of recreation. Some participants noted that:

'There are no recreational facilities around here, so we have little to do when we return home in the evenings or during holidays. Boys are restless, you know...we always want to do something, so we turn to the girls and before you know it, things are happening...' [Boys, 15-19]

'NEPA [electricity] is not constant, so you cannot watch television/video or listen to radio. Again there's no water, so you have to go elsewhere to fetch water and you can only do that at night when you return home from school or your vocational center. Some boys and girls take advantage of this to do what they want to do...young girls are unduly exposed in this community'. [Girls, 15-19]

Personality factors, concerns about self image and ability to negotiate safe sex as a result of gender relations and power disparities also affect the ability of girls to transform their knowledge into protective behavior even when they have a high perception of risk. Some participants noted that

'...Even when you are aware of the risks [pregnancy], I cannot request that he uses condom. What would he think of me? A prostitute? I don't want anyone to think I am wayward, so, I cannot be carrying condoms around all the time.' [Girl, 15-19]

In spite of widespread knowledge about HIV/AIDS and its modes of transmission and awareness of and access to condoms and high-risk perception, many young people still do not take precautions to protect themselves during sex.

DISCUSSION

There is a high level of risky sexual behavior despite equally high levels of knowledge about HIV/AIDS and of condoms as a preventive measure. The level of risk behavior is observed against a background of high risk perception, suggesting that young urban slum dwellers are aware of the risks associated with unprotected sexual activity but they are constrained in adopting protective behaviors. This may be responsible for high rate of STIs, with serious implications for the spread of HIV/AIDS⁽²⁴⁾. The rate of STIs may be due to unwillingness to seek effective treatment, and inadequate access to or complete absence of youth-friendly services in these settings. Thus, existing gaps and constraints to seeking effective STI treatment must be addressed.

The finding on preventive behavior further highlights the importance of addressing constraints that confront young people in slum settings. In Nigeria, it is widely recognized that abstinence and consistent condom use protect against STIs/HIV/AIDS. Condoms are widely available; free for young people through many non-governmental organization outlets or at minimal subsidized prices. Yet, there is evidence that young people in urban slums do not subscribe to these, suggesting the existence of barriers to adopting safe sexual practices. Both boys and girls fail to use or suggest condoms to their sexual partners because they are shy, or because suggesting condoms implies lack of trust for the sexual partner, or because they are concerned about the self image they project to their partners or the society at large. Further, the constraints to protective behavior are imposed by the social environment through social norms and gender socialization practices that encourage women to be docile and men to be domineering in sexual matters. To this extent, society imposes risk on 'good girls' and 'macho boys' and it is important to understand the dynamics of condom use behavior and teach young people overcome the barriers to using condoms. Moreover, making the social environment more supportive, for example, encouraging adults to support for young people who are interested in adopting protective behaviors, such as condom use may prove effective in this regard.

The economic condition of slum inhabitants also explains why young people are unable to enact and sustain appropriate preventive measures in spite of engaging in risky sexual practices. Studies^(7, 8, 10, 11, 14, 25) have documented the association between socio-economic conditions and sexual behavior. As this body of evidence shows, economic deprivation considerably affects ability to negotiate or adopt protective behavior, especially among young women whose sexual partners are often older, richer and more powerful men with whom they may be unable to negotiate safe sex for fear of losing the economic benefits from such relationships. Among boys, the evidence of increasing involvement in transactional sex with older women also raises questions regarding their ability to avoid risky sexual practices and further research is needed to uncover these. The evidence that sex for economic reasons occurs, however, lends credence to the importance of poverty as a risk factor for young urban slum dwellers. Anthropologists^(12, 26) examining the global AIDS pandemic have highlighted the impact of poverty and inequality as fundamental structural determinants of who is at risk. In the slum communities, such structural inequities have implications for the continuing spread of the epidemic and this must be taken into account when designing interventions both in the short and long term.

Similarly, patterns of social organization, gender roles/relations and cultural norms regarding sexuality considerably affect the dynamics of sexual behavior. Slum communities are closely knit and the pattern of social organization largely mirror those found in traditional societies. This close-knit structure is reflected in housing patterns organized along family compounds (*agbo-ile*) that are expected to regulate social and sexual behavior of members. Within this context negotiating condom use to prevent HIV/AIDS may signify negative connotations about individual character and sexual morality and threaten relationships. Young women's ability to request or insist on condom use is subjected to these constraints. Consequently, the combined effects of gender inequality, patterns of social/structural organization and poverty thus put many adolescents in positions where they are unable to negotiate the terms of sexual relationships, or avoid risky behavior despite knowledge of risk.

The contrast in risk perceptions between casual and regular partners is striking. Despite being aware that unprotected sex with any partner involves some degree of risk, most females in regular/stable relationships do not associate any significant risk with their partner, either because they are unwilling to acknowledge that their partners pose a risk or because they are not fully aware of their partners' sexual practices. While, it is possible that risk perception in this regard is based on one's behaviors, actual risk may be elevated among such women because of the sexual behavior of their partners. Previous studies⁽²⁷⁾ show male infidelity/multiple partnerships is tolerated in most African societies. Half of males and one in ten females reported unprotected sex with multiple partners, some of whom, as previous research⁽²⁸⁾ show are considered regular partners. Other reasons for this observation might be because individuals may be having sex with several regular partners and so long as these are not regarded as institutionalized prostitution, risk may be underestimated. It may also be related to moralistic perceptions through which individuals associate risk unto imaginary 'immoral' others⁽²³⁾. Moreover, as studies^(29, 30) suggested, it might be based on levels of AIDS related morbidity and mortality within the wider community, which is not usually evident because of stigma. What is important however is where risk perception is defined within a context of pervasive stigma, shifting morality or prevailing AIDS related mortality/morbidity, there are implications for prevention efforts.

Our results show that having a correct assessment of risk is insufficient to guarantee the adoption of protective behavior. To successfully contain the spread of the epidemic among the poor in sub-Saharan Africa depends on the extent to which program and policy intervention address peculiar structural-environmental and socio-economic circumstances compelling young people to engage in risk behaviors. Understanding the link between risk perceptions, sexual risk taking and preventive behavior among young slum inhabitants and indeed the general population requires a careful consideration of the dynamics of sexual relationships, the motives that propel individuals to engage in sexual relations and the structural-environmental factors that facilitate or hinder the adoption of preventive behavior. While extensive documentation on the relationship between economic conditions and sexual behavior exists, the link between slum residence, risk perception and sexual behavior has not been thoroughly investigated in Nigeria. Thus, as Heise and Elias⁽³¹⁾ argued, the three pronged approach of partner reduction, condom promotion and STD treatment to AIDS prevention are inadequate to protect adolescents who are incapacitated in negotiating the terms of sexual encounters. Consequently, more qualitative research is needed to explore the peculiar structural and environmental circumstances that characterize risk perception, sexual relations and protective behavior among young people in slum settings in Nigeria. In addition, research is needed with all categories of young people at risk to document the social dynamics of risk, the reasons for risk taking and to develop their capacities to negotiate risk reduction when they are confronted with difficult circumstances. Empathic adult-gatekeepers and researchers who are willing to facilitate change must also be identified and involved in this process and in disseminating the lessons learned to the whole community.

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Table 1: Characteristics of sexually experienced respondents

		Boys (n=505)	Girls (n=537)
Age	15-19	37.2	35.9
	20-24	62.8	64.1
Religion	Moslem	63.7	59.0
	Christian	35.3	39.1
	Others	1.0	1.9
Currently in school	Yes	50.9	33.4
	No	49.1	66.6
Highest education	None	-	1.7
	Primary only	10.0	23.0
	Secondary only	78.2	67.2
	Others	11.8	8.1
Generate income	Yes	46.5	53.1
	No	53.5	46.9
Currently living with	Parent(s)	72.6	57.0
	Older sibling/relative	8.0	41.4
	Unrelated guardian	0.8	0.4
	Alone	18.6	1.2

Table 2: Respondents reporting HIV/AIDS knowledge and risky sexual behavior

	Boys (n=505)	Girls (n=537)
Awareness		
Heard of STIs	99.4	100
Heard of AIDS	97.6	99.6
Believe AIDS is real	99.0	99.1
Perception of risk		
Worried about getting infected with HIV/AIDS	57.8	36.3
Had sexually transmitted infection	27.3	9.1
Knew adolescent infected with STI	49.3	33.5
Knew someone infected with HIV/AIDS	17.2	9.3
Risk-taking sexual behavior last 3 months		
Had unprotected sex	100	100
Had sex with 2 or more partners	48.0	11.8
Received or given economic incentive for sex	29.4	38.4
Protective behavior		
Initiated behavior to avoid infection	14.7	4.5
Used condom last intercourse	6.6	9.7

Table 3: Odds ratios (standard errors) of risky behavior (Girls)

Covariates and categories		Model 1	Model 2	Model 3	Model 4
Background Factors					
Age	20-24 (r)	-	-	-	-
	15-19	0.99(.299)	0.91(.306)	0.88(.311)	1.00(.443)
Religion	Christian (r)	-	-	-	-
	Moslem	1.15(.278)	1.15(.281)	1.12(.285)	1.52(.394)
Marital Status	Single (r)	-	-	-	-
	Married	0.20(.489)***	0.18(.501)***	0.17(.505)***	0.11(.660)***
Currently schooling	No(r)	-	-	-	-
	Yes	0.72(.314)	0.69(.320)	0.70(.325)	0.50(.459)
Generate income	No(r)	-	-	-	-
	Yes	0.81(.336)	0.78(.343)	0.86(.348)	0.49(.490)
Current living with	Alone(r)	-	-	-	-
	Parents	0.11(1.00)*	0.10(1.01)*	0.10(1.02)*	0.04(1.13)*
	Relative	0.12(1.02)*	0.12(1.02)*	0.12(1.03)*	0.14(1.13)
Knowledge of preventive methods					
Abstinence	No (r)	-	-	-	-
	Yes	-	1.37(.308)	1.38(.313)	0.88(.420)
Mutual Faithfulness	No (r)	-	-	-	-
	Yes	-	0.66(.284)	0.71(.307)	0.33(.421)**
Avoid infected blood/blood products	No (r)	-	-	-	-
	Yes	-	1.23(.334)	1.34(.345)	1.26(.476)
Use condom for sex always	No (r)	-	-	-	-
	Yes	-	-	-	-
Avoid commercial sex workers	No (r)	-	0.63(.391)	0.66(.307)	1.11(.512)
	Yes	-	-	-	-
Avoid casual sex	No (r)	-	1.88(1.07)	0.54(1.07)	0.00(21.68)
	Yes	-	-	-	-
Risk perception	No (r)	-	0.70(.314)	1.41(.317)	0.82(.443)
	Yes	-	-	-	-
Ever thought you could be infected with STI?	No (r)	-	-	-	-
	Yes	-	-	1.97(.427)	1.92(.550)
Know adolescents infected with STI?	No (r)	-	-	-	-
	Yes	-	-	0.71(.317)	0.54(.435)
Worried about getting AIDS	No(r)	-	-	-	-
	Yes	-	-	1.19(.312)	0.96(.432)
I believe AIDS is curable	No (r)	-	-	-	-
	Yes	-	-	0.96(.277)	0.62(.394)
Protective behavior					
Initiated preventive behavior	No(r)	-	-	-	-
	Yes	-	-	-	0.96(.402)
Used a protective measure at last intercourse	No (r)	-	-	-	-
	Yes	-	-	-	0.54(.500)
2-Log likelihood		375.2	367.9	363.1	199.5

Levels of significance: * p<0.05 ** p<0.01 *** p<0.001 r (reference category)

Table 4: Odds ratios (standard error) of risky behavior (Boys)

Covariates and categories		Model 1	Model 2	Model 3	Model 4
Background Factors					
Age	20-24 (r)	-	-	-	-
	15-19	0.97 (.207)	0.98(.209)	0.96 (.215)	0.79(.237)
Religion	Christian (r)	-	-	-	-
	Moslem	1.38(.197)	1.46(.2001)*	1.40(.205)	1.47(.228)
Marital Status	Single (r)	-	-	-	-
	Married	0.61(.327)	0.62(.334)	0.65(.338)	0.52(.387)
Currently schooling	No(r)	-	-	-	-
	Yes	1.65(.247)*	1.60(.253)	1.67(.257)*	1.58(.294)
Generate income	No(r)	-	-	-	-
	Yes	1.79(.248)**	1.81(.254)**	1.78(.256)*	1.88(.292)*
Current living with	Alone(r)	-	-	-	-
	Parents	0.97(.280)	0.99(.289)	0.99(.295)	0.89(.336)
	Relative	1.22(.404)	1.15(.417)	1.14(.426)	0.22(.484)
Knowledge of preventive methods					
Abstinence	No (r)	-	-	-	-
	Yes	-	0.65(.203)*	0.64(.212)*	0.77(.239)
Mutual Faithfulness	No (r)	-	-	-	-
	Yes	-	.081(.271)	0.83(.277)	0.72(.313)
Avoid infected blood/blood products	No (r)	-	-	-	-
	Yes	-	1.22(.264)	1.24(.284)	1.51(.315)
Use condom for sex always	No (r)	-	-	-	-
	Yes	-	1.33(.297)	1.28(.305)	1.42(.352)
Avoid commercial sex workers	No (r)	-	-	-	-
	Yes	-	1.65(.287)	1.63(.294)	1.59(.316)
Avoid casual sex	No (r)	-	-	-	-
	Yes	-	0.89(.216)	0.96(.223)	0.96(.245)
Risk perception					
Ever thought you could be infected with STI?					
	No (r)	-	-	-	-
	Yes	-	-	1.08(.248)	1.20(.280)
Know adolescents infected with STI?					
	No (r)	-	-	-	-
	Yes	-	-	0.97(.215)	1.00(.238)
Worried about getting AIDS					
	No(r)	-	-	-	-
	Yes	-	-	0.67(.216)	0.62(.244)*
I believe AIDS is curable					
	No (r)	-	-	-	-
	Yes	-	-	1.45(.267)	1.23(.297)
Protective behavior					
Initiated preventive behavior					
	No(r)	-	-	-	-
	Yes	-	-	-	0.68(.243)
Used a protective measure at last intercourse					
	No (r)	-	-	-	-
	Yes	-	-	-	0.69(.254)
2-Log likelihood		625.4	615.1	594.7	484.1

Levels of significance: * p<0.05 ** p<0.01 *** p<0.001 r (reference category)

Fig. 1: Perception of risk associated with unprotected sex with *Casual* partner

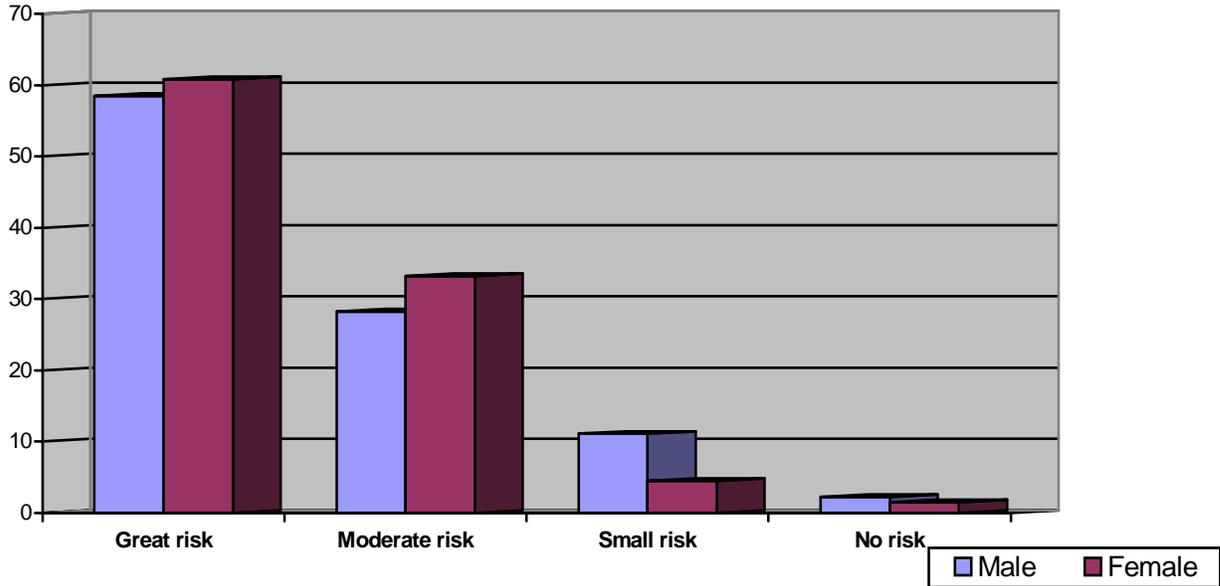


Fig. 2: Perception of risk associated with unprotected sex with *Regular* partner

