The Reach and Impact of Abstract the PSI Butare Adolescent Reproductive Health program in Butare Province, Rwanda

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Abstract

This paper assesses the reach and impact of an adolescent reproductive health program in Butare, Rwanda, using data from a 2000 and 2002 surveys of youth aged 15-24 (n= 2,853 and 2,955). Using logistic regression analyses we assess trends in reproductive health behavior and its predictors and estimate the effect of level of program exposure on these indicators. Program reach was fairly low. Nevertheless, social barriers to buying, negotiating and using condoms reduced significantly, while knowledge and use of VCT increased. Our findings suggest that program exposure contributed to some, but not all, of these changes. This paper highlights the difficulties in implementing health programs in countries recovering from complex emergencies. To enhance their overall impact future such programs need to improve their reach. This can be accomplished by scaling up peer education and other community outreach communication activities. However, we must have realistic expectations and recognize that programs in disaster areas may be more expensive.

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Introduction

Youth in Rwanda are affected by high rates of STIs, unplanned pregnancies and increasing HIV prevalence. (UNAIDS, 2002; CDC, 2003). Although reliable data are not readily available, estimates now indicate that the national HIV prevalence in Rwanda is over 10% (Babalola et al. 2002; UNAIDS, 2002; CDC, 2003; USAID, 2003). Young females appear to be particularly vulnerable. In 2002, UNAIDS estimated the HIV prevalence among 15-24 year-old women to range from 9% to 14% compared to 4% to 6% among their male counterparts. Female youth are also at risk for sexual violence, which contributes to HIV infection and other reproductive health problems (Human Rights Watch, 1996; USAID, 2003). Until recently, Rwandan youth had limited access to information and services to assist them in protecting themselves from these health problems. To address these needs, governmental and non-governmental agencies are implementing reproductive health programs targeting youth.

This paper analyzes the PSI Butare Adolescent Reproductive Health Program, which uses *Centre Dushishoze,* a multi-purpose youth center, to provide and promote quality reproductive health services to youth. A variety of community outreach services and communication activities are used to support the Centre. The target population is 15 to 24 year olds living in Butare Province. This study analyzes the program's reach, and its impact on motivating youth to abstain and use reproductive health services.

Background

The PSI Butare Adolescent Reproductive Health Program

Centre Dushishoze and its supporting activities are managed by Population Services International (PSI), a social marketing organization that operates in over 70 countries (Population Services International, 2003). The Centre, which opened in Butare town in January of 2001, offers youth a range of quality reproductive health services and skill building opportunities in an entertaining and educational setting. Trained medical professionals provide VCT, STI treatment, emergency contraception, pregnancy tests and reproductive health counseling services six days a week for fees lower than those in other

area health clinics. *Centre Dushishoze* was one of the first clinics in Rwanda to implement rapid HIV test technology.

In addition to offering the health services, *Centre Dushishoze* also offers basketball, volleyball, ping-pong games, movies, a well-equipped library, skill-building courses and other special events to help attract youth to the center. All youth who come to *Centre Dushishoze* participate in small group discussions led by peer educators designed to improve HIV risk perception and motivate safe behavior. Given its success attracting out-of-school, rural and female youth, the center has been toured by many international visitors, including groups from Uganda, Germany and the United Nations (Centivany, 2003). Responding to requests for training and communication material production, *Centre Dushishoze* has also become a resource for other organizations working with Rwandan youth.

Due to limited access to radio and television among Butare youth, this program does not use mass media to convey its messages. Instead, interpersonal communication, mobile video unit (MVU) presentations, billboards, the *"Indatwa Z'ejo"* (Heroes of the Future) newspaper and other print materials are used to motivate youth to visit *Centre Dushishoze,* seek reproductive health services, and either abstain or use condoms consistently. Peer educators and *Centre Dushishoze* medical professionals conduct small group and individual counseling sessions for youth at the Centre, churches, clubs, schools and rural community centers.

The design of this program is based on PSI's behavior change framework, incorporating components of several behavior change theories, including social learning theory, the health belief model and the theory of reasoned action, all theories commonly used in HIV prevention programs (Becker, 1974; Bandura, 1977; Janz & Becker, 1984; Rosenstock, et al, 1988; Mantell et al, 1997). Because research shows that many factors impact sexual behavior and condom use (Kirby, 1999; Magnani et al, 2002), the PSI Butare Adolescent Reproductive Health Program aims to address the following behavioral determinants:1) Perceived severity of sexual risks; 2) perceived personal risk; 3) perceived condom attributes and access; 4) perceived social support, and 5) self-efficacy. This analysis investigates progress and program impact in all of these areas.

Data, Measures and Methods

Data

This paper analyzes data from the 2000 and 2002 Rwanda Adolescent Reproductive Health Household Surveys (Tchupo & Tégang, 2001; Tchupo & Tégang, 2002). This survey contains information on a randomly selected sample of male and female youth aged 15-24 living in the Butare province of Rwanda. Data collection was implemented by IRESCO[1]. The first survey was implemented in October and November of 2000 and the second in March and April of 2002.

The questionnaires used for the surveys included questions about reproductive health topics, such as HIV risk behavior, use of VCT Services and sexual behavior. Additional questions were added to the 2002 questionnaire to measure exposure to program activities. The questionnaires were developed by PSI, with input from IRESCO and SFPS[2]/Tulane and pre-tested among approximately 40 male and female youth.

A four-stage, stratified sampling design was used for both surveys and a target sample size of 3000 young adults was selected in both 2000 and 2002. The sampling frame was based on six districts in Butare province, selected using probability of selection proportional to the population size (PPS) of 15-24 year-olds. Within each district, 40 enumeration areas were selected using PPS. Households containing at least one eligible participant were randomly selected, and subsequently, one young adult between the ages of 15 to 24 was randomly selected per household. Up to three attempts were made to interview the eligible individual. The refusal rates were 4.6% and 3.8% for the 2000 and 2002 surveys, respectively.

Same-sex interviewers, aged 28 or younger, participated in a three-day training workshop prior to conducting the interviews. The questionnaire was translated from French into Kinyarwanda and all interviews were conducted in Kinyarwanda. Verbal informed consent was obtained from both from the head of the household and respondent. A total of 3,111 youth were interviewed for the initial survey and 3,109 for the second survey. This analysis focuses only on the reproductive health behavior of unmarried youth (N=2853 in 2000 and N=2955 in 2002).

[1]IRESCO, the Institut de Recherche et des Etudes de Comportements, is a research agency based in Cameroon.

Measures

a. Program Exposure

A program exposure variable is created from the following indicators: 1) exposure to *Centre Dushishoze* peer educators[3], 2) having ever read the "Indatwa Z'ejo" newspaper, and 3) having seen the *Centre Dushishoze* mobile video unit presentation in the previous three months. "High" exposure is defined as reporting exposure to two or more of the above indicators; respondents indicating exposure to one of the indicators are classified as having "medium-high" exposure, and the rest are characterized as having "low" exposure.

b. Predictors of condom use and VCT Services.

As previously described by Meekers et al (2003), the predictor variables cover the following factors in the theoretical model used to design the program:

Perceived severity of a health threat

Respondents were asked, "Do you believe that a person who has HIV/AIDS can survive" and "Do you believe that AIDS can be cured?" The indicators of perceptions of the health threat are two dichotomous variables indicating whether the respondent believes that someone infected with HIV/AIDS can survive and whether s/he believes that AIDS can be cured (yes vs. no/don't know).

Perceived risk

To measure perceived risk of HIV infection, respondents were asked, "If you would not use condoms, would you say your risk of contracting HIV/AIDS would be high, moderate, low, or there would be no risk?" The clause "if you would not use condoms" avoids the problem that some respondents may factor in condom use in their risk assessment while others may not. Our variable measures whether respondents believe their risk to be moderate or high vs. other.

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[2] Santé Familiale et Prévention du SIDA

[3] Exposure to *Centre Dushishoze* peer educators is defined as either having attended a peer education session or having spoken with a peer educator.

Perceived condom attributes and access

Respondents were asked whether condoms are effective for pregnancy prevention and for HIV/AIDS prevention. These two variables are coded as "yes" vs. "no /don't know." We also asked youth "Do you believe that condom use reduces sexual pleasure for men?" A similar question was asked about sexual pleasure for women. Our indicator is a dichotomous variable that equals one if the respondent perceives that condom use reduces sexual pleasure for either partner, zero otherwise. Finally, respondents were asked how long it would take to walk from their house to the nearest condom outlet. This information is coded as "knows condom source within 10 minutes" vs. "does not know source within 10 minutes or does not know a source at all."

Self-efficacy

Recognizing that self-efficacy is a multi-faceted concept (Parsons, Halkitis, Bimbi, & Borkowski, 2000; Meekers & Klein, 2002), several components of condom use self-efficacy are measured. For this study respondents' perceived ability to negotiate condom use, to obtain condoms, and to use them correctly are focused on. To measure confidence in their ability to negotiate condom use, respondents who had a regular and/or casual partner in the past year were asked "Are you sure that you can convince him/her to use condoms with you (yes vs. no/not sure)?" Respondents were also asked "Would you be shy buying condoms in a shop near your home?" Our indicator is a dichotomous variable that equals one for respondents who indicated they would not be shy, zero for all others. Finally, to measure whether respondents believe that they have the skills to actually use a condom, respondents were asked "Are you sure that you know how to correctly use a condom (yes vs. no/not sure)?"

Perceived social support

Youth were asked several questions pertaining to perceived social support. They were asked if parents support condom use by youth and if their friends are supportive of using condoms. Both questions are coded as "yes" vs. "no/don't know." Youth were also asked if they discussed the use of family planning in the past year and whether they discussed STI/AIDS prevention in the past year. Respondents who had

discussed these topics were asked with whom they had discussed them. As most of the discussions were with friends, a dichotomous variable was created, indicating whether the respondent discussed family planning with friends in the past year, and a dichotomous variable indicating whether they had such discussions with anyone else. Similar indicators are constructed for discussions about STI/AIDS prevention.

c. Control variables.

For this analysis, control variables include age, urban/rural residential status, level of education and school enrollment status.

Methods

Following Meekers et al (2003), logistic regression analyses are used to examine trends in the indicators identified in the behavior change framework, as well as on indicators of reproductive health services and sexual behavior. Results are shown as adjusted proportions and have been controlled for age, urban/rural residential status, level of education and school enrollment status. Separate estimates are calculated for male and female respondents.

Logistic regression analyses are conducted to study the association between exposure to the program activities and outcome indicators. These dose-response analyses control for age, urban/rural residential status, level of education and school enrollment status.

Study Limitations

There are several limitations to this study. Because of the self-reported nature of the information collected, the data are subject to inaccurate reporting and biases. A primary challenge for this analysis is the very low percentage of youth reporting to be sexually experienced (Tchupo & Tégang, 2002); (Babalola et al, 2002). Furthermore, because this study uses cross-sectional data, it is difficult to determine the direction of causal relationships. Lastly, program exposure is measured differently for the PSI initiative than it is for other programs in Rwanda. Prompted questions about specific elements are

asked about the PSI program while only spontaneous recall is measured for other youth health programs. This increases the difficulty of accurately controlling for exposure to other adolescent youth health programs.

Sample Description

Table 1 shows the characteristics of the survey samples. The two samples differ in many respects. While both samples are predominantly made up of 15-19 year olds (over 60%), the percentage of 20-24 year olds increased from 32% to 37%, indicating that the 2002 survey population is older. There are also a higher percentage of males than females in both surveys. This is likely due to the fact that the study population is restricted to unmarried youth, as young women are more likely to be married than young men. The educational profile of respondents also differs between the two surveys. For example, the percentage of youth with five or more years of education varies from 41% in 2000 to 47% in 2002. While both populations are predominantly made up of youth not currently attending school, the percentage of students increased from 9% to 13% between 2000 and 2002. In terms of urban vs. rural residence, the majority of both samples live in urban areas, but a significantly higher percentage of youth reported living in rural areas in 2002 (24% in 2002 compared to 16% in 2000).

Table 1 about here

Results

Program Reach

To measure the reach of various reproductive health programs, respondents in the 2002 survey were asked if they had heard of any reproductive health programs in their community. Youth were not prompted – only spontaneous recall of programs was documented. (See Appendix 1 for results). Of the nine reproductive health programs cited, *Centre Dushishoze* is the most commonly mentioned program. About 19% of

youth report having heard about *Centre Dushishoze*. Unprompted recall of other programs is much lower, generally ranging from less than 1% to about 4%. The Association Rwandaise pour le Bien-Etre Familial (ARBEF) is the only other program with unprompted exposure over 10%.

Recall of specific program elements is shown in Table 2. This information was collected only for the 2002 survey data since program activities had not yet started at the time of the 2000 survey. Results show that overall prompted recall of program activities is fairly low. While 24% of respondents report seeing billboards for *Centre Dushishoze*, only 8% had ever attended a peer education session and a smaller percentage (5%) reported speaking to a peer educator. Both the *Centre Dushishoze* newspaper and the mobile video unit had low exposure. Fewer than 5% reported reading the newspaper or seeing MVU activities. Because of an oversight during questionnaire development prior to the 2002 survey, prompted recall for having heard of or having attended *Centre Dushishoze* was not assessed. This impedes our ability to completely measure the reach of this program. However, service statistics indicate that there were 94,594 youth visits to the Centre between January 2001 and the end of August 2003, of which approximately 15% – or 14,340 youth – were first-time visitors. This corresponds to about 9.6% of the approximately 150,000 youth aged 15-24 living in Butare province.

Trends in VCT Services and the Predictors of Use

Trends in use of VCT Services, sexual behavior as well as predictors of use are shown in Table 3. Trends are measured between 2000 and 2002 and results are controlled for age, urban/rural residential status, level of education and school enrollment status. Results show that Rwandan youth in 2002 are less likely to report being sexually experienced, are more likely to have positive perceptions of condoms and more likely to know where to find VCT services and condoms compared to those in 2000. Female youth are less likely to report social barriers to buying, discussing and using condoms. Male youth are more likely to understand how their behavior may increase their risk of contracting HIV/AIDS. Neither male nor female youth reported greater confidence in their ability to use condoms or practice other preventive behaviors. Although awareness of reproductive health services increased, actual use of these services did not increase among the overall

population. Due to the small number of youth reporting sexual activity, trends in the use of condoms and STI services can not be interpreted.

Table 3 about here

Table 3 shows positive trends for several indicators of condom attributes and access. The percentage of male youth who believe that condoms are effective for family planning increased from 58% to 62%. Similarly, the percentage of young males who believe that condoms are effective for preventing HIV/AIDS increased from 68% to 76%. A positive trend is also noted among women; in 2000, 60% believed condoms are effective for preventing HIV/AIDS, compared to 65% in 2002. While only 11% of females and 25% of males in 2002 report knowing of a condom source within ten minutes of their home, these figures increased significantly from 8% and 20%, respectively, at baseline. Both males and females are also significantly less likely to believe that condoms reduce sexual pleasure (34% vs. 28% for females; 54% vs. 50% for males).

Some improvement in social support indicators is noted, primarily among female youth. The percentage reporting that their friends support condoms use increased significantly from 36% to 44%. The percentage of females who discussed STI/HIV with their friends in the past year increased from 10% to 13%; discussion with other persons also increased from 10% to 13%. However, overall these levels remain low overall for both sexes at under 20%. No change was noted in parental support for youth condom use.

Regarding perceived risk and severity, youth in the 2002 survey were more likely than those in the 2000 survey to report knowing someone who died of AIDS (52% vs. 39% for females; 45% vs. 38% for males). Male youth interviewed in 2002 were more likely than those in 2000 to perceive a personal moderate/high risk for contracting HIV/AIDS if were to have unprotected intercourse. Specifically, the percentage reporting a moderate/high risk increased from 39% to 45%. Female youth in 2002 are more likely to express a desire to not have a child in the following two years compared to female youth in 2000 (27% vs. 19%), but they not more likely to use a modern method of family planning.

Very few changes are noted for indicators of self-efficacy. Youth continue to lack confidence that they know how to correctly use condoms – fewer than 5% of females and 20% of males report confidence – but feel confident they can convince their regular partner to use condoms.

While there is evidence that youth are more *aware* of where to find VCT services, few are actually using these services. The percentage of those knowing of a VCT site increased significantly from 40% to 60% among females and from 55% to 70% among males. However, in both survey waves only about 3% of male and female youth reported having an HIV test in the previous year.

Between 2000 and 2002, reported levels of sexual behavior decreased significantly for both male and female youth. Among females, the percentage reporting ever having had sex decreased significantly from 11% to 5% and from 26% to 19% among males. In 2002 only 2% of female youth and 7% of male youth reported sexual activity in the previous year, compared to 5% and 8%, respectively.

The Effect of Exposure to Program Activities on Use of Condoms, VCT Services and the Predictors of Use

Table 4 shows the degree to which outcome variables vary by level of program exposure. The program exposure variable is defined on page 2. As program exposure is measured in the 2002 survey only, the analysis is limited to data from the second survey. This analysis is again controlled for age, urban/rural residential status, level of education and school enrollment status to control for any confounding factors.

Table 4 about here

Table 4 shows that the PSI Butare ARH program has contributed to greater knowledge and use of VCT services and reduced social barriers for youth to use condoms. To a lesser degree, the program has helped youth understand and internalize HIV risks and built confidence to protect themselves. Among female youth, the percentage who know where to find VCT ranges from 58% for those with low program exposure to 85% for those with medium-high exposure to 92% for those with high program exposure. The trend for male youth is similar. While the percentage of youth receiving an HIV test in

the past year remains low overall, youth exposed to PSI's program are more likely to have received an HIV test. Approximately 10% of those with high program exposure received an HIV test compared to only about 2% with low exposure.

Male and female youth with higher levels of exposure to program activities are more likely than those with lower exposure to report believing that their friends or parents support youth condom use. Program exposure is also associated with discussion of health issues – including family planning and HIV/AIDS – especially among males. Approximately 30% of males with high program exposure discussed HIV/AIDS with a friend or someone else, compared to only 16% and 9%, respectively, for those with low program exposure.

Among both sexes, higher program exposure is also associated with not feeling shy to buy condoms at locations near home. The percentage claiming not to be shy buying condoms varies from 21% for females with low program exposure to 44% for those with high exposure, and from 47% for males with low program exposure to 62% for those with medium-high exposure. Among males with high program, shyness for buying condoms is similar to those having low exposure. Although percentages remain relatively low, confidence in one's ability to correctly use condoms also varies with level of program exposure. Only 3% of females with low program exposure claim to know how to use condoms correctly, compared with ten percent of female youth with high program exposure. Among males, program exposure is also associated with knowledge of correct condom use: 32% if those with medium-high exposure and 30% of those with high exposure report confidence in knowing correct condom use compared to only 17% with low program exposure.

Among both male and female youth, the belief that condoms are effective for family planning as well as preventing HIV/AIDS varies significantly with level of program exposure. Males with high program exposure are more likely to state knowing of a condom source within ten minutes of their home than males with low program exposure (43% compared to 23%). Females with medium-high program exposure are also more likely than those with low program exposure to know of a condom source close to home (17% vs. 10%).

The results also show that among women, program exposure is significantly associated with youth's perceived risk and perceived severity of HIV/AIDS. The percentage of females stating to have a moderate or high risk for HIV if they were not to use condoms ranges from 32% for those with low exposure, to 53% for those with medium-high exposure and to 61% for those with high program exposure. The findings also show that females with higher medium-high or high exposure to program activities are also significantly more likely to want to wait at least two years to have a child: only 25% of female youth with low program exposure express wanting to wait to have children, compared to 42% of those with high program exposure. However, program exposure does not result in higher current use of modern family planning. Female youth with high program exposure are no more likely than those with low exposure to currently use a modern method of family planning.

As discussed earlier, when looking at trends in sexual activity between 2000 and 2002, fewer youth report being sexually active in 2002 compared to 2000 (See Table 3). However, males exposed to the program exposure report higher levels of sexual activity. About 30% of males with medium-high or high exposure report ever having had sex, compared to only 16% of those with low program exposure. Eight percent of males with medium-high exposure state having had sex in the last year, compared to only 4% of those with low program exposure. These results are unexpected, but suggest that males who are sexually active, and thus potentially at risk of HIV infection, may be more likely than other males to seek program contact and/or remember the program.

Conclusions

This paper examines the PSI Butare Adolescent Reproductive Health Program, the main component of which is *Centre Dushishoze,* a multi-purpose youth center that provides and promotes quality reproductive health services to youth. Several community outreach services and communication activities are used to support the Centre, which targets 15 to 24 year olds living in Butare Province. This study analyzes the reach of the program and its impact on motivating youth to abstain and use reproductive health services. Trends in use of VCT Services, sexual behavior and predictors of use between 2000 and 2002 were also analyzed.

Comparison of results from 2000 and 2002 shows significant improvements in several predictors of preventive behaviors. Among both sexes, important changes include increased knowledge of a nearby source of condoms and VCT services, an increased likelihood of knowing someone who died from HIV/AIDS, increased confidence in condoms as an effective way to prevent HIV/AIDS and improved discussion of STIs and HIV in the previous year. Males are also more likely to perceive a moderate or high personal risk for HIV if were to have unprotected sex. Although underreporting cannot be ruled out, reported sexual behavior decreased significantly among both sexes.

Further analysis examines the extent to which healthy behavior, and barriers to such behavior, varied with level of exposure to the PSI Butare Adolescent Reproductive Health Program. Our study indicates that after 18 months of implementation, males and females exposed to the program are more likely than those not exposed to know and have used VCT services. In addition, program exposure is associated with reduced social barriers that prevent youth from buying, negotiating and using condoms. Females who had high exposure to the program are more aware of risks of unplanned pregnancy and HIV.

Program exposure was not associated with sexual behavior. Hence, the decline in reported levels of sexual activity cannot be attributed to the program.

Programmatic Implications

These results of this study have useful programmatic implications for future youth reproductive health programs. This paper highlights the challenges involved in implementing health programs in countries recovering from complex histories of famine, war or genocide. Limited media and infrastructure, low education and literacy rates and sensitive social norms affected the design and implementation of the PSI Butare ARH program. In the absence of mass media channels, the program was designed to reach youth use through billboards, community outreach programs and interpersonal communication methods. Although the program had a positive impact on those youth reached by the program, program reach in the first 18 months was too limited to achieve substantial positive results in the youth population overall.

To improve their overall impact, future programs in Rwanda and similar country contexts need to increase their reach. Reach can be increased by scaling up peer education and other community outreach communication activities. This is likely to imply that additional donor funds will be required. Newspapers and other print material should be used sparingly and be heavily illustrated in countries such as Rwanda where many people have poor reading skills. It is important to have realistic expectations about what can be achieved in settings affected by recent major disasters. Furthermore, donors need to recognize that programs in countries recovering from complex emergencies are likely to be more expensive than other programs.

In spite of the low program reach, results show that among exposed youth, the implementation of a youth-friendly VCT center and associated outreach activities did appear to decrease barriers to adopting healthier behaviors such as using condoms and being tested for HIV. Especially if activities are scaled up, this type of intervention can be successfully adopted by other programs.

To increase the percentage of youth who abstain or use condoms consistently, adolescent reproductive health programs should focus on increasing risk perception, especially among males, and on building confidence and skills to negotiate and practice safe behavior. For such efforts to success, it is essential to carefully pretest all program messages and activities to ensure they resonate with male and female youth.

Table 1: Sample Characteristics

	Survey Wave		
	2000	2002	
Age			
15-19	68.5	63.2	$\chi^2(1) = 17.929$; p=.000
20-24	31.5	36.8	
Gender			
Male	56.6	51.6	$\chi^2(1) = 14.619$; p=.000
Female	43.4	48.4	
Student			
No	91.3	87.3	$\chi^2(1) = 14.619$; p=.000
Yes	8.7	12.7	
Level of education			
Never attended school	16.4	19.9	$\chi^2(1) = 55.028$; p=.000
<= 4 years of primary school	36.7	39.2	
5-8 years of primary school	42.0	33.5	
Secondary or higher	4.9	7.4	
Type of residence			
Rural	83.8	76.5	$\chi^2(1) = 49.759$; p=.000
Urban	16.2	23.5	
N of Cases	2853 (100%)	2955 (100%)	

Source: Rwanda Adolescent Reproductive Health Survey, 2000-2002; respondents not in union only.

Table 2: Percentage of Youth Who Recall Various Sources of Knowledge about *Centre Dushishoze* (prompted recall; 2002 survey wave only)

Knowledge Source	**%**
Ever seen *Centre Dushishoze* billboards (prompted recall)	24.2
Peer Education and Promotion (prompted recall)	
Ever attended peer education session	7.5
Ever talked to peer educators from *Centre Dushishoze*	4.7
***Centre Dushishoze* Newspaper (prompted recall)**	
Read the newspaper "Indatwa Z'ejo" in the past three months	3.2
Mobile Video Unit (MVU) (prompted recall)	
Seen MVU commercials for *Centre Dushishoze* in the past three months	2.6
Seen the *Centre Dushishoze* MVU film in the past three months	2.0
At least one of the above	26.5
N of Cases	2955 (100%)

Table 3: Logistics Regression Results of Trends in Outcome Measures (Adjusted Percentages)

	Females			Males		
	2000	2002	Signif.	2000	2002	Signif.
Perceived severity						
-HIV positive person can survive	17.1	25.5	***	17.1	19.7	
-AIDS can be cured	1.3	0.9		2.7	1.4	**
-Does not want child in next two years	18.8	27.3	***	33.3	36.4	
Perceived risk						
-Moderate/high personal risk of HIV/AIDS	31.5	33.7		38.5	45.1	***
-Knows someone who has/died of HIV/AIDS	38.9	51.7	***	38.3	45.0	***
Perceived condom attributes and access						
-Condoms effective for FP	39.8	40.7		57.6	61.9	**
-Condoms effective for HIV/AIDS prev.	59.6	65.1	***	68.3	75.5	***
-Condom source within 10 minutes	8.0	10.5	**	19.6	23.3	**
-Condoms reduce sexual pleasure	33.7	28.0	***	53.8	49.6	**
Self-efficacy						
- Can convince regular partner to use condoms[a]	84.9	80.3		77.4	85.8	
- Not shy to obtain condoms in nearby shop	23.3	22.5		46.8	48.3	
- Confident knows correct condom use	4.7	3.3	**	20.0	18.4	
Perceived social support						
-Friends support youth condom use	35.5	43.5	***	59.2	59.2	
-Parents support youth condom use	23.5	21.2		40.4	34.5	
-Discussed FP with friends in past year	3.0	2.6		3.6	4.0	
-Discussed FP with others in past year	2.7	2.3		2.0	2.0	
-Discussed STI/AIDS with friends in past year	9.8	12.8	***	19.1	17.9	
-Discussed STI/AIDS with others in past year	9.6	12.6	***	8.4	11.4	***
Reproductive Health Services						
-Knows of site for voluntary counseling and testing	39.7	59.6	***	54.7	69.9	***
-Currently using a modern family planning method	48.8	41.2		N/a	n/a	
-Had HIV test in past year	2.3	2.9		3.2	2.6	
Sexual Behavior						
-Ever had sex	10.5	5.6	***	25.9	18.7	***
-Had sex in the past year	5.1	2.0	***	8.0	5.0	***
No. of Cases	1616	1526		1237	1429	

Analysis controls for age, residential area (urban/rural), level of education and school enrollment status

[a] N of cases for females is 65 and 38, respectively; N of cases for males is 113 and 105, respectively.
Note: *** p<.01 ** p<.05;

Table 4: Logistic Regression Results of the Effect of Level of Exposure† on Outcome Measures
(Adjusted Percentages, 2002 Survey only, N=2955)

	Females (N=1525)			Males (N=1430)		
	Low Exposure (reference)	Medium-High Exposure	High Exposure	Low Exposure (reference)	Medium-High Exposure	High Exposure
Perceived severity						
-HIV positive person can survive	23.9	44.1***	55.6***	19.3	28.8**	19.0
-AIDS can be cured	0.8	0.7	3.6	1.5	0.7	1.9
-Does not want child in next two years	25.6	42.3***	42.4**	35.5	43.2	41.7
Perceived risk						
-Moderate/high personal risk of HIV/AIDS	32.3	53.4***	60.7***	44.2	52.4	51.9
-Knows someone who has/died of HIV/AIDS	50.9	65.1***	79.8***	42.4	64.0***	70.5***
Perceived condom attributes and access						
-Condoms effective for FP	39.4	50.1**	56.2**	60.1	73.6***	77.2**
-Condoms effective for HIV/AIDS prev.	63.6	77.9***	81.4**	73.3	88.6***	91.8***
-Condom source within 10 minutes	10.3	17.7**	16.7	22.8	27.1	42.9***
-Condoms reduce sexual pleasure	27.5	32.7	30.0	49.3	52.7	43.8
Self-efficacy						
-Can convince regular partner to use condoms[a]	---	---	---	87.2	89.1	72.3
- Not shy to obtain condoms in nearby shop	21.1	36.4***	44.1***	47.1	62.4***	53.0
-Confident knows correct condom use	2.9	5.7	9.5***	16.8	31.9***	29.7**
Perceived social support						
-Friends support youth condom use	42.3	54.5**	58.4**	55.7	83.1***	84.4***
-Parents support youth condom use	19.6	28.1**	45.4***	32.9	40.1	46.8**
-Discussed FP with friends in past year	3.0	0.7	3.2	3.0	9.8***	7.8**
-Discussed FP with others in past year	1.9	3.1	4.3	1.5	4.6***	9.6***
-Discussed STI/AIDS with friends in past year	13.0	10.6	22.8	15.9	26.4***	28.7**
-Discussed STI/AIDS with others in past year	9.9	34.8***	26.8***	9.1	21.5***	29.1***
Sexual Behavior						
-Ever had sex	5.6	8.8	8.9	16.4	29.9***	29.2**
-Had sex in the last year	1.9	4.7**	---	4.0	7.9**	4.8
Reproductive Health Services						
-Currently using a modern family planning method (n=123)	40.2	69.1	26.4	n/a	n/a	n/a
-Knows of site for voluntary counseling and testing	57.8	85.0***	92.3***	68.0	86.5***	93.1**
-Would be willing to have HIV test	94.6	95.4	94.3	91.7	94.5	93.9
-Had HIV test in past year	2.4	6.1***	7.7***	1.9	4.1**	9.4***
N of Cases	1372	109	44	1245	130	55

Note: *** p<.01 ** p<.05; Analysis controls for age, residential area (urban/rural), level of education and school enrollment status

[a] Results are omitted due the small number of cases. N of cases for males is 80, 18 and 7, respectively.
† high exposure = exposure to two or more of program elements; medium-high exposure = exposure to one of the program elements; the rest are characterized as having low exposure.

Appendix 1: Percentage of Youth Aware of Specific Reproductive Health Programs in 2002 (Spontaneous Responses Only)

Reproductive Health Program	*%*
• *Centre Dushishoze*	18.4
• ARBEF (Association Rwandaise pour le Bien-être Familial)	11.4
• Population Services International	4.3
• Rwandan Government Ministry Programs[a]	2.5
• Centre Universitaire de Santé Publique	0.5
Any Program	26.5
N of Cases	2955

[a]This percentage reflects a combination of three programs run by three different Ministries within the Rwanda government: The Ministry of Health, the Ministry of Education and the Ministry of Youth, Recreation and Sports.

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