

Long-term behavioral impact of a soccer-themed, school-based HIV Prevention program in Zimbabwe and Botswana

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Background

This study represents the first long-term evaluation of a school-based intervention designed by Grassroot Soccer (GRS) and delivered by professional soccer players in Bulawayo, Zimbabwe and Gaborone, Botswana. Youth aged 12-14 in these communities completed a 10-hour interactive HIV prevention curriculum in schools. Since 2003, more than 300,000 youth have graduated from programs based on the GRS model, which uses soccer language, activities, and metaphors to educate youth about HIV prevention and life skills. Previous short-term studies have found the program to significantly improve knowledge, attitudes, and communication.^{1,2,3}



Figure 1. Botswana National Team star Pontsho Moloi and former Zimbabwean National Captain Gilbert Banda lead activities with youth in Gaborone and Bulawayo, respectively.

Methods

In Bulawayo and Gaborone, students aged 15 to 19 (n=553) completed confidential, self-administered questionnaires assessing HIV-related knowledge, attitudes, communication, perceived norms and behaviors. Of the participants, 260 graduated from the GRS program 2-5 years pre-survey, while 293 comprised a comparison group of same-grade peers who had not participated (see Table 1). Bivariate data were analyzed using logistic regression analyses; continuous data were analyzed using ANOVA. Estimates were adjusted for age, gender, and country. These adjustments did not change the results for bivariate data, so unadjusted chi squares are reported. Given the large number of questions on the survey, a Bonferroni correction was used within each group of questions to minimize the probability of a Type 1 error.

	Graduates	Non-grads	Zimbabwe	Botswana
Sample size	260	293	246	307
Mean age (yrs)	16.3	16.1	16	16.3
Percent female	64%	60%	67%	58%
Currently in school	100%	100%	100%	100%

Table 1. Sample demographics by group and country

Results

Knowledge, Attitudes, and Communication

No significant differences in knowledge were observed between graduates and non-graduates, although graduates did demonstrate slightly higher knowledge of condom use as an HIV prevention method ($X^2=4.5$, $p=0.03$). Graduates were more willing to care for an HIV-positive family member ($X^2=6.8$, $p=0.009$). Overall, no differences were observed between groups in reported communication about HIV with parents or friends, but graduates in Zimbabwe were more likely than non-graduates to have communicated with a friend about HIV ($X^2=5.1$, $p=0.02$). Youth in both groups and both countries were significantly more likely to have communicated with friends than with family or parents about HIV.

Questionnaire Item	Graduates n=260	Non-Grads n=293	p value
Knowledge	% Correct Response		
HIV can be spread by unprotected sex	96%	97%	0.44
HIV can be spread by sharing food or water	91%	93%	0.44
HIV can be spread by mosquito bites	75%	77%	0.65
Having only one uninfected partner can prevent HIV	71%	71%	1.00
Condoms can prevent HIV	78%	70%	0.03†
A healthy-looking person can have HIV	92%	95%	0.16
Comprehensive Knowledge (UNGASS)	39%	35%	0.36
Attitudes	% Yes		
Willing to care for a family member with AIDS	86%	77%	0.01*
I feel I can protect myself from getting HIV	95%	95%	0.87
Willing to take an HIV test in the future	94%	94%	0.91
Communication	% Yes		
Have talked with a parent about HIV	35%	39%	0.28
Have talked with a family member about HIV	50%	52%	0.73
Have talked with a friend about HIV	77%	70%	0.11
Comfortable talking about HIV	89%	92%	0.21

† Not below Bonferroni corrected critical p value
* Below Bonferroni corrected critical p value

Table 2. Knowledge, attitudes, and communication results across groups. P values based on unadjusted chi squares (df=1). Critical p values adjusted using the Bonferroni correction.

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Poster designed by Allen Bourdon.
Photos by Alice Keeney.

Results (cont'd)

Sexual Debut and Activity

Forty-four graduates (17%) and 54 non-graduates (18%) have had sex (adjusted OR=0.8, CI=0.5-1.3). No differences in sexual debut were observed overall between graduates and non-graduates. Zimbabwe graduates tended to debut notably later than non-graduates (see Figure 2), but this difference was not significant.

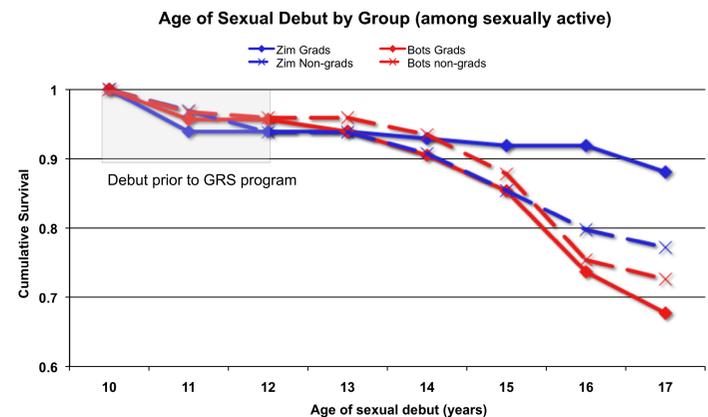


Figure 2. This survival curve shows self-reported age of sexual debut by group and country. One sexually active participant did not report an age of debut.

Sexual Partners and Behaviors

Sexually active graduates had fewer sexual partners (see Figure 3, adjusted $F=6.2$, $p=0.015$) and fewer partners in the past two months (adjusted $F=4.1$, $p=0.046$). A notable difference in intergenerational sex was observed between graduates (0%) and non-graduates (24%) in Zimbabwe, but the small sub-sample of sexually active graduates limited analysis. Across countries, graduates were less likely to have tested for HIV (adjusted OR=0.4, CI=0.2-0.8).

Questionnaire Item (restricted to youth who have ever had sex)	All Non-Grads n=54	All Graduates n=44	Zim Non-Grads n=25	Zim Graduates n=10	Bots Non-Grads n=29	Bots Graduates n=34
Sexual Partners	Mean (std)					
Sexual partners ever	2.8 (3.2)	1.8 (1.3)*	2.4 (2.3)	1.0 (0.5)†	3.2 (3.9)	2.1 (1.3)†
Sexual partners in the last 12 months	2.2 (2.4)	1.7 (1.5)	1.5 (0.8)	1.0 (0.0)	2.7 (3.0)	1.8 (1.6)
Sexual partners in the past 2 months	1.4 (3.3)	0.9 (0.8)†	1.2 (0.5)	1.0 (0.0)	1.6 (1.7)	0.9 (0.8)†
High-risk Behaviors	% Yes					
More than 1 partner in last 12 months	39%	32%	28%	0%	41%	48%
Transactional sex ever	12%	9%	8%	0%	12%	15%
Intergenerational sex ever (5+ yrs)	26%	21%	24%	0%	29%	27%
Sex while drunk or high ever	19%	20%	21%	10%	24%	17%
Protective Behaviors	% Yes					
Talked with partner about condoms	63%	67%	56%	30%	70%	79%
Condom use at first sex	61%	70%	44%	40%	76%	79%
Condom use at last sex	59%	67%	52%	20%	66%	81%
Ever tested for HIV	24%	11%	32%	0%	17%	15%

† Not below Bonferroni corrected critical p value
* Below Bonferroni corrected critical p value

Table 3: Key behavioral indicators by group and country. Analysis restricted to participants who had ever had sex.

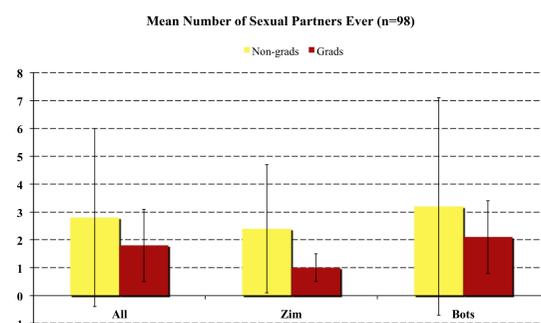


Figure 3: Mean number of reported sexual partners ever by group and country. Non-graduates had more partners on average.

Conclusions

Long-term follow-up studies are instrumental in determining the extent to which gains from HIV prevention programs—especially those working with adolescents—are sustained over time. Overall, the study suggests that knowledge and communication gains from youth-targeted programs may diminish overtime, while effects on sexual behavior appear to vary across countries. Accuracy of results was limited by social desirability bias, recall bias, and small sample size (especially in sub-analyses restricted to sexually active youth). Preliminary observations, however, suggest that the program in Zimbabwe may have been more effective than the program in Botswana. Evidence of effectiveness in reducing the number of sexual partners is encouraging. Given the prevalence of multiple partnerships in southern Africa, this model should be considered by Ministries of Education but also adapted to better promote HIV testing, abstinence, and HIV-related communication. Further evaluation should include baseline assessment, a larger sample, and, where possible, health outcomes.

Literature Cited

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