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MINISTRY OF HEALTH

Behavioral Surveillance Survey Among Youth Aged 15 - 24 Years Rwanda - 2009

RWANDA BIOMEDICAL CENTER

A Healthy People. A Wealthy Nation

Survey Report
December 2010

Behavioral Surveillance Survey Among Youth Aged 15 - 24 Years Rwanda - 2009

ACKNOWLEDGMENTS

Before presenting the results of this survey, we wish to extend our sincere gratitude and thanks to a number of people and institutions without which the present survey would not have been possible.

Our gratitude goes first to the survey participants from all Provinces of Rwanda who kindly accepted to answer our questionnaire. The results of the present study will enable various implementers in the fight against AIDS to undertake appropriate actions.

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Dr. Sabin NSANZIMANA
Acting Director of HAS unit

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ACRONYMS

AIDS	:	Acquired Immunodeficiency Syndrome
BSS	:	Behavior Surveillance Survey
CDC	:	U.S. Centers for Disease Control and Prevention
CNLS	:	Commission Nationale de Lutte contre le SIDA/ National AIDS Control Commission
Dnk	:	Do not know
FHI	:	Family Health International
HAS	:	HIV/AIDS and STI Unit, TRAC Plus
HIV	:	Human Immunodeficiency Virus
PLWHA	:	People living with HIV/ AIDS
PMTCT	:	Prevention of mother to child transmission
PSI	:	Population Services International
SBI	:	Surveillance and Bioinformatics Unit
TRAC *Plus*	:	Center for Treatment and Research on AIDS, Malaria, TB, and Other Epidemic Epidemics
UNAIDS	:	Joint United Nations Program on AIDS
UNFPA	:	United Nations Population Fund
UNICEF	:	United Nations Children's Fund
VCT	:	Voluntary Counseling and Testing
WHO	:	World Health Organization

EXECUTIVE SUMMARY

The 2009 Youth Behavior Surveillance Survey (BSS) in Rwanda carried out in September and October 2009, is a follow up of two previous Youth BSS undertaken in 2000 and 2006.

BACKGROUND CHARACTERISTICS OF RESPONDENTS

The 2009 BSS collected sexual behavior information on a nationally representative sample of 6,731 youth between the ages of 15 to 24 years of whom 4,232 (63%) were females and 2,499 (37%) were males. Approximately 61% and 39% of participants were in 15-19 year and 20-24 year age groups, respectively. The mean and median ages of respondents were 19. Regarding residence, 55% were in rural areas and 45% from urban areas. The highest proportion (30%) of youth was from Kigali City and the lowest proportion (16%) from the North and the West Provinces, respectively. The majority of respondents (67%) were not employed and (63%) had a primary school education level. Most respondents reported to be either protestant (48%) or catholic (46%).

SEXUAL BEHAVIOR

The overall proportion of youth 15-24 who reported ever having sex was 31%. However, this proportion varied by gender. Among those who ever had sex, 47% were males and 53% were females (p-value < .0001). The median age at first sexual intercourse was 16 and 17 years for male and female respondents, respectively. In contrast, the estimated median age of partner during first sexual intercourse was 21 and 16 for female and male respondents, respectively. Of those who ever had sex, 54% had above secondary education, 44% had vocational education, and 37% lived in the urban areas.

Among those youth who reported ever having had sex, 35% reported having sexual intercourse in the 12 months preceding the survey. This proportion varied by gender, age group, residence, and education level. Of those who had sex in the 12 months preceding the survey, 39% were males and 61% were female (p-value < .0001); 36% were in the 15 – 19 age group vs 64 % in the 20 – 24 age group (p-value < 0.0001); 65% of the urban youth vs 35% of those living in the rural areas (p-value < 0.0001); 49% of the youth in Kigali vs 11 of the youth in the north (p-value < 0.0001)Of those who reported having sex in the 12 months preceding the survey, 54% had primary r education level and 6% of those who had no formal education level. Of those who ever had sex, 28% (559 out of 2003) use condom at first sex. And of those who had sex in the 12 months prior to the survey 51% (290 out of 572) consistently use condom at last sex. These percentages varied by gender, education level, province, etc.

KNOWLEDGE OF STIs

Overall, 90% reported ever heard of STIs one can contract during sex intercourse. Among those who ever had sex, 95% said they heard of STIs and among those who had sex in the last 12 months preceding the survey, this percentage rose to 97%.

KNOWLEDGE OF HIV/AIDS

Youth Having Heard About HIV/AIDS

Overall 94% of the respondents had heard of HIV/AIDS. This proportion did not vary significantly by socio-demographic characteristics including sex, education level, age group, or province.

Comprehensive Knowledge of HIV/AIDS

As youth's knowledge about HIV/AIDS influences their attitudes and behaviors, the 2009 BSS collected information on comprehensive knowledge of HIV/AIDS modes of transmission and prevention methods. Comprehensive knowledge is defined as follows: *knowing simultaneously that proper use of a condom and having one faithful uninfected partner can protect against HIV/AIDS and recognizing that a person apparently in good health can transmit HIV/AIDS at the same time rejecting the two most common misconceptions about HIV/AIDS transmission*.

Overall 12% of the respondents possessed comprehensive knowledge about HIV/AIDS. This percentage varied according to sex and other socio-demographic characteristics, including the following: 14% of males vs. 12% of females; 14% of youth aged 20 -24 vs. 11% of youth aged 15-19; 15% of youth in the South province vs. 8% of youth in the West province.

Faithfulness to one uninfected partner can protect against HIV: Overall, 29% of youth believe that "faithfulness to one uninfected partner can protect against HIV/AIDS". This percentage varied by sex, age group, and education level. Surprisingly, significant differences were noted between youth reporting no formal education versus those reporting education beyond secondary school (32% vs. 17%, respectively; [p-value < 0.0001]).

Proper use of a condom can protect against HIV: Eighty four percent of youth reported that "proper use of condom can protect against HIV/AIDS". This percentage varied by sex, age, education level, and province.

HIV can be transmitted by mosquito bites: Overall, 71% of youth correctly rejected that "HIV can be transmitted by mosquito bites". This percentage varied by various socio-demographic characteristics including education level and province. For example, 89% of respondents reporting an education level above secondary level correctly rejected the misconception versus 59% of those with no education (p-value < 0.0001). Similarly, 85% of youth in Kigali vs. 54% of youth in the West province did so (p-value < 0.0001).

HIV can be transmitted by sharing a meal with an HIV-infected person: Overall, 84% (N = 6174) of youth correctly rejected that HIV can be transmitted by sharing a meal with an infected person. This percentage varied by level of education and by province: 95% of those who had above secondary level education correctly rejected this misconception versus 70% of those with no education (p-value < 0.0001). Similarly, 88% of youth in Kigali vs. 75% of youth in the West province (p-value < 0.0001) correctly rejected this.

A healthy-looking person can have HIV: Overall, 84% of respondents correctly reported that a healthy-looking person can get HIV. This percentage varied by level of education and by province: 96% of those who had above secondary level versus 66% of those with no education (p-value <

0.0001). Similarly, 89% of youth in Kigali vs. 69% of the youth in the West province (p-value < 0.0001) possessed correct knowledge.

KNOWLEDGE OF MOTHER TO CHILD TRANSMISSION (PMTCT)

Regarding knowledge of PMTCT, 83% of the respondents said that an HIV positive pregnant woman can infect her child. More female respondents (91%) than male (87%) agreed that an HIV positive nursing mother can infect her newborn through breastfeeding. To reduce the risk of transmitting HIV/AIDS to her child, a majority of the respondents (83%) said that a mother could consult a health worker.

YOUTH WITH POSITIVE ATTITUDES TOWARDS PLWHA

Overall a high percentage of youth (75%) had an accepting attitude towards PLWHA. There were no substantial differences by gender. More youth in the age group of 20-24 (81%) had accepting attitudes in all five situations presented compared with 71% in the 15-19 group.

VOLUNTARY COUNSELING AND TESTING (VCT)

Overall, 52% (3,029/5,785) of the youth who ever heard of HIV/AIDS and 68% (1253 / 1844) of those who ever had sex reported having been voluntarily tested for HIV in the last 12 months prior to the survey. Of those who have been voluntarily tested, 96% (2,897 / 3,018) reported having picked up their results. This later percentage varied among the age group. For instance, 98% of the youth in the 20 – 24 age group picked up their HIV test results against 94% of the youth in the 15 - 19 age group. Likewise, 97% of the youth in Kigali reported having picked up their HIV test results against 91% of the youth in the West province.

ALCOHOL CONSUMPTION AND DRUG USE

Overall, 30% (1879 / 6208) self reported having consumed alcohol. Alcohol consumption was reported more frequently by male (45%) than female respondents (19%). Regarding other drugs, 9% (559 / 6208) reported having tried marijuana or hashish while 6% (372 / 6208) reported having tried other drugs.

YOUTH EXPOSURE TO HIV/AIDS PROGRAMS AND BEHAVIOR CHANGE

In general, 79% of youth had heard about HIV/AIDS in the last 6 months prior to the survey from a variety of sources including the radio (79%), at school (23%), through peer educators (15%), and from health professionals (12%). This percentage varied according to sex and age.

Among those who heard about or seen information about HIV/AIDS at school or at work in the last 6 months preceding the survey (62%), 86% reported having changed their sexual behavior according to what they heard or seen. These proportions varied by sex and age group.

MALE CIRCUMCISION

Only 16% of males aged 15-24 reported having been circumcised. Age at circumcision showed an interesting pattern. Thirty eight percent (38%) of the males reported having being circumcised when they were under five years old; 21% reported being circumcised when they were between 5 and 12 years of age, 35% were circumcised between the age of 13 and 19, and only 6% were circumcised when they were twenty years or older. Fifty percent in in the 15-19 and 50% in the 20-24 mentioned health and hygiene as the primary reason for being circumcised.

FAMILY PLANNING

Overall, females in the 20-24 age group had better knowledge and attitude regarding family planning interventions; 24% reported using a contraceptive method compared with 18% in the 15-19 age group. The two major contraceptive methods used were the male condom (35% among the 20-24 age group vs. 30% of the 15-19 age group) and oral pills (11% of the 20-24 age group Vs 9% of the 15-19 age group). Almost all (98%) of respondents approved the idea of use of contraceptive methods among married couples.

TRENDS IN KEY INDICATORS

Overall, in 2009 31% of youth aged 15 – 24 years vs 27% in 2006 reported ever having had sex (p-value = .001). This difference varied by gender. In 2009, the percentage of female youth who reported ever having sex was 53% against 36% in 2006 (p-value < 0.0001). On the other hand, 47% of the males reported ever having sex in 2009 against 64% in 2006 (p-value < 0.0001).

Similarly, in 2009 35% of the youth, against 26% in 2006, reported having sex in the 12 months prior to the survey (p-value < 0.001). However, a gender difference is noticeable. In 2009, only 30% of males had sex in the 12 months preceding the survey as compared to 59% in 2006 (p < 0.0001)). Among those who had sex in the 12 months prior to the survey, in 2009, 61% were females compared to 41% in 2006 (p < 0.0001).

Twenty one percent (21%) of the youth in 2006 vs 28% in 2009 reported to have used condom at first sex (p-value < 0.001). And 39% of the youth in 2006 against 51% in 2009 said they used condom at last sex. These percentages varied by gender and province.

The programmatic implication of the above findings may be summarized as follows. First, the data shows an interesting dynamic of sexual activity among youth in Rwanda. Though fewer women than

men have ever been sexually active, sexually active women tend to be more sexually active than men and tend to initiate sex with partners older than them. These data display the importance of evaluating the effectiveness of national campaigns on the relative HIV risk of young women participating in cross-generational sex and scaling them up with targeted activities and interventions.

Second, youth who have heard messages about HIV in the past 6 months were more likely to have heard messages via the radio, indicating the importance of radio messages in IEC campaigns and a need to ensure that radio messages are appropriately targeting youth.

Third, positive changes in youth's knowledge of condoms as an HIV prevention method are encouraging. Recent progress in scaling up comprehensive condom programming (CCP) should continue and be intensified where appropriate.

Fourth, increases in knowledge have not translated into positive changes in HIV risk behavior. National strategies for behavior change communication (BCC) should be reviewed in light of this evidence. Recent evidence has shown that inter-personal communication and small group behavior change is more effective than large group educational campaigns. Current BCC programming should be reviewed in this context.

LIST OF PRINCIPAL INVESTIGATORS AND INSTITUTIONS COLLABORATING IN THE 2009 YOUTH BSS

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I. INTRODUCTION AND OBJECTIVES

1.1. Overview of HIV/AIDS situation in Rwanda

For more than two decades, the HIV infection has constituted a major public health problem in Rwanda. Despite efforts made by various partners involved in the fight against HIV/AIDS to limit the spread of this pandemic and to reduce its impact, this infection remains endemic in the Rwandan population.

Rwanda is one of the countries most affected by the AIDS pandemic. Indeed, recent data from the Demographic and Health Survey 2005 showed that the HIV prevalence was 3% among persons 15-49 years old. During 2005, the data resulting from ANC sentinel surveillance among pregnant females indicated HIV prevalence of 6.2% in urban areas and 2.2% in rural areas.

Given that the relation between HIV incidence and prevalence becomes increasingly complex as the epidemic progresses UNAIDS and its partners proposed to reinforce and enable the evolution of mechanisms of the existing surveillance sentinel by developing of "second generation" monitoring systems that integrates the collection of behavioral data.

In all settings the HIV/AIDS pandemic is facilitated by behavior (for example not using condom, multiple sexual partners, injecting drug use, etc.) which exposes the individual to the risk of infection.

Therefore, to be able to carry out surveillance among high-risk groups, and for better understanding of the dynamic of the epidemic, information is essential to evaluate changes over the course of time that may be attributable to prevention efforts. One of the main objectives of the second generation HIV surveillance is therefore to encourage the implementation of regular behavioral surveys to monitor behavioral trends and access and exposure to targeted interventions.

In Rwanda, the first phase of the behavioral surveillance survey among youth was carried out in 2000 by CNLS in collaboration with FHI/IMPACT; the second round was carried out in 2006 by TRAC, the institution responsible for supervising and coordinating efforts in the area of the epidemiologic and behavioral surveillance at the national level. The third round which we present in this report was carried out by the HIV/AIDS Unit of the expanded TRAC *Plus* in 2009.

1.2. Objectives

General objective

The general objective of the BSS 2009 was to measure "HIV knowledge, attitudes, and behaviors" among youth 15 – 24 regarding HIV/AIDS and STIs in order to provide information to CNLS, TRAC *Plus*, and other stakeholders to improve national HIV/AIDS prevention activities and services.

Specific objectives

The specific objectives of the survey were the following:

- To determine in youth aged 15-24 years:
  - Sexual behavior, in particular the number and type of sexual partners, previous cases of STI and the use of condoms
- To measure among youth:
  - Knowledge and attitudes regarding HIV/AIDS and STIs;
  - Perception of the risk of HIV/AIDS;
  - Exposure of categories of the population to interventions in the area of HIV/AIDS and STI prevention;
  - Impact of STI prevention and care interventions on risk behaviors;
  - Male circumcision
  - Family planning.

II. METHODOLOGY

2.1. Survey sites

The survey objective was to obtain nationally representative data on key indicators among youth15 – 24 years of age.

For this survey, the targeted youth were females and males who have never married nor continuously lived as a woman or man for one year or longer.

The survey was carried out in all four provinces of the country, South, East, West, and North Provinces, and in Kigali City.

2.2. Sampling Methodology

2.2.1. Target Population

The target population was comprised of all males and females aged 15 to 24 who have never married nor lived continuously with a woman or a man for one year or longer.

2.2.2. Sampling Design

The 2009 BSS youth employed a two-stage sampling design where primary sampling units are the Enumeration Areas (EAs) and the secondary sampling units are the youth. At the first stage, the EAs are selected using a Probability Proportional to Size (PPS) scheme, where the measure of size is the number of households per EA. The sample frame of EAs was obtained from the 2002 population census (Rwanda, 2002 Census).
In each EA, an updated frame was constructed by listing all youth who meet the inclusion criteria. Then a fixed number of males (or females) were selected using a systematic sampling approach.

2.2.3. Stratification Levels

The sample selection is based on a stratified two-stage sample design. There are two levels of stratification. The first level is sex: male and female. The second level corresponds to the 5 provinces, namely, Kigali, South, East, North, and West.

2.2.4. Sampling Scheme

2.2.1.1. First Stage Sampling Probability of EAs

As noted above, a stratified two-stage sample design was used. At the first stage, within each stratum, the EAs were selected systematically with PPS from the list of EAs in the sampling frame. The measure of size is the number of households, as enumerated in the Rwanda 2002 Population Census. Based on practicability and resources availability, an average of 40 EAs were selected per each stratum. The probability of selecting the jth EA in stratum h is given by:

$$Prob(EA_{jh}) = P_{1jh} = \frac{a_h * M_{jh}}{M_h} \quad (1)$$

where,

a_h = number of EAs sampled in a given stratum h

M_{jh} = number of households in the j^{th} EA within a given stratum h

M_h = total number of households in a given stratum h

2.2.1.2. Second Stage Selection Probability of Respondents

At the second stage, a constant number, b_{jh}, of respondents is selected from the number of L_{jh} eligible youth found during listing within each EA. Therefore, the probability of selection of the i^{th} respondent in the j^{th} EA and the h stratum is given by:

$$Prob(respondent_i) = P_{2ijh} = \frac{b_{jh}}{L_{jh}} \quad (2)$$

An Excel file, used for calculating both the first stage's sampling probability P_{1jh} and the second stage's sampling probability P_{2jh}, is available and is provided upon request.

2.2.1.3. Design Weight and Standardized Weight

2.2.1.3.1. Design Weight

Sampling weights are used to insure that the sample is representative at the national level. The basic weight for each sampled respondent is equal to the inverse of its probability of selection and is given by:

$$W_{ijh} = \frac{1}{P_{1jh}P_{2ijh}} \quad (3)$$

Where,

P_{1jh} = first stage's sampling probability of the j^{th} EA within a given stratum h

P_{2ijh} = second stage's sampling probability of the i^{th} youth in the j^{th} EA within a given stratum h

However, when sampling weights are applied to survey data the number of sample observations will be inflated and will thus imply a larger sample size than was actually realized in a survey. As a result, "statistical tests for changes in indicators over time will be based upon incorrect sample sizes, and misleading conclusions as to the effects of programs might result" (BSS Guidelines, 2009).

2.2.1.3.2. Standardized Weight

To compensate for this, standardized weights are often used. "***Standardized Weights"*** assign a weight to each sample observation that reflects its relative probability of selection in comparison with other sample observations, but does not change the overall survey sample size" (BSS Guidelines, 2009). Standardized weights are given by:

$$W' = \frac{W_{ijh} * b_{jh}}{\sum W_{ijh} * b_{jh}} \qquad (4)$$

2.2.5. Sample Size and Sample Allocation within Each Stratum

The main indicator considered in the sample size determination was the "proportion of youth who used condom during their last sexual relation". Assuming a 95% confidence level, a design effect of 2, a 80% power of detecting at least 15% difference in that main indicator (compared to its 2006 value), and using the formula on page 8 of the protocol, a sample size of 6,745 youth were selected, of whom, 2,437 were males and 4,308 were females. The allocation of those selected youth per each stratum is given by:

Table I: Sample Allocation per Stratum in the 2009 Rwanda Youth BSS

	Province					
Sex	SOUTH	WEST	NORTH	EAST	Kigali	Total
male	486	460	554	543	479	2522
female	844	665	565	814	1321	4209
Total	1330	1125	1119	1357	1800	6731

2.3. Data analysis

Data were respectively recorded and analyzed using the Epi info and STATA software. Design weights and standardized weights (see section 2.2. above) were used to take into account the relative importance of each observation. SVY procedures in STATA were used in order to take advantage of the sampling design. Mean, proportion, and 95% confidence interval were computed for major indicators. P-values were computed to assess the statistical significance of observed difference in key indicators. For this target group, key indicators focused on the following eight themes:

- Knowledge of HIV/AIDS
- Sexual behaviors
- Knowledge of and condom use
- Knowledge of and STI antecedents
- HIV testing and PMTCT
- Exposure to HIV and STI prevention programs
- Male circumcision
- Family planning

III. RESULTS

3.1. Background characteristics of respondents

The 2009 BSS collected sexual behavior information on a national representative sample of 6,731 youth between the ages 15-24 of whom 4,232 were females while 2,499 were males. Table 2 displays their socio-demographic background characteristics.

Table 2: Background characteristics of the youth in the 2009 Rwanda BSS, (N=6,731).

Background characteristics	n	%
Sex		
Female	4,232	63
Male	2,499	37
Total	**6,731**	**100**
Age*		
15-19	4,083	61
20-24	2,644	39
Total	**6,727**	**100**
Residence		
Urban	3,055	45
Rural	3,676	55
Total	**6,731**	**100**
Province		
East	1,334	20
Kigali City	2,012	30
North	1,074	16
West	1,080	16
South	1,231	18
Total	**6,731**	**100**
Level of education*		
None	401	6
Primary	4,251	63
Vocational studies	249	4
Secondary	1,654	25
Higher education	157	2
Total	**6,712**	**100**
Occupation*		
Employed	2,218	33
Non employed	4,498	67
Total	**6,716**	**100**
Religion*		
No religion	100	2
Catholic	3,075	46
Protestant	3,211	48
Muslim	229	3
Other	58	1
Total	**6,672**	**100**

*N did not add up to 6731 due to missing values

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3.2. Sexual behavior

Table 3: Percentage of Youth who (1) Ever had sex , (2) Had sex in the last 12 months, and (3) their age and that of their partner at first sexual intercourse, by background characteristics, 2009 Rwanda BSS

Background characteristics	Ever had sex		Had sexual intercourse in the last 12 months		Median age at first sexual intercourse	Estimated median age of partner at first sexual intercourse
	n	%	n	%		
Overall	6,731	31	1,965	35	17	18
Sex						
Female	4,232	26	1,057	40	17	21
Male	2,499	39	908	30	16	16
Age group						
15 – 19	4,083	21	830	30	15	17
20 – 24	2,644	46	1,134	39	18	19
Education						
None	401	34	128	31	17	19
Primary	4,251	28	1,142	32	16	18
Vocational	249	43	102	48	17	18
Secondary	1,654	33	510	37	16	18
Above secondary	157	54	78	58	18	24
Occupation						
Employed	2,218	41	858	37	17	18
Not employed	4,498	26	1,102	34	16	18
Residence						
Urban	3,055	37	1,076	42	17	19
Rural	3,676	26	889	27	16	17
Province						
East	1,334	28	358	29	16	17
Kigali city	2,012	40	761	44	17	20
North	1,074	29	302	25	16	17
West	1,080	24	236	33	16	17
South	1,231	27	308	33	17	20
Religion						
No religion	100	46	44	58	16	17
Catholic	3,075	31	902	34	16	18
Protestant	3,211	29	872	35	17	19
Muslim	229	52	110	38	17	18
Other	58	33	18	52	17	25

The 2009 BSS asked respondents if they ever had sex and if they had sex during the last 12 months preceding the survey. Overall 31% (2082 out of 6731) of the youth reported ever having sex; 33% (690 out of 2082) of those who ever had sex, reported having had sex in the 12 months prior to the

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survey. These two percentages varied by gender, education, urban/rural residence, and religion as shown in Table 3. For example, close to 39% of males reported ever having had sex compared with 26% of females while a higher percentage of females (40%) reported having had sex in the 12 months preceding the survey compared with 30% of their male counterparts.

Approximately 54% of youth with above secondary education reported ever having had sex, followed by those with vocational level of education (44%), those with no education (34%) and primary (29%) level. A similar pattern was observed when respondents were asked whether they had sex in the 12 months preceding the survey; youth with higher education (58%), vocational training (48%), secondary education (37%) and primary education (32%).

Youth in urban areas were more likely to report ever having had sex and having had sex in the last 12 months (37% and 42%, respectively) compared to those in rural areas. Likewise, respondents living in Kigali city were more likely to report sexual activity (41% reporting ever having had sex and 44% reported having had sex in the previous 12 months). The data in Table 3 show that although male respondents started to have sex at a slightly younger age than the females (16 vs 17) female respondents tended to have sex with older partners (average age 21 years).

3.3. Condom use

Table 4a: Percentage of Youth who use Condom at last sex by age, sex and residence, 2009 Rwanda BSS

Background characteristics	N	n	%
Overall	670	290	43
Age group			
15 - 19	239	98	41
20 - 24	431	192	45
Sex			
Female	408	154	38
Male	262	136	52
Residence			
Urban	435	215	49
Rural	235	75	32

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Table 4b: Percentage of youth who used condom in the last 12 months by age, sex, and residence; 2009 Rwanda BSS

Background characteristics		Consistent		not consistent		Never	
	N	n	%	n	%	n	%
overall	558	163	29	189	34	206	37
Age group							
15 - 19	194	56	29	57	29	81	42
20 - 24	364	107	29	132	36	125	34
Sex							
Female	331	86	26	104	31	142	43
Male	227	77	34	85	38	65	29
Residence							
Urban	358	130	36	125	35	104	29
Rural	200	33	17	64	32	103	51
Ever heard about HIV/AIDS*	539	161	30	184	34	194	36

*N did not add up to 558 due to missing values.

Of those who ever had sex, 28% (559 out of 2082) use condom at first sex. And of those who had sex in the 12 months prior to the survey 43% (290 out of 670) use condom at last sex. These percentages varied by gender. For example, among the males who ever had sex, 25% reported having used condom at first sex while among the females who ever had sex, that percentage jumped to 31% (p-value < 0.001).

Overall, 37% (206 over 558) reported not using condom at all in the last 12 month, 29% reported consistent use of condom, and 29% reported non-consistent use of condom in the last 12 month. Among those who ever heard about HIV/AIDS, 36% reported not having use condom in the 12 months prior to the survey, 34% reported having inconsistently used condom, while 30% said they had consistently used condom in the 12 months preceding the survey.

3.4. Person who suggested condom use

When asked who suggested condom use during sex, 59% (179 out of 303) of the youth reported that it was "themselves", 28% (85 out of 303) said it was a "joint decision", and only 13% (39 out of 303) said it was "the partner",

3.5. Sexual violence

Reported sexual violence was not common in the 2009 Youth BSS. Overall a little more than 1% (88 out of 6731) reported being victim of sexual violence. That is less than 2% of females (76 of 4,232) and less than 1% of the males (12 of 2,499) reported that they had ever been forced to have sex. Of all respondents who reported having ever been forced to have sex, 53 out of 88 (60%) were in the 20-24 age group. Of the 35 (40% = 35/88) in the 15-19 age group who reported that they have ever been forced to have sex, 32 were females and only 3 males. Of those who have ever been forced to have sex, the major offenders were colleagues (48%) of the respondents), strangers (8%) and parents (3%).

9

3.6. Knowledge of STI's

Table 5a: Percentage of youth who reported having knowledge of STI, 2009 Rwanda BSS (N= 6,671).

Background characteristics	n	%
Overall	5,978	90
Age group		
15-19	3,542	88
20-24	2,432	93
Heard of STIs among those who ever had sex	1,959	95
Heard of STIs among those who had sex in the last 12 months	658	97

Table 5b: Percentage of youth who reported knowing STI symptoms in females and males, 2009 Rwanda BSS, (N=5936).

Background characteristics	**Females**	**Males**	**Overall**
Known examples of STI symptoms (outside of AIDS) in females	**%**	**%**	**%**
Lower abdominal pain	9	9	9
Genital discharge	6	7	6
Vaginal discharge with bad smell	25	24	25
A burning sensation while urinating	24	19	21.8
Wounds on the genitalia	28	22	26
Inguinal bubos	10	8	9
Genital itch	25	19	23
Pain during sex	4	5	4
Other	21	23	22
Number of respondents	**3,655**	**2,202**	**5,842**
Known examples of STI's(except AIDS) in males			
Genital discharge	23	35	28
Pain while urinating	34	51	41
Wounds on the genitalia	25	31	28
Inguinal bubos	8	10	9
Genital itching	19	20	19
Testicular swelling	7	13	10
Others	16	24	19
Number of respondents	**3,636**	**2,218**	**5,854**

The 2009 BSS youth collected information about respondents' knowledge of STIs that can be contracted, such as common STIs, symptoms of STIs in males and females etc. Table 5a and 5b display the results. Overall, 89% (5936 out of 6731) of the respondents reported ever having heard

of an STI that one can contract when having unprotected sex. Table 3a shows a difference between youth by age and gender. Table 3a showed that among those who ever heard of STI, 59% were in the 15-19 age group vs 41% in 20-24 age group (p-value < .0001).More than 61% of females in the 15-19 age group had ever heard of STIs compared to 57% of males; 43% of males aged 20-24 had ever heard of STIs compared with 39% of the females.

Overall, 2% of respondents reported having had a common STI in the last 12 months preceding the survey. Of those who reported having had an STI, 28% were males and 72% females. Among the youth who reported having contracted an STI, 87% sought treatment from a health facility while the remaining 13% consulted friends, parents or pharmacy.

3.7. Knowledge of HIV/AIDS

Table 6: Percentage of youth who reported having knowledge of HIV/AIDS by age, residence, province, and education level, 2009 Rwanda BSS, (N=6,710)

Background characteristics	n	%
Overall	6,283	94
Age group*		
15 – 19	3,761	93
20 – 24	2,518	95
Residence		
Urban	2,901	95
Rural	3,382	92
Province		
East	1,274	96
Kigali	1,898	95
North	963	90
West	965	90
South	1,183	96
Education level *		
None	335	83
Primary	3,915	92
Vocational	241	98
Secondary	1,622	99
Above secondary	155	99

*N did not add up to 6,283 due to missing values.

Almost all respondents had heard about HIV/AIDS (94%). Unsurprisingly, only 83% of youth with no education had heard about HIV/AIDS, which is considerably lower than the overall average.

The same low proportion of 88% of youth having heard of HIV/AIDS was observed in the North and the West province.

Table 7: Percentage of Youth who had comprehensive knowledge of HIV/AIDS by background characteristics (n = 6174), 2009 Rwanda BSS. Weighted Percentage and Frequency

Background characteristics	Having one faithful partner can protect against HIV/AIDS	Proper use of condom can protect against HIV/AIDS	HIV/AIDS can not be transmitted by a mosquito bite	HIV/ AIDS can not be transmitted by sharing a meal with an infected person	A healthy looking person can be infected with HIV	HIV comprehensive knowledge	n
Overall	29	84	71	84	80	12	6,174
Sex							
Female	28	80	72	83	79	12	3,832
Male	31	90	70	86	82	14	2,342
Age group							
15-19	28	83	70	82	76	11	3,698
20-24	31	85	72	87	86	14	2,472
Education level							
None	32	73	59	70	66	7	329
Primary	32	84	65	81	77	11	3,845
Vocational	29	87	81	93	90	16	234
Secondary	23	86	85	93	88	15	1,597
Above secondary	17	83	89	95	96	13	154
Occupation							
Employed	32	86	67	82	81	13	2,045
Not employed	28	83	73	85	79	12	4,114
Residence							
Urban	26	84	79	87	87	14	2,844
Rural	32	83	64	82	75	11	3,330
Province							
East	29	85	68	85	73	10	1,256
Kigali city	24	82	85	88	89	14	1,871
North	30	87	65	83	80	12	947
West	32	78	54	75	69	8	940
South	34	87	69	86	81	15	1,159

YOUTH WHO HAVE COMPREHENSIVE KNOWLEDGE OF HIV/AIDS

Youth knowledge about HIV/AIDS will influence their attitudes and behaviors with respect to that disease. For this reason, the 2009 BSS collected information on the youth comprehensive knowledge on HIV/AIDS. Comprehensive knowledge is defined as *knowing simultaneously that proper use of a condom, having one faithful partner and abstinence can protect against HIV/AIDS and recognizing that a person apparently in good health can transmit HIV/AIDS at the same time rejecting the two most common misconceptions about HIV/AIDS transmission.*

- ***YOUTH WHO BELIEVE THAT "ABSTINENCE CAN PROTECT AGAINST HIV/AIDS"***

Overall, a high proportion (90%) of respondents believed that abstinence can protect against HIV/AIDS. This percentage was not associated with any of the respondent socio-demographic traits.

- ***YOUTH WHO BELIEVE THAT "FAITHFULNESS TO ONE UNINFECTED PARTNER CAN PROTECT AGAINST HIV/AIDS"***

Overall, 29% of the youth believe that "faithfulness to one uninfected partner can protect against HIV/AIDS". This percentage varied by gender, age group, and education level. Surprisingly, 32% of youth with no education against 17% of those having beyond secondary education believed that "faithfulness to one uninfected partner can protect against HIV/AIDS" (p-value < 0.0001).

- ***YOUTH WHO BELIEVE THAT "PROPER USE OF CONDOM CAN PROTECT AGAINST HIV/AIDS"***

Eighty four (84%) of the youth reported that "proper use of condom can protect against HIV/AIDS". This percentage varied by gender, age group, education level, and province.

- ***YOUTH WHO CORRECTLY REJECTED THAT HIV CAN BE TRANSMITTED BY MOSQUITO BITES***

Overall, 71% (N = 6174) of the youth correctly rejected that "HIV can be transmitted by mosquitoes bites. This percentage varied by level of education, by urban/rural, and by province. For example, 89% of those who had above secondary level correctly rejected that mosquito bites can transmit HIV against 59% of those with no education (p-value < 0.0001); similarly, 85% of the youth in Kigali vs 54% of the youth in the West province did so (p-value < 0.0001).

- ***YOUTH WHO CORRECTLY REJECTED THAT A PERSON CAN GET HIV BY SHARING A MEAL WITH SOMEONE WHO IS INFECTED***

Overall, 84% (N = 6174) of the youth correctly rejected that "A person can get HIV by sharing a meal with an infected person. This percentage varied by level of education and by province. For example, 95% of those who had above secondary level correctly rejected that HIV can be transmitted by sharing a meal with an HIV positive person against 70% of those with no education (p-value < 0.0001); Similarly, 88% of the youth in Kigali vs 75% of the youth in the West province did so (p-value < 0.0001)

- ***YOUTH WHO KNEW THAT A HEALTHY-LOOKING PERSON CAN GET HIV***

Overall, 84% (N = 6174) rightly knew that "A healthy-looking person can get HIV". This percentage varied by level of education and by province.

For example, 96% of those who had above secondary level knew that a healthy-looking person can get HIV against 66% of those with no education (p-value < 0.0001); Similarly, 89% of the youth in Kigali vs 69% of the youth in the West province did so (p-value < 0.0001)

- ***YOUTH WHO HAVE COMPREHENSIVE KNOWLEDGE OF HIV/AIDS***

Overall 12% of the respondents had comprehensive knowledge about HIV/AIDS. This percentage varied according to gender and other socio-demographic characteristics. Twelve percent of the males and 10% of the females reported having comprehensive knowledge about HIV/AIDS. Fourteen percent of the males in the 20 -24 age group reported HIV comprehensive knowledge against 11% of the male in the 15-19 age group. On one hand, 16% of the female in the South province reported to have HIV comprehensive knowledge against 11% of their male counterpart. One the other hand, in Kigali, it was 15% of the male vs 10% of the female who reported having HIV/AIDS comprehensive knowledge.

3.8. Knowledge of prevention of mother to child transmission (PMTCT)

Table 8a: Percentage of youth who reported having knowledge of PMTCT 2009 Rwanda BSS, (N=6,228).

Indicators	Females	Males	Total
An HIV+ pregnant woman can infect her child			
	%	**%**	**%**
Yes	84	83	83
No	12	13	12
DNK*	4	4	4
Number of respondents	3,867	2,361	6,228
An HIV+ Nursing Mother can infect her newborn through breast feeding			
Yes	91	87	90
No	4	7	5
DNK*	5	6	5
Number of respondents	3,858	2,357	6,215

**DNK: Do Not Know*

Overall, more than 80% of the youth interviewed reported knowing the two most common routes of mother to child transmission, namely through pregnancy (83%) and through breast feeding (90%). These proportions did not vary significantly across gender as shown in Table 8a.

Table 8b: Percentage of youth who reported having knowledge of PMTCT, 2009 Rwanda BSS, (N = 6,228)

Indicator	Females		Males		Total	
What a pregnant woman with an HIV infection can do in order to reduce the risk of transmitting the virus to her child	**%**	n	%	n	%	n
Take drugs	32	1,007	28	544	30	1,571
Stop breastfeeding her child	15	474	13	242	14	715
Consult a health worker	84	2,714	82	1,604	83	4,319
Nothing she can do	1	20	0	5	1	25
Other	7	230	7	141	7	371
Does not know	5	154	5	98	5	252

When asked what a pregnant woman with an HIV infection can do to reduce the risk of transmitting the virus to her child, a majority of the respondents said she could consult a health worker (83%), and 30% indicated that she could take a drug.

Table 9: Percentage of youth with positive attitudes towards people living with HIV/AIDS, 2009 Rwanda BSS, (N=6,238).

Background characteristic	Will share a meal with an HIV positive person?	Will be Willing to care for an HIV positive parent	Will allow an HIV positive student who is not sick to carry on with his/her studies.	Will allow an HIV positive teacher who is not sick, to keep teaching.	Will buy food from a known HIV positive vendor	Respondents who express accepting attitudes on all five indicators.	Number who ever heard about HIV/AIDS
Overall	85	98	94	91	84	75	**4669**
Sex							
Female	83	98	94	92	84	75	3,865
Male	88	98	95	91	85	76	2,358
Age group							
15 - 19	82	97	93	90	81	71	3,726
20 – 24	89	97	96	93	89	81	2,493
Education							
None	67	93	84	82	69	51	332
Primary	81	97	93	90	82	70	3878
Vocational	97	100	98	95	94	91	239
Secondary	95	100	98	96	92	88	1610
Above Secondary	97	100	100	98	96	95	154
Occupation							
Employed	82	98	93	90	84	72	2,060
Not employed	86	98	95	92	85	76	4,153
Residence							
Urban	87	99	96	93	88	79	2,874
Rural	83	97	93	90	82	71	3,349
Province							
East	85	99	94	92	85	76	1,262
Kigali City	89	99	98	94	89	82	1,880
North	83	96	91	88	82	71	953
West	77	95	89	85	71	58	957
South	87	99	96	96	89	81	1,172

The 2009 BSS youth, respondents were asked whether they (a) would share a meal with an HIV/AIDS infected person, (b) would take care of an infected parent /relative, (c) would allow an infected pupil/student to attend class, (d) would accept that an infected teacher will continue to teach and (e) would buy food from an infected food seller. Table 7 presents the results.

Overall, substantial differences were seen in accepting attitudes towards PLWHA by age and education level; among those with university education (95%) compared with 51% of with no education. Respondents in the 15-19 age group(71%) seemed to have less accepting attitudes than those in the 20-24 age group(81%) based on all the five attitudes indicators (p-value < 0.001). For example 81% (.n= 3,725) in the 15-19 age group reported that they will buy food from a known HIV+ vendor against 89% (n=2,491) of those in the 20-24 age group (p-value = 0.003).

Youth residing in urban areas displayed a higher level (79%) of accepting attitudes towards PLWHA than those in rural areas (71%). Similarly, important differences in accepting attitudes were seen by Province (82% in Kigali City compared with 58% in West Province).

3.9. Voluntary counseling and testing (VCT)

Table 10: Percentage of youth who reported taking a voluntary HIV test and receiving their test results, 2009 Rwanda BSS

Indicators	Took a voluntary HIV test (N = 5,786)		Received result (N = 3,009)	
	n	%	n	%
Overall	3,009	52	2,888	96
Among those who Ever had sex	1,253	68	1,222	98
Among those who had sex in the last 12 months	473	76	460	98
Age group				
15-19	1,566	46	1,466	94
20-24	1,465	62	1,422	98

Table 10 displays data regarding youth who reported taking a voluntary HIV test and received the result of the last voluntary HIV test performed during the 12 months preceding the survey among those who mentioned that HIV testing was possible in their districts of residence.

Overall, the proportion of youth who reported having a voluntary HIV testing was 52%. And among those who ever had sex, 68% took voluntary HIV test. This percentage was 76 among those who had sex in the 12 months prior to the survey. Among those who took the test, 96% received their test result. This percentage was 98% for those who ever had sex and for those who had sex in the last 12 months preceding the survey as well.

3.10. Alcohol consumption and drug use

Overall, 30% (1879 / 6208) self reported having consumed alcohol. Alcohol consumption was reported more frequently by male (45%) than female respondents (19%). Regarding other drugs, 9% (559 / 6208) reported having tried marijuana or hashish while 6% (372 / 6208) reported having tried other drugs.

3.11. Exposure to programs and services and behavior change

Table 11a: Percentage of youth who reported to being exposed to HIV/AIDS programs by source and age group, 2009 Rwanda BSS, (N=6,621).

Indicators	Overall		15-19		20-24	
	n	%	n	%	n	%
Has heard talk about HIV or AIDS in the last 6 months	5,369	81	3,203	80	2,161	83
Source of information about HIV /AIDS						
Radio	4,326	79	2,515	77	1,811	82
Television	579	11	291	9	287	13
Friends/parents	284	5	149	5	134	6
Peer educators/colleagues	796	15	428	13	368	17
School	1,267	23	1,000	31	267	12
Health professional	645	12	344	11	301	14
Others	409	8	231	7	178	8
Has heard or seen any information at school or at work about HIV or AIDS	2,792	64	1,891	68	901	57

Table 11b: Percentage of youth who reported having behavioral changes among those who were exposed to programs and services, 2009 Rwanda BSS, (N = 3,397).

Indicators	Overall		15-19		20-24	
	n	%	n	%	n	%
Changed behavior according to what was heard or seen about HIV/AIDS	3,167	93	2,069	65	1,098	35
Behavioral changes						
Limit sexual intercourse	88	3	40	46	47	54
Being faithful to one faithful partner	34	1	9	28	25	72
Avoid sexual relations with casual sexual partners	303	12	186	61	117	39
Avoid sexual relations with persons having several partners	63	2	39	62	24	38
Avoid sexual relations with sex workers	58	2	44	75	14	25
Using a condom during sexual intercourse with commercial sex workers or other casual partners	188	7	87	46	102	54
Abstinence	1,964	76	1,347	69	617	31
Avoid blood transfusion	96	4	60	63	36	37

2009 BSS youth respondents were asked whether they had heard about HIV/AIDS in the last 6 months, the source of this information, and whether they heard or seen any information at school/work about HIV/AIDS for those who attend school or had a job. Respondents were also asked if what they heard/saw had changed their behavior and in what way. Results are presented in Tables 11a and 11b.

Overall, 85% (4631 out of 5419) youth reported having heard about HIV/AIDS in the last 6 months prior to the survey. Among those who had heard about HIV/AIDS in the last 6 months, preceding the survey, 42% were males and 58% were females; 59% were in the 15 – 19 age group where as 41 % were in the 20 -24 age group.

Radio (85%), school (23%) and health workers (13%) were the three major sources of information about HIV/AIDS. Overall, 94% of respondents reported that their behavior had changed on the basis of HIV/AIDS information received; no substantial differences were seen by gender. Both male and female respondents said that abstinence and avoiding sexual intercourse with casual partners were the two main ways of changing behavior.

3.12. Circumcision

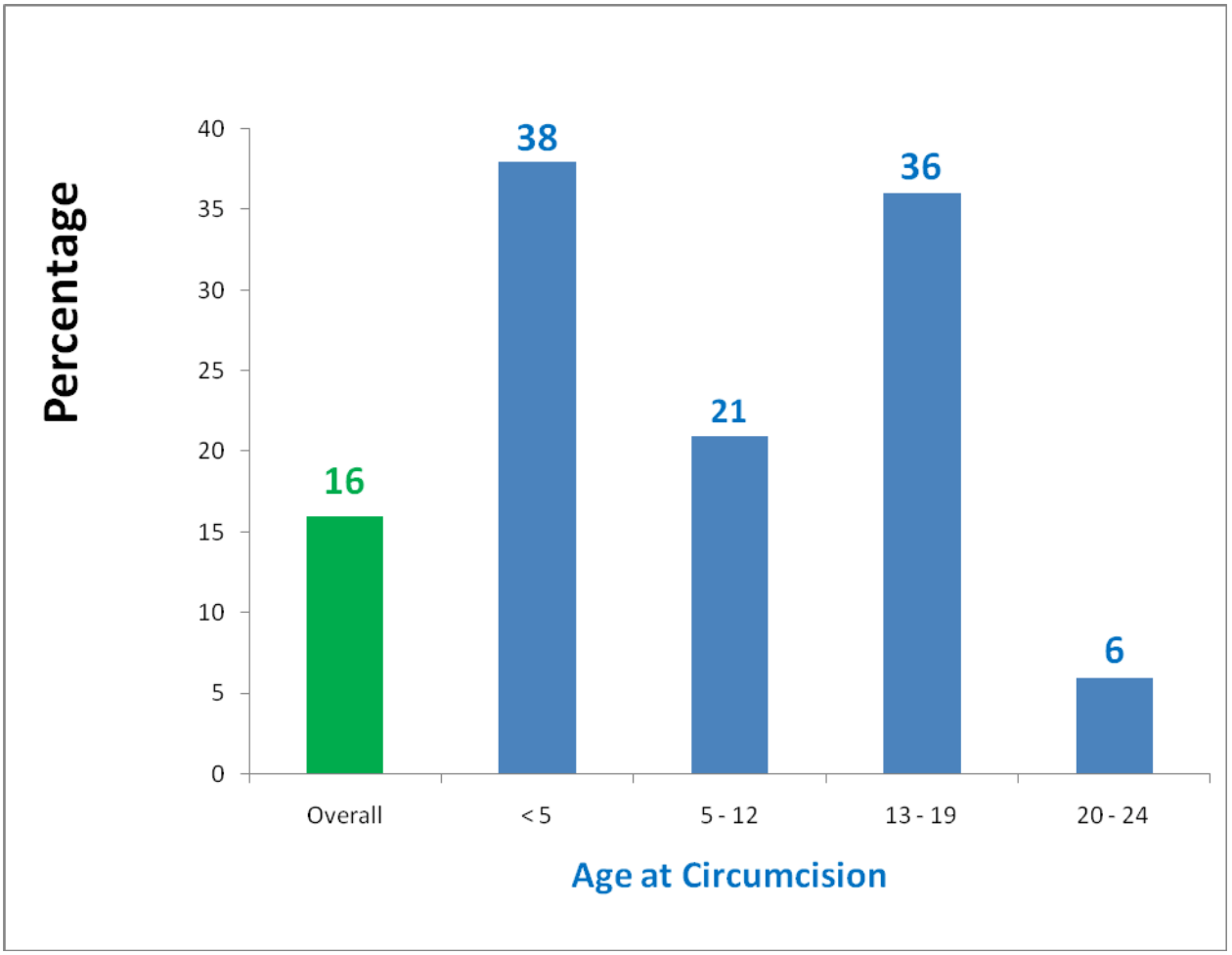
Table 12.a: Percentage of male youth who reported having being circumcised and their pattern of circumcision by age at circumcision2009 Rwanda BSS.

Indicators	Overall		15-19		20-24	
	%	n	%	n	%	n
overall	16	2,499	15	1,470	23	1,029
Age at circumcision (N = 401)						
<5	38	401	43	186	33	215
5 - 12	21	401	23	186	19	215
13-19	36	401	33	186	38	215
20-24	6	401	0	186	10	215
Circumcision carried out by						
Traditional practitioner	7	174	10	65	5	109
Health Professional	93	174	90	65	95	109
Main reason for circumcision						
Tradition/religion	12	164	10	63	12	101
Health/Hygiene	61	164	51	63	66	101
HIV prevention	17	164	25	63	12	101

Table 12b: Percentage of male youth who reported that they did not wish to be circumcised and major reasons, 2009 Rwanda BSS.

Indicators	Overall		15-19		20-24	
	%	n	%	n	%	n
Would wish to be circumcised (yes)	57	2,075	54	1,259	61	816
For those who did not wish to be circumcised: Major reason for refusing to be circumcised						
Operation is painful	16	887	17	579	13	308
Ashamed of showing my genitalia to someone else	1	887	1	579	2	308
Refusal to transform my body/genitalia	27	887	25	579	29	308
Fear complications of the operation	13	887	15	579	11	308
Other	32	887	29	579	37	308
DNK*	5	887	9	579	4	308

**DNK: Do Not Know*



Graph 1: Circumcision Pattern of Youth Males in the 2009 Rwanda Youth BSS (N = 2,522)

The 2009 BSS collected information on self-reported circumcision prevalence among male respondents including age at circumcision, type of practitioner who performed the circumcision, reason for not being circumcised and future desire to be circumcised. Circumcised males were also asked the main reason for their circumcision. Tables 10a and 10b display the various results.

Overall, only 16% of males aged 15-24 reported having been circumcised. This rate varied by age group, with the 20-24 year old group reporting lower frequency of circumcision (6%). Overall, 93% of those who were circumcised reported having had circumcision performed by a health professional.

Overall 61% of circumcised males reported that health and hygiene were the major reasons for undertaking the procedure, while only 17% cited HIV prevention as the primary reason.

3.13. Family planning

Table 13: Percentage of female youth who reported ever had sex, using contraceptive methods, 2009 Rwanda BSS, (N= 4,120).

Indicators	15-19		20-24		Overall	
	%	n	%	n	%	n
Currently using any contraceptive method	48	74	52	123	50	197
Kind of contraceptive method in use						
Male Condom	38	45	51	60	55	105
Pills (oral)	5	6	9	11	9	17
Natural method	7	8	8	9	9	17
Female condom	0	0	1	1	1	1
Withdrawal	1	1	3	3	2	4
Female sterilization	2	2	2	2	2	4
Implant/Diaphragm Foam/jelly	1	1	3	4	3	5
Choice regarding having children in future	99	2,551	99	1,548	99	4,089
Median number of children would wish to have (range)		3		3		3
Approve the idea of using contraceptive methods among married couples	93	2,401	94	1,481	93	3,883
Source of information about contraceptive methods						
Radio	76	1,965	80	1,266	77	3,231
TV	11	284	14	220	12	504
other media	7	169	8	119	7	287

Indicators	15-19		20-24		Overall	
	%	n	%	n	%	N
Currently using any contraceptive method	48	74	52	123	50	197
Kind of contraceptive method in use						
Male Condom	38	45	51	60	55	105
Pills (oral)	5	6	9	11	9	17
Natural method	7	8	8	9	9	17
Female condom	0	0	1	1	1	1
Withdrawal	1	1	3	3	2	4
Female sterilization	2	2	2	2	2	4
Implant/Diaphragm Foam/jelly	1	1	3	4	3	5
Once married would like to use contraceptive method	100	155	99	233	99	388

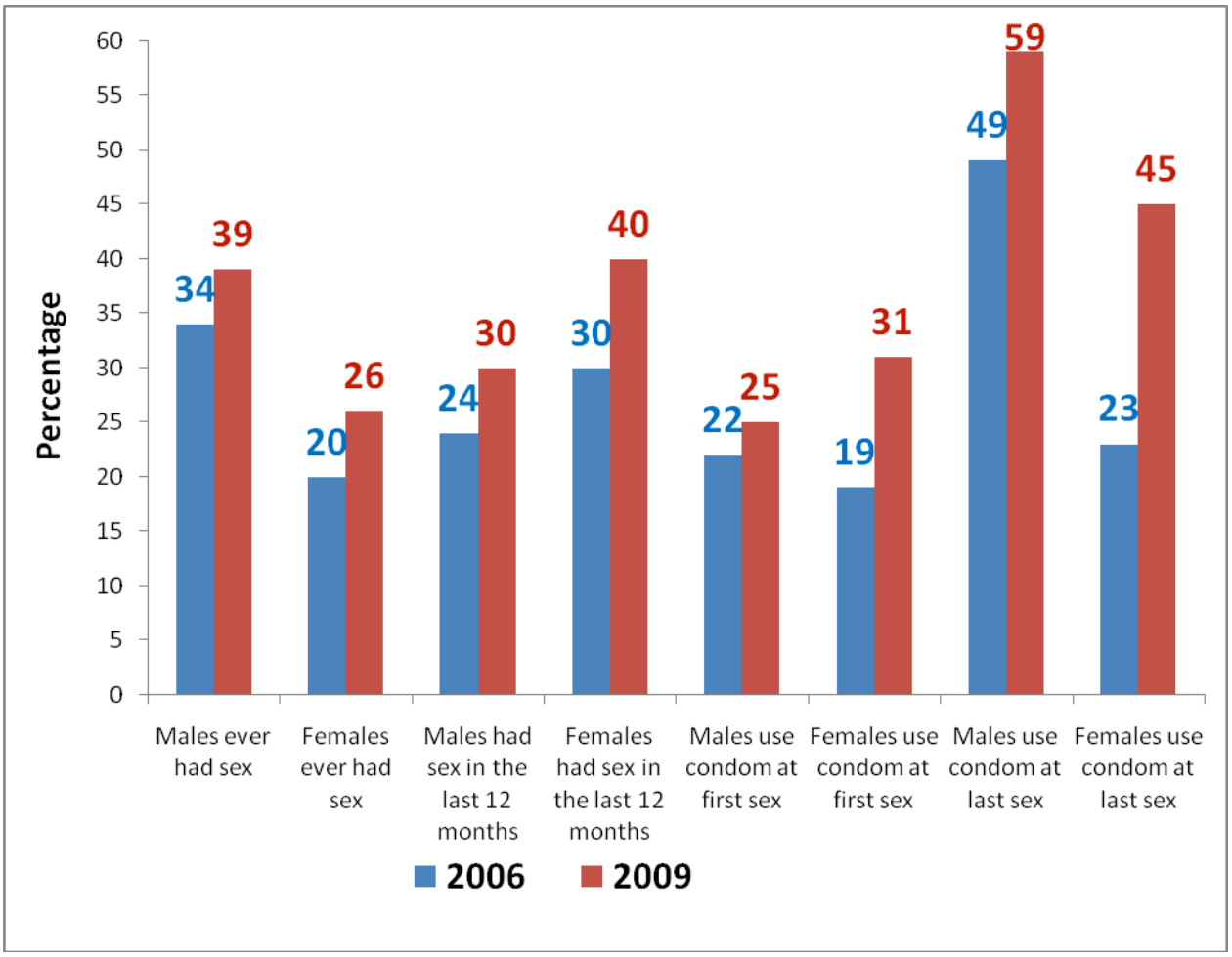
Questions on contraception and family planning were addressed to females only. Female respondents in the 2009 BSS youth were asked questions about contraceptive use, number of children they wish to have and whether or not they approved the idea of using contraceptive methods among married couples. Results are presented in Table 13.

Only 21% of female youth were using a contraceptive method; 18% in the 15-19 age group and 24% in the 20-24 age group. Of these, 32% and 10% reported using male condoms and oral (pill) contraceptives, respectively. Almost all (98%) female respondents approved the idea of use of contraceptive methods among married couples, while 99% of respondents said they would like to have children in the future and cited a median number of three (range, 1 - 12).

The major source of information regarding family planning among the respondents was the radio for both age groups (80% and 76% among 15- 19 and 20-24 year old age groups, respectively).

3.14. Changes in Key Indicators

3.14.1. Sexual Behavior



Graph 2: Comparison of Youth Sexual Behaviors between 2006 and 2009 BSS, Rwanda

Graph 2 shows a noticeable difference in the distribution of the youth sexual behaviors between 2006 and 2009. In fact, there is a statistically significant difference in all the sexual behavior key indicators as described below.

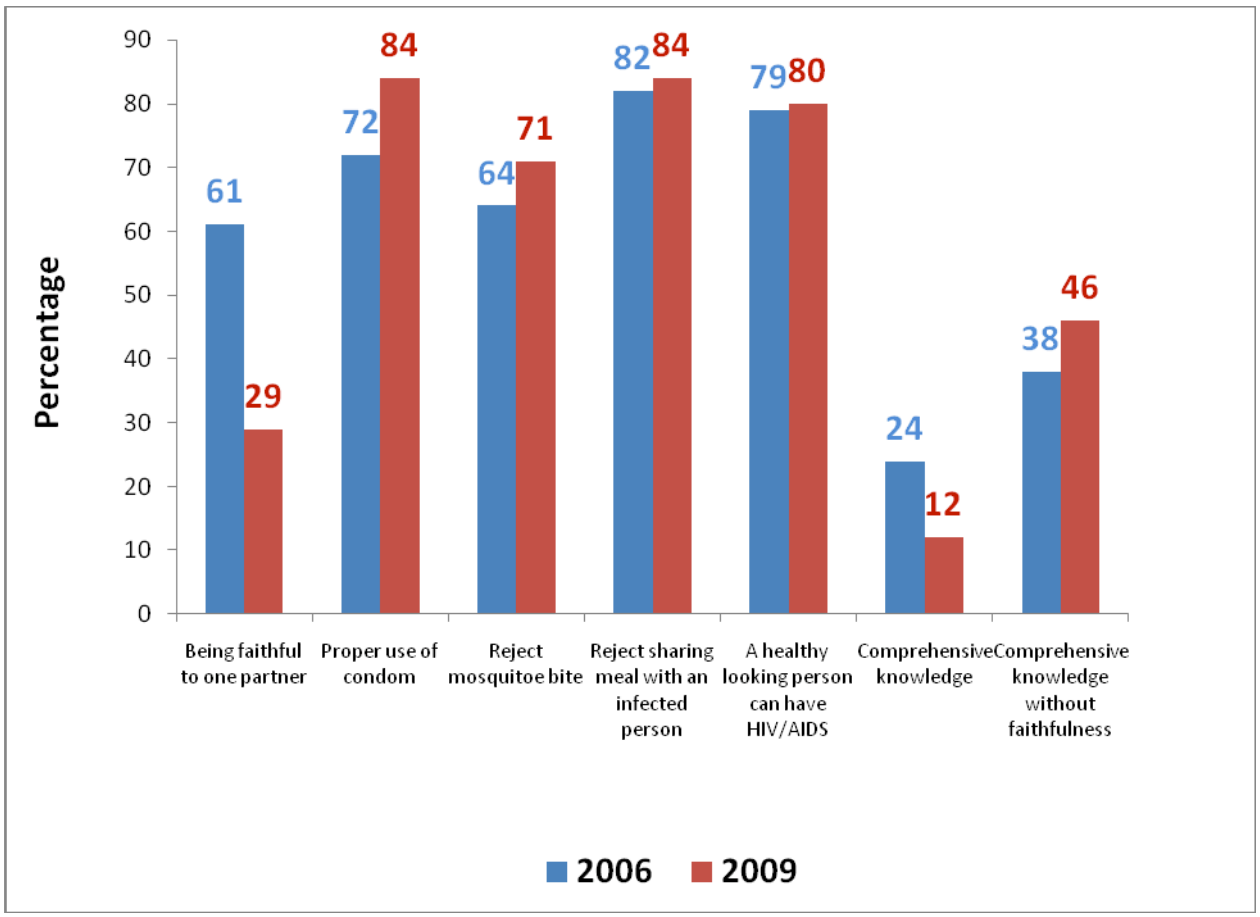
Overall, in 2009 31% of youth vs 27% in 2006 reported having had sex (p-value = .001). This difference varied by gender. In 2009, the percentage of females who ever had sex was 26% compared to 20% in 2006 (p-value = 0.001). For the males, the increase between 2006 and 2009 was significant but less pronounced (39% vs 34%, p-value = 0.01).

Similarly, 35% of the youth reported having sex in the 12 months prior to the 2009 survey, an increase compared to the 2006 survey which reported 26% of youth (p-value < 0.010). However, a gender difference is noticeable.

While, in 2009, only 6% more males had sex in the 12 months preceding the survey as compared to 2006, this difference increases to 10% for the females between the two years (or surveys, or survey

Overall, 28% used condom at first sex in 2009 against 21% in 2006 (p-value = 0.004). In 2009, 51% of the youth used condom at last sex against 39% in 2006 (p-value < 0.0001). This percentage varied among gender as shown in the Graph 2 above. For example in 2006 the percentage of females who reported having used condom at last sex was 23% against 45% in 2009 (p-value < 0.0001). For the males, the percentage of those who reported having used condom at last sex was 49% in 2006 vs 59% in 2009 (p-value = 0.001).

3.14.2. Comprehensive Knowledge of HIV



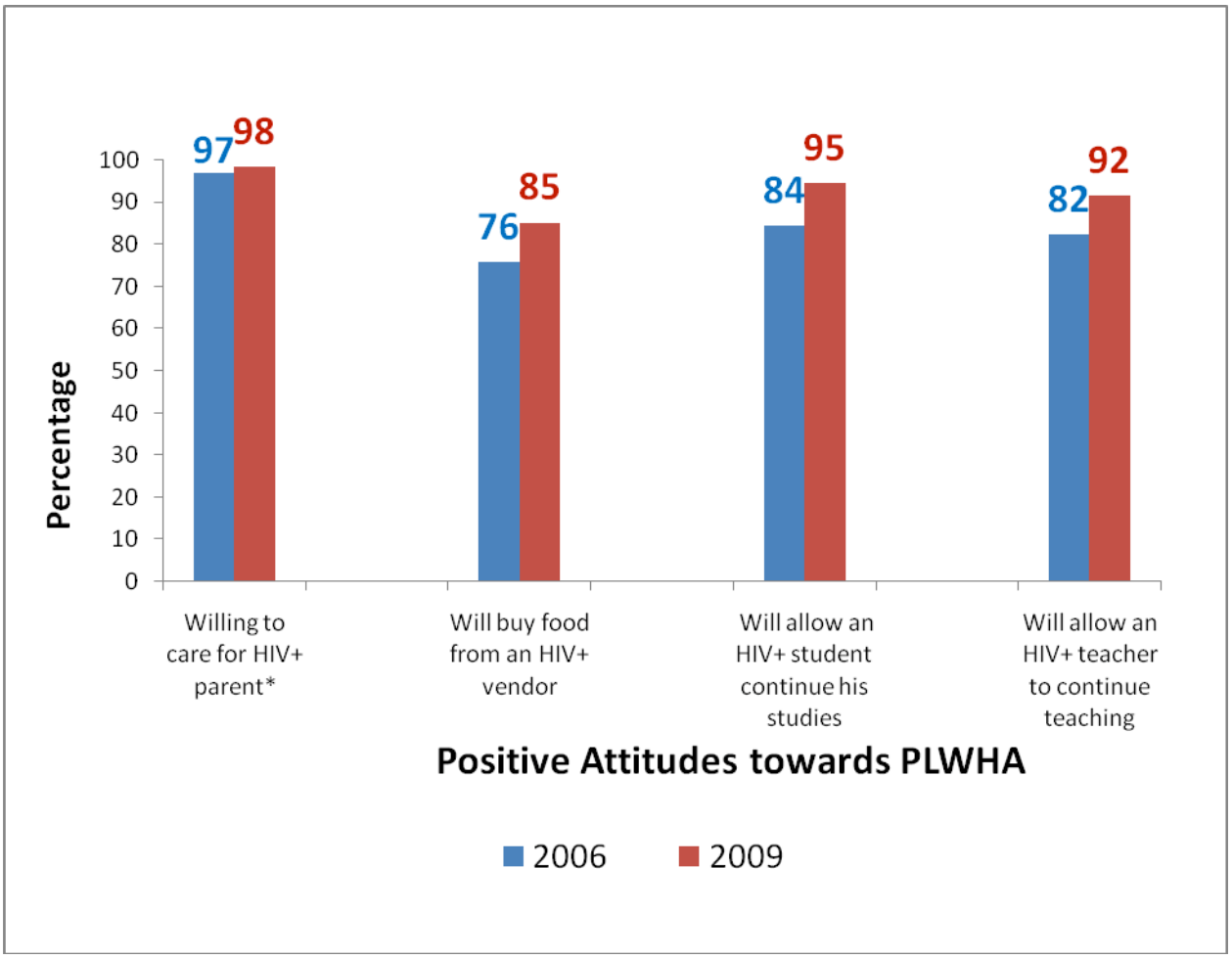
Graph 3: Youth Comprehensive Knowledge of HIV/AIDS, Rwanda Comparison between 2006 and 2009

Two types of trends can be seen in Graph 3. In one hand, the percentage of youth who, in 2009, said that "Proper Condom Use" can protect against HIV was 84% against 72% in 2006 (p-value < 0.001). Similar change was also observed in the percentage of those who said "Abstinence" can protect against HIV/AIDS.

On the other hand, the percentage of youth who said that "Being faithful to one, uninfected partner can protect against HIV/AIDS" drop from 61% in 2006 to 29% in 2006.. Preliminary informal inquiries show that this big decline may be explained by the fact that most prevention programs focus mostly on "Abstinence and Proper Condom Use".

This leads in 2009 to sizeable drop in the percentage of youth who had a "Comprehensive Knowledge" of HIV as compared to 2006 from 19% to 11%. "Comprehensive knowledge" is defined as knowing simultaneously that proper use of a condom, having one faithful partner and abstinence can protect against HIV/AIDS and recognizing that a person apparently in good health can transmit HIV/AIDS at the same time rejecting the two most common misconceptions about HIV/AIDS transmission.

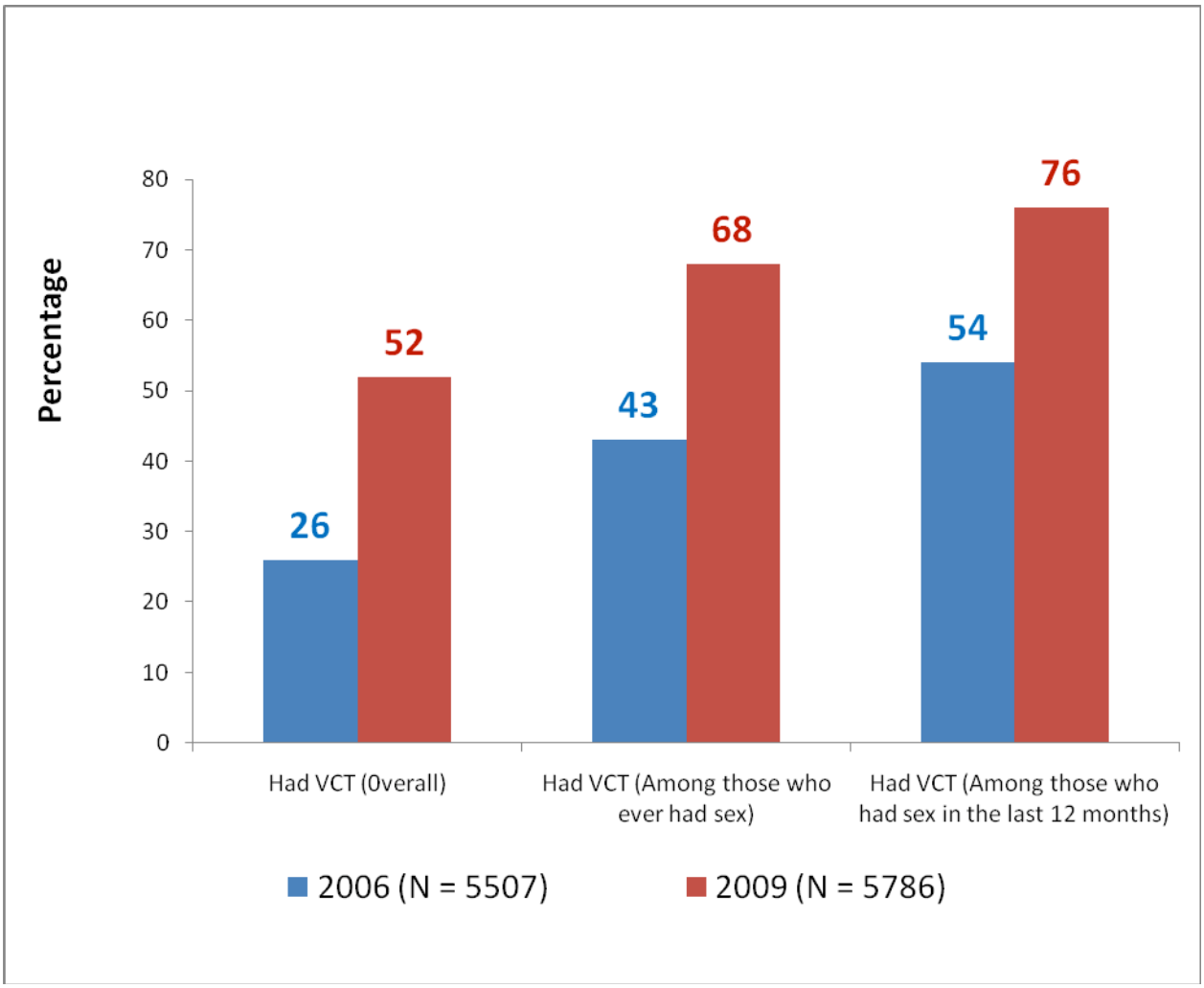
3.14.3. Positive Attitudes towards PLWHA



Graph 4: Youth Positive Attitudes towards PLWHA, Rwanda: Comparison between 2006 and 2009, Rwanda BSS

2009 shows an increase in the percent of youth who demonstrate positive attitudes towards PLWHA compared to 2006. In fact, in 2009, the percent of youth who report to be willing to (a) buy food from an HIV+ vendor, (b) allow an HIV+ student who is not sick to carry on with his or her study, and (c) allow an HIV+ teacher who is not sick to continue, increases by 9%, 12%, and 10% respectively as compared to 2006. Only the percentage of youth who reported to "be willing to care for an HIV+ parent" is similar to that of 2006.

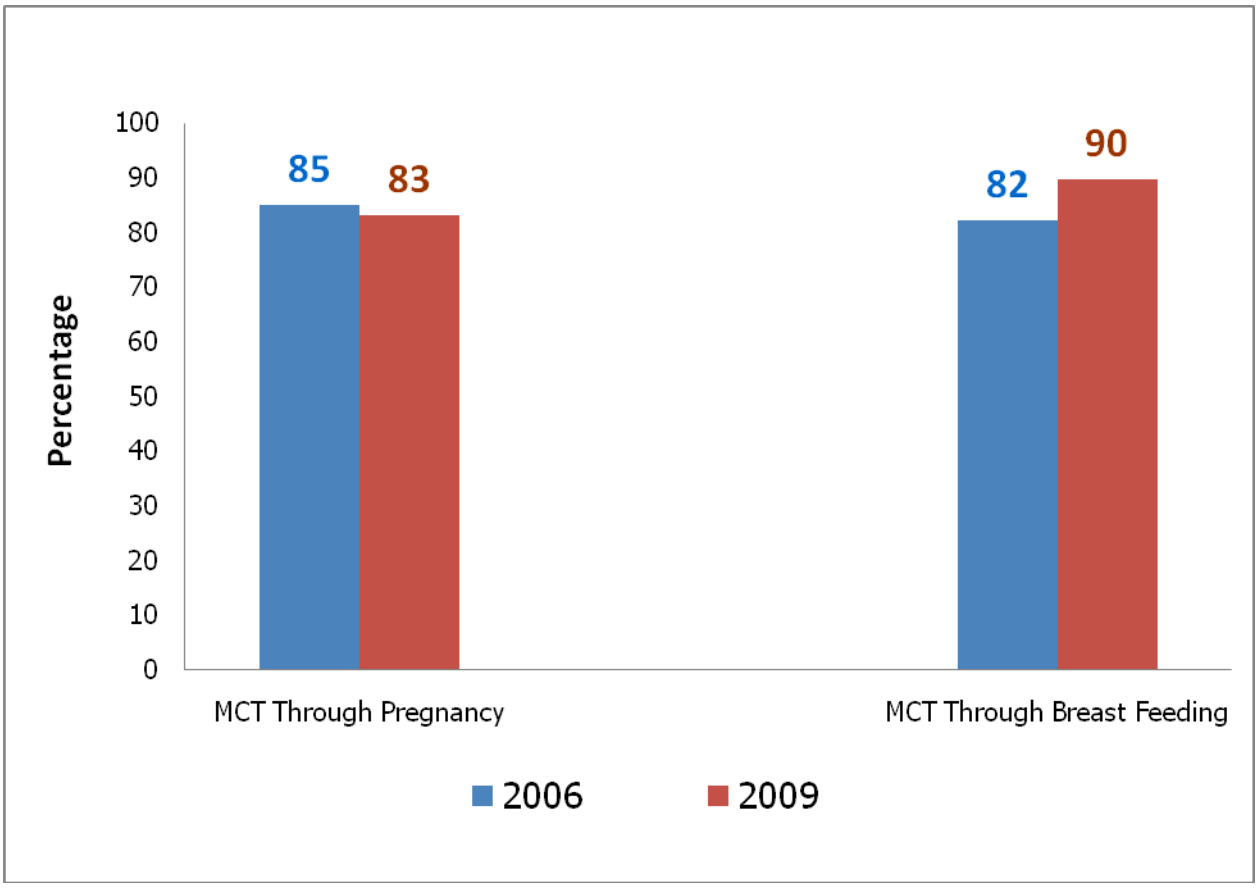
3.14.4. Voluntary Counseling and Testing



Graph 5: Voluntary HIV Testing Among Youth: Comparison between the 2006 and 2009 Youth BSS, Rwanda

Overall, the percentage of youth who reported having a voluntary HIV test rose from 26% in 2006 to 52% in 2009 (p-value < 0.0001). Among those who ever had sex, this percentage jump from 43% in 2006 to 68% in 2009 (p-value < 0.0001). And among those who had sex in the last 12 months preceding the survey, that percentage went from 54% in 2006 to 76% in 2009 (p-value < 0.0001).

3.14.5. Knowledge of Mother to Child Transmission



Graph 6: Youth Knowledge of Mother to Child Transmission: Comparison Between the 2006 and 2009 youth BSS, Rwanda

Infection through pregnancy and breast feeding were cited as the two commonly known modes of mother to child HIV transmission. In Graph 6, two opposite patterns can be observed. In one hand, in 2009, the percentage of youth who reported knowing that a nursing mother can infect her baby through breast feeding was higher by 8% as compared to 2006. In the other hand, the percentage of youth who reported that a pregnant woman can infect her child decreased by 2% in 2009 as compared to 2006.

IV. CONCLUSIONS

The 2009 Youth BSS documented HIV knowledge, attitudes, and behaviors (KAB) among youth in Rwanda. These data provide us both with a cross-sectional look at the current HIV KAB among youth, but also allows us to detect changes over time when analyzing these data against the results of the 2006 Youth BSS. The analysis presented below summarizes the main findings of this report according to the study objectives and attempts to draw some general conclusions about the effectiveness of the HIV response among youth in order to provide pertinent and relevant programmatic recommendations. It should be noted however that conclusions on the effectiveness of programs cannot be made with certainty without further research and deeper analysis.

Dynamics of sexual activity among youth

The data presented in this report provide interesting insights into sexual activity among youth in Rwanda that have concrete implications for current and future youth programming. In general, the data indicate that more young men than women have had sex (39% and 26%, respectively), and that men begin having sexual intercourse at a younger age than women (median age at first sex is 16 for men and 17 for women). Men who have previously had sex tended to begin having sex with someone their own age (median age of first sexual partner is 16), and then occasionally have sex after that, with only 30% of sexually active men reporting sex in the last 12 months. Though fewer young women than men are sexually active overall, the young women that do become sexually active tend to begin having sex with men older than them (median age of first sexual partner is 21), and remain more sexually active than men their same age, with 40% of sexually active women reporting sex in the last 12 months.

In general the data suggest that urban, educated, youth with some access to money are more likely to be sexually active, when compared to other socio-demographic categories, as indicated in Table 2 of this report. This is important for HIV programming, as this should be the priority group for targeted HIV interventions. Though the data suggest higher levels of sexual activity in this group, reassuringly this same profile of both men and women also displayed high levels of HIV knowledge and is also more likely to have had an HIV test in the last 12 months and received the results.

Evidence of the reach and effectiveness of HIV response among youth

In general, the data suggest that youth's knowledge of HIV and STIs is showing some signs of improvement. However these short-term gains in knowledge haven't yet translated into longer-term changes in risk behavior. In terms of program exposure, the data indicate high levels of youth being reached by HIV messages, with 78% of women and 84% of men having heard about HIV in the past 6 months. Among all types of media and other communication methods, youth were most likely to have heard about HIV on the radio (74% of women and 85% of men), indicating the importance of the radio as part of mass media campaigns on HIV, and highlighting the importance of current radio programs led by CNLS and other partners.

Young people aged 15-19 were also more likely to have heard of HIV at school compared to young people aged 20-24 which suggests progress in the integration of HIV education into the education sector.

In terms of knowledge, youth's comprehensive HIV knowledge did not significantly increase since the last Youth BSS in 2006. In the 2009 Youth BSS, over 70% of youth correctly knew the most

common signs and symptoms of STIs, and over 60% of youth possessed a comprehensive knowledge of HIV. Though these are not significant changes from the levels reported in the 2006 Youth BSS, positive changes in some knowledge indicators, including knowledge of abstinence and condom use as HIV prevention methods, were noted. For example, data indicate a significant positive change in the proportions of youth with correct knowledge of condoms as an effective HIV prevention tool (86% in 2009 vs. 77% in 2006 [$p<0.0001$]). This suggests that recent national HIV information, education, and communication (IEC) campaigns promoting condoms are effectively reaching the target population and that the information being transmitted is also being retained. This includes the most recent national theme for World AIDS Day: Condoms as a means of dual protection against HIV and unwanted pregnancies.

One can draw some associations between the high levels of exposure to HIV messages presented above and the levels of knowledge that youth possess. Though these results suggest that current IEC campaigns are effective in changing some areas of HIV knowledge in youth, there is no evidence to suggest that these changes in knowledge are translating into changes in risk behavior. When analyzing key trends between the results of the 2006 Youth BSS and the 2009 Youth BSS, the data show no significant changes in key risk behaviors, including age of sexual debut or recent condom use at last sex.

Though analyses indicated a significant change in the proportions of youth with correct knowledge of condoms as an effective HIV prevention tool as reported above, the data also show no significant change in condom use at last sex between 2006 and 2009 (52% and 69%, respectively) among youth who have ever had sex. Equally, a significant increase in youth knowing that abstinence can protect against HIV infection was detected from 2006 to 2009 (83% in 2006 vs. 90% in 2009 [$p< 0.001$]), yet both the proportion of youth who ever had sex and the proportion of youth reporting sex in the last 12 months also significantly increased from 2006 levels (27% in 2006 vs. 30% in 2009 [$p< 0.01$], and 26% in 2006 vs. 35% in 2009 [$p< 0.001$], respectively).

In light of these results, the national strategy for behavior change among youth should be reviewed, focusing on how the documented changes in increased HIV knowledge can be effectively and sustainably transformed into positive changes in HIV risk behavior as well. This would include prioritizing youth most likely to be sexually active and targeting them with appropriate services.

V. PROGRAMMATIC RECOMMENDATIONS

1. Though fewer women than men have ever been sexually active, sexually active women tend to be more sexually active than men and tend to initiate sex with partners older than them. These data display the importance of evaluating the effectiveness of national campaigns on the relative HIV risk of young women participating in cross-generational sex and scaling them up with targeted activities and interventions.

2. Urban, educated youth with access to some money are more likely to be sexually active. Program planners and implementers should identify sites where these youth can be found and prioritize their HIV activities to target these particular youth, including universities and social areas where urban youth congregate. Researchers should continue qualitative research with this group to better understand their particular risk perceptions and how to reach them with appropriate HIV services.

3. Youth who have heard messages about HIV in the past 6 months were more likely to have heard messages via the radio, indicating the importance of radio messages in IEC campaigns and a need to ensure that radio messages are appropriately targeting youth.

4. Positive changes in youth's knowledge of condoms as an HIV prevention method are encouraging. Recent progress in scaling up comprehensive condom programming (CCP) should continue and be intensified where appropriate.

5. Increases in knowledge have not translated into positive changes in HIV risk behavior. National strategies for behavior change communication (BCC) should be reviewed in light of this evidence. Recent evidence has shown that inter-personal communication and small group behavior change is more effective than large group educational campaigns. Current BCC programming should be reviewed in this context.

ANNEX

Table A: Youth in the 2009 BSS Rwanda, who (1) Ever had sex , (2) Had sex in the last 12 months, and (3) their age and that of their partner at first sexual intercourse, by background characteristics

Background characteristics	Ever had sex		Had sexual intercourse in the last 12 months		Median age at first sexual intercourse	Estimated median age of partner at first sexual intercourse
	n	%	n	%		
Overall	6,731	31	1,965	35	17	18
Sex						
Female	4,232	26	1,057	40	17	21
Male	2,499	39	908	30	16	16
Age group						
15 – 19	4,083	21	830	30	15	17
20 – 24	2,644	46	1,134	39	18	19
Education						
None	401	34	128	31	17	19
Primary	4,251	28	1,142	32	16	18
Vocational	249	43	102	48	17	18
Secondary	1,654	33	510	37	16	18
Above secondary	157	54	78	58	18	24
Occupation						
Employed	2,218	41	858	37	17	18
Not employed	4,498	26	1,102	34	16	18
Residence						
Urban	3,055	37	1,076	42	17	19
Rural	3,676	26	889	27	16	17
Province						
East	1,334	28	358	29	16	17
Kigali city	2,012	40	761	44	17	20
North	1,074	29	302	25	16	17
West	1,080	24	236	33	16	17
South	1,231	27	308	33	17	20
Religion						
No religion	100	46	44	58	16	17
Catholic	3,075	31	902	34	16	18
Protestant	3,211	29	872	35	17	19
Muslim	229	52	110	38	17	18
Other	58	33	18	52	17	25

Table B1: Knowledge of STI in the 2009 Youth BSS Rwanda. (N= 6,671)

Indicator	Ever heard of STI (N= 6,671)	
	n	%
Overall	5,978	90
Agegroup		
15-19	3,542	59
20-24	2,432	41
Ever had sex among those who heard about STI	1,959	33
Had sex in last 12 months among those who heard about STI	658	36

Table B2: Youth in 2009 BSS who know examples of STI symptoms in females and males, Rwanda (N=5936)

Indicators	**Females**	**Males**	**Overall**
Known examples of STI symptoms (outside of AIDS) in females	**%**	**%**	**%**
Lower abdominal pain	62	38	8
Genital discharge	58	42	6
Vaginal discharge with bad smell	64	36	25
A burning sensation while urinating	67	33	22
Wounds on the genitalia	68	32	26
Inguinal bubos	66	34	9
Genital itch	68	32	23
Pain during sex	53	47	4
Other	61	39	22
Number of respondents	**3,655**	**2,202**	**5,842**
Known examples of STI's(except AIDS) in males			
Genital discharge	52	48	28
Pain while urinating	52	48	41
Wounds on the genitalia	57	43	27
Inguinal bubos	57	43	9
Genital itching	62	38	19
Testicular swelling	48	52	10
Others	52	48	19
Number of respondents	**3,636**	**2,218**	**5,854**

Table C: Knowledge of HIV/AIDS in the 2009 Youth BSS, Rwanda (N=6,710)

Background characteristics	n	%
Overall	6,283	94
Age group		
15 – 19	3,761	93
20 – 24	2,518	95
Residence		
Urban	2,901	95
Rural	3,383	92
Province		
East	1,274	96
Kigali	1,898	95
North	963	90
West	965	90
South	1,183	96
Highest education level		
None	335	83
Primary	3,915	92
Vocational	241	98
Secondary	1,622	99
Above secondary	155	99

Table D: Percent of youth who have comprehensive knowledge of HIV/AIDS by background characteristics (N = 6174)

Background characteristics	Abstinence can protect against HIV/AIDS	Having one faithful partner can protect against HIV/AIDS	Proper use of condom can protect against HIV/AIDS	HIV/AIDS cannot be transmitted by a mosquito bite	HIV/ AIDS cannot be transmitted by sharing a meal with an infected person	A healthy looking person can be infected with HIV	HIV comprehensive knowledge
	(N=5,624)	(N=1,805)	(N=5,218)	(N =4,394)	(N =5,224)	(N=4,987)	(N= 685)
Overall	90	29	84	71	84	80	11
Sex							
Female	38	60	59	63	61	61	57
Male	62	40	41	37	39	39	43
Age group							
15-19	60	57	59	59	59	57	55
20-24	40	43	41	41	41	43	45
Education							
None	5	6	5	4	4	4	3
Primary	63	68	62	57	60	60	62
Vocational	4	4	4	4	4	4	4
Secondary	26	21	26	31	29	29	29
Above secondary	2	1	2	3	3	3	2
Occupation							
Employed	33	36	31	31	32	34	36
Not employed	67	64	66	69	68	62	64
Residence							
Urban	46	41	46	52	48	50	49
Rural	54	59	54	49	52	50	51
Province							
Eastern	20	20	21	20	20	19	7
Kigali city	30	25	30	36	32	34	32
Northern	16	16	16	14	15	15	16
Western	15	17	14	12	14	13	11
Southern	19	22	19	18	19	19	25

Table E1: Knowledge of PMTCT in the 2009 Youth BSS, Rwanda (N=6,228)

Indicators	Females (%)	Males (%)	Total (%)
An HIV+ pregnant woman can infect her child			
Yes	62	38	83
No	60	40	12
Dnk	62	38	5
Number of respondents	3,867	2,361	6,228
An HIV+ Nursing Mother can infect her newborn through breast feeding			
Yes	63	37	90
No	52	48	5
Dnk	57	43	5
Number of respondents	3,858	2,357	6,215

Table E2: Knowledge of PMTCT in the 2009 Youth BSS, Rwanda

Indicator	Females		Males		Overall	
What an HIV + pregnant woman can do in order to reduce the risk of transmitting the virus to her child	n	%	n	%	n	%
Take drugs	1,007	65	544	35	1,571	30
Stop breastfeeding her child	474	66	242	4	715	14
Consult a health worker	2,714	63	1,604	37	4,319	83
Nothing she can do	20	79	5	21	25	1
Other	230	62	141	38	371	7
Does not know	154	61	98	39	252	5

Table F: Youth with positive attitudes towards PLWHA, 2009 BSS, Rwanda (N=6,238)

Background characteristic	Can sharing a meal with someone infected with HIV/AIDS or suffering from AIDS?	If one of the parents was infected with HIV or is suffering from AIDS, would be ready to take care of him or her.	If a pupil/ student is infected by HIV (but is not suffering from AIDS), would allow him/her to carry on his/her studies.	If a teacher is infected with HIV (but is not sick), he/she may keep teaching.	If a food seller was infected by HIV, would keep buying food from his/her shop.	Respondents who express accepting attitudes on all five indicators.	No. who ever heard about HIV/AIDS
Overall	85	98	94	91	84	75	**4,669**
Sex							
Female	61	62	62	62	62	62	3,865
Male	39	38	38	38	38	38	2,358
Age group							
15 - 19	58	60	59	59	58	57	3,725
20 – 24	42	40	41	41	42	43	2,491
Education							
None	4	5	5	5	4	4	332
Primary	60	62	62	61	60	58	3875
Vocational	4	4	4	4	4	5	239
Secondary	29	26	27	27	28	30	1,606
Above secondary	3	3	3	3	3	3	153
Occupation							
Employed	32	33	33	32	33	32	2,062
Not employed	68	67	67	68	67	75	4,146
Residence							
Urban	47	47	47	47	48	49	2,871
Rural	53	53	53	53	52	51	3,349
Province							
East	20	20	20	20	20	21	1,260
Kigali City	32	31	31	31	32	33	1,879
North	15	15	15	15	15	14	949
West	14	15	14	14	13	12	953
South	19	19	19	20	20	20	1,172

Table G: Youth who reported taking a voluntary HIV test and receiving their test results, 2009 BSS

Indicator	Took a voluntary HIV test(5,786)		Among those who took the HIV test. Received result (3,009)	
	N	%	n	%
Age group				
15-19	1,566	46	1,466	94
20-24	1,465	62	1,422	98
Overall	3,030	52	2,888	96
Ever had sex	1,253	68	1,222	98
Had sex in the last 12 months	473	76	460	98

Table H: Female youth exposed to HIV/AIDS programs and behavior change, 2009 BSS, Rwanda (N= 4142)

	Females					
	15-19		20-24		Overall	
Indicators	**%**	n	%	n	%	n
Has heard talk about HIV or AIDS in the last 6 months	60	3,203	40	2,161	81	5,364
Source of information about HIV /AIDS						
Radio	58	2,515	42	1,811	79	4,326
Television	50	291	50	287	11	579
Friends/parents	53	149	47	134	5	284
Peer educators /colleagues	54	428	46	368	15	796
School	79	1,000	21	267	23	1,267
Health professional	53	344	47	301	12	645
Others	56	231	44	178	8	409
Has heard or seen any information at school or at work about HIV/ AIDS	68	1,891	32	901	64	2,792
Changed behavior according to what was heard or seen about HIV/AIDS	65	2,069	35	1,098	93	3,167
Behavioral changes						
Limit sexual intercourse	46	40	54	47	3	87
Being faithful to one faithful partner	28	9	72	25	1	34
Avoid sexual relations with casual sexual partners	61	186	39	117	12	303
Avoid sexual relations with persons having several partners.	62	39	38	24	2	63
Avoid sexual relations with sex workers.	75	44	25	14	2	58
Using a condom during sexual intercourse with commercial sex workers or other casual partners.	46	87	54	102	7	188
Abstinence	69	1,347	31	617	76	1,964
Avoid blood transfusion	69	60	37	36	4	96

Table I1: Male youth who reported they are circumcised and their knowledge of circumcision, 2009 BSS, Rwanda

Indicators	Overall		15-19		20-24	
	%	n	%	n	%	n
Circumcised males	16	456	46	211	54	245
Age at circumcision						
<5	38	152	53	81	47	72
5 – 12	21	83	52	43	48	40
13-19	36	143	43	62	57	81
20-24	6	23	3	1	97	22
Circumcision carried out by						
Traditional practitioner	7	11	56	6	44	5
Health Professional	93	163	36	58	64	104

Table I2: Male youth who are not circumcised and major reasons

Indicators	Overall		15-19		20-24	
	%	n	%	n	%	n
Would wish to be circumcised (yes)	57	1,177	58	677	42	500
For those who did not wish to be circumcised: Major reason for refusing to be circumcised						
Operation is painful	16	138	71	98	29	40
Ashamed of showing my genitalia to someone else	1	9	39	4	61	6
Refusal to transform my body/genitalia	27	236	62	147	38	89
Fear complications of the operation	13	17	72	84	28	33
Other	32	281	59	167	41	114
Dnk	7	62	82	51	18	11

Table J: Attitudes, source of information and family planning practices among females, 2009 Youth BSS, Rwanda (N= 4,120)

Indicators	15-19		20-24		Overall	
	%	n	%	n	%	n
Currently using any contraceptive method	55	469	45	381	21	851
Kind of contraceptive method in use						
Male Condom	51	136	49	132	32	268
Pills (oral)	51	43	49	41	10	83
Natural method	52	22	48	20	5	41
Female condom	50	10	50	10	2	20
Withdrawal	36	2	64	4	1	6
Female sterilization	40	2	60	3	1	6
Implant/Diaphragm Foam/jelly	53	9	47	8	2	17
Once married would like to use contraceptive method	62	2,546	38	1,553	98	4,099
Choice regarding having children in future	62	2,541	38	1,548	99	4,089
Median number of children would wish to have (range)		3		3		3
Approve the idea of using contraceptive methods among married couples	62	2,401	38	1,481	93	3,883