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Influence of religious affiliation and education on HIV knowledge and HIV-related sexual behaviors among unmarried youth in rural central Mozambique

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The interactions between religious affiliation, education, HIV knowledge, and HIV-related sexual behaviors among African church youth are poorly understood. In this socio-demographic study, 522 unmarried youth 12–28 years old in rural central Mozambique were surveyed with a structured questionnaire. Using binary logistic regression analysis, we used religious affiliation and education to measure influence on (1) HIV transmission and prevention knowledge and attitudes and (2) HIV-related sexual behaviors among youth. Religiously affiliated males were more likely than non-religious males to know when a condom should be used, respond correctly to HIV transmission questions and respond with less stigma to HIV-related scenarios. Increased levels of education among males corresponded significantly to increased knowledge of condom usage and HIV prevention strategies and less likelihood to respond with stigma. Only education levels influenced young female responses. Religious affiliation and education had minimal effects on sexual activity, condom usage, and multiple partnerships. African Independent Church/Zionist males were 1.6 × more likely to be sexually inexperienced than non-religious males but were also significantly less likely to use condoms (0.23, $p = 0.024$). Non-religious youth were most likely to have visited sex workers and did not use condoms. These results suggest that religious affiliation, possibly as the result of educational opportunities afforded by religious-affiliated schools, is contributing to increased HIV transmission and prevention knowledge among youth in rural Central Mozambique but not influencing HIV-related sexual behavior. The need exists to strengthen the capacity of religious congregations to teach about HIV/AIDS and target non-religious youth with HIV transmission and prevention information.

Keywords: religion; education; HIV/AIDS; youth; Mozambique

Introduction

The disconnect between the levels of HIV/AIDS knowledge among sub-Saharan African youth and reported sexual behaviors is well-documented (Glover et al., 2003; Hulton, Cullen, & Khalokho, 2000; James, Reddy, Taylor, & Jinabhai, 2004). However, by focusing on the link between knowledge and behavior, previous studies have missed the wider social, cultural, and economic influences which shape a young person's life (Stephenson, 2009a, 2009b). Youth-focused studies have addressed sexual health (Todd et al., 2004), social relationships (Wight et al., 2006), transactional sex (Poulin, 2007), education (Bastien, 2008; Jukes, Simmons, & Bundy, 2008), culture (Mukuka & Slonin-Nevo, 2006), condom usage (Maharaj, 2006; Manuel, 2005), and risk perception (Macintyre, Rutenberg, Brown, & Karim, 2004), but few studies have focused on the influence of religion (Agha, Hutchinson, & Kusanthan, 2006; Nweneka, 2007; Trinitapoli, 2009) in spite of the strong presence of religious entities within all facets of African community life (Jenkins, 2002; Meyer, 2004). To begin developing a contextualized HIV prevention program in rural Central Mozambique, this study was carried out to evaluate the influence of religious entities and education levels on the HIV knowledge, attitudes, and HIV-related sexual behaviors of youth.

Methods and materials

Study population

Between August and September, a structured socio-demographic survey was conducted with unmarried youth 12–28 years old in Buzi, Chibabava, and Machanga districts in southern Sofala province of central Mozambique. Funded by the Mozambique Conselho Nacional de Combate de HIV/SIDA (CNCS), the timing was critical because the CNCS has financially supported HIV prevention strategies in this rural area since 2001 without a solid baseline

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household survey (CNCS, 2004). The majority of the study area is rural with homesteads scattered in savannah terrain and small district towns situated along main transport routes. Mozambique's main North–South transport route runs through the center of the study area.

Sampling procedure

Index houses were selected using a random sampling technique based on 1997 census enumeration areas. For each index house, all family members were listed and eligible persons identified. Eligibility included having slept the previous night in that particular house, being unmarried and between the ages of 12 and 28. On the day of the interview, one mixed-sex interviewer pair identified the eligible persons at each chosen index house. Once the eligible person agreed to participate by signed informed consent, they completed the survey with a same-sex interviewer in a private place. A maximum of three visits were made if eligible participants were not at home.

Due to the delicate nature of sexual behavior/HIV discussions in rural Mozambique, we attempted to limit response bias. First, we used trained, same-sex interviewers from the Instituto Nacional de Estatísticas (INE) fluent in the local dialect and trained specifically to present the questions in culturally sensitive ways. Well-known for the national census, INE is trusted in the local community. Second, permissions were obtained from local chiefs and governmental authorities in each enumeration area, building trust with those being interviewed. Finally, face-to-face interviews with same-sex interviewers were conducted with the maximum of privacy to limit the influence of others (Mensch, Hewett, Gregory, & Helleringer, 2008). It was strongly emphasized that questionnaires were anonymous.

Survey instrument and measures

The survey was modified by permission from World Relief's "Mobilizing Youth for Life" program, adapted to local conditions, and translated into Portuguese and the main dialect, Chindau. The "Mobilizing Youth for Life" survey has been used to scale up USAID-sponsored HIV prevention programs in Haiti and several African countries. It was imperative to use a survey that worded questions respectfully so as to not offend community and religious leaders. The survey collected data on socio-demographic characteristics, HIV knowledge, attitudes, beliefs, stigma, and HIV-related sexual behavior.

To measure HIV knowledge, we evaluated: (1) whether they had heard of HIV/AIDS; (2) knew when to use a condom; (3) the "ABCs" of HIV prevention-delay of sexual debut (A), commitment to one partner (B), and condom use (C) (Green, 2003); and (4) HIV transmission facts such as whether one could get HIV from a mosquito bite or from eating off the plate of an HIV-infected person or whether a healthy person could be infected with HIV. For the ABC knowledge and HIV transmission facts, the analysis measured whether respondents answered all three questions correctly (Table 3). Attitudes and stigma were evaluated as an index for positive responses for three HIV-related scenarios: (1) whether they would buy food from an HIV-infected vendor; (2) whether an HIV-infected teacher should continue teaching; and (3) whether they would continue being a friend to one recently diagnosed with HIV. Finally, the influence of cultural beliefs was tested with a positive response to whether a person could become infected with HIV by a shaman's curse.

HIV-related sexual behaviors were surveyed by asking respondents when they initiated sexual intercourse. Virgins were asked why they had not yet initiated sexual activity. Based on culturally accepted notions of sexual behavior, the term "virgin" was understood to mean a young male or female who had not yet initiated sexual intercourse. Sexually experienced youth were asked at what age they initiated sex, sexual activity, and number of partners in the past year, reasons for abstaining from sex in the past 4 months (secondary abstinence), condom usage at last intercourse, and the description of their last sexual partner (boy/girlfriend, fiancée, friend, neighbor, family member, or other). Multiple partnerships involved those who had two or more partners in the past year.

Religious affiliation was collected using the question, "What is the church you attend?" Responses were recorded into one of five response categories or as "other" and the specific name of the religious congregation was recorded. Religious congregations were grouped into five general categories (Agadjanian, 2001, 2005): (1) Catholics; (2) Protestants; and (3) African Independent Churches (AICs), consisting mainly of Zionist Churches (ZCC) and associated branches (referred to in the paper as AIC/Zionists); (4) Muslims were a minority with only 1.7% (9) respondents. Due to sample size, these were not included in the analysis; and (5) non-religious included those who did not affiliate with a particular religious congregation as well as the few who identified themselves as "animist." While differing by degree, the orthodoxies of these religious congregations are all opposed to premarital sex and are united in their condemnation of condom usage (Gregson, Zhuwau, Anderson, & Chandiwana, 1999; Pfeiffer, 2002).

Ethical permission

Ethical approval for the study was obtained from the Catholic University of Mozambique Ethics Committee and the National Commission of Bioethics of the Mozambique Ministry of Health in Maputo.

Statistical analysis

Data were analyzed by Epi-Info 3.2.2 (CDC, Atlanta, GA) and SPSS 16.1 (SPSS Inc, Chicago, IL). Sociodemographic characteristics were evaluated and comparisons between groups were done using χ^2 tests for proportions and *t* tests and ANOVA for continuous variables. Using binary logistic regression analysis, we used religious affiliation and education levels as co-factors to measure their influence on (1) HIV knowledge, attitudes, and prevention and (2) HIV-related sexual behaviors. To identify the effect of affiliation on a particular HIV knowledge component or behavior, "non-religious" youth were the reference group unless otherwise stated. For education levels, we compared non-educated youth responses with those who were currently in or had completed three educational levels – primary (Grades 1–5), middle (Grades 6–7), and higher (Grade 8+). In this rural area, age ranges for education levels are not particularly meaningful because many primary school youth can be up to 15–17 years old. Most rural schools were destroyed during the civil war which ended in 1994 and many youth strive to overcome the disruption to their education. To address this, we surveyed the current level of education or the level youth had already attained. Analyses were age-adjusted. A *p*-value of less than 0.05 was considered statistically significant for all tests. Results with *p* values less then 0.10 were included to indicate marginal significance.

Results

General characteristics

About 522 unmarried youth between the ages of 12 and 28 were interviewed, 67.4% (352) young men and 32.6% (170) young women. Table 1 details study population characteristics. Significant differences occurred between religious congregations in regards to education levels for males ($\chi^2 = 27.25$; df = 9; $p = 0.0013$) and females ($\chi^2 = 24.83$; df = 9; $p = 0.0032$). Among uneducated males, 46% (19/41) were non-religious. About 42.1% (16/38) of middle school males (Grades 6–7) were Catholic compared with only 8.0% (3/38) AIC/Zionists. Of males with Grade 8 or higher, 87.5% (14/16) were Catholic or Protestant. About 44% (20/46) of uneducated females were AIC/Zionists. The majority of females with primary school education were Catholic (45%) or Protestant (35%). Only 8% (13/163) of females surveyed had Grade 8 or higher.

Sexual experience

Of the 370 virgins (Table 2) surveyed, 66.8% were males and 82.4% were females ($p = 0.0002$). The proportion of male virgins was significantly higher among those affiliated with AIC/Zione churches compared with those in other congregations but not among females (Table 2). Sexual experience increased significantly with both age and education level. Although not significant, multiple partnerships increased with age but decreased with education level. Only 21% (6/28) sexually active females reported multiple partnerships in the past year.

Influence of religious affiliation and education on HIV transmission and prevention knowledge, attitudes, and beliefs

Males from all three religious congregations were significantly more likely than non-religious males to know about HIV transmission, respond to HIV-related scenarios with less stigma, and state that HIV could not be passed by a shaman's curse (Table 3). This was not observed among females. Catholics, both males (1.9 ×) and females (4.3 ×), were more likely than non-religious youth to know when a condom should be used.

Educated males and females, even those with a primary school education, were significantly more likely than non-educated youth to respond correctly to HIV transmission and prevention questions (Table 3). Middle school males were significantly more knowledgeable about condoms and ABC prevention, responded with less stigma, and did not agree that HIV could be sent by a shaman. Females with primary level education or higher were significantly more likely to know about condoms, ABC prevention, HIV transmission, and respond with less stigma.

Influence of religious affiliation and education on HIV-related sexual behavior

Religious affiliation had no significant influence on the sexual experience of Catholic or Protestant youth. However, AIC/Zionist males were almost 1.6 × more likely than non-religious to have not initiated sexual activity (OR = 1.57, 95% CI = 1.4–1.8, $p = 0.0000$; Table 4). Similar results were not observed among AIC/Zionist females. The majority (53.6%) of reasons given for delaying sexual debut were sociocultural. Answers included "I am still a child," "I still want to grow up," "I am waiting for a good lobolo

Table 1. Study population characteristics.

	Males		Females		Total		
Variables	%	*N*	%	*N*	%	*N*	*p*-Value
Age group							
12–14	38.9	137	42.9	73	40.2	210	
15–17	30.7	108	36.5	62	32.6	170	
18–28	30.4	107	20.6	35	27.2	142	0.0580
Religious affiliation							
Catholic	27.6	97	37.9	64	31.0	161	
Protestant	20.2	71	29.0	49	23.1	120	
Muslim	1.1	4	3.0	5	1.7	9	
AIC/Zionist	21.4	75	20.1	34	21.0	109	
No religion	29.6	104	10.1	17	23.3	121	0.0000
Education							
No education	11.8	41	27.2	46	16.8	87	
Grades 1–5	71.8	250	64.5	109	69.4	359	
Grades 6–7	11.8	41	7.7	13	10.4	54	
Grades 8–12	4.6	16	0.6	1	3.3	17	0.0000

(brideprice),'' ''I do not want to be a woman yet,'' ''because it is for only after my traditional marriage ceremony,'' ''because it (sex) is controlled by our parents,'' ''because I was educated to begin late.'' Of those who had not yet initiated sexual activity, 24.7% said they had not yet had the opportunity to have sex, 17.6% cited HIV prevention, and 4.1% said they had not initiated sex in order to please God.

Secondary abstinence

While the majority (56%) of non-religious males cited lack of opportunity (unable to find partners, lack of money to visit prostitutes, or no time due to studies or work) for their secondary abstinence, a majority of Catholic (65%), Protestant (50%), and AIC/Zionist (73%) male youth cited HIV prevention. About 44% of Catholic and 50% of AIC/Zionist females cited

Table 2. Youth (ages 12–28) who had not initiated sex ($N = 370$) and sexually active youth who had engaged multiple partnerships in the past year ($N = 102$) by religious affiliation, age, and education levels.

	Not initiated sex		Multiple partnerships	
Variable	Males (%)	Females (%)	Males (%)	Females (%)
Religious affiliation				
Catholic	62.9*	75.0	38.9	25.0
Protestant	57.7	89.8	43.3	20.0
AIC/Zionist	80.0	82.4	50.0	16.7
Not religious	67.3	94.1	32.4	0.0
Age (years)				
12–14	92.6***	94.2**	20.0	25.0
15–17	78.1	81.7	34.8	18.2
18–28	22.6	62.9	43.2	23.1
Education				
No education	61.0***	84.8*	62.5	28.6
Grades 1–5	75.0	85.6	39.3	13.3
Grades 6–7	39.5	58.3	34.8	20.0
Grades 8–12	18.8	0.0	23.1	100.0

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$^{+}p < 0.10$.
$^{*}p < 0.05$.
$^{**}p < 0.01$.
$^{***}p < 0.001$.

Table 3. Binomial logistic regression analysis of HIV/AIDS transmission and prevention knowledge and stigma responses among youth in southern Sofala province by religious affiliation and education level. The data were age-adjusted.

	Knowledge about HIV		Condom knowledge		ABC knowledge		Correct HIV transmission facts		Less stigma responses		HIV passed by shaman's curse?	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Male youth												
Religious affiliation												
Non-religious	1		1		1		1		1		1	
Catholic	1.75	0.49–6.20	1.94^{+}	0.96–3.90	1.43	0.77–2.64	3.52***	1.85–6.70	2.34**	1.27–4.32	0.27**	0.10–0.70
Protestant	0.91	0.28–2.98	1.37	0.67–2.80	0.89	0.47–1.71	1.83^{+}	0.90–3.74	1.75^{+}	0.90–3.42	0.26**	0.09–0.73
AIC/Zionist	1.78	0.50–6.33	1.42	0.71–2.83	1.07	0.57–2.01	3.01*	1.51–6.00	2.34**	1.22–4.49	0.49^{+}	0.21–1.11
Education levels												
No Education	1		1		1		1		1		1	
Primary (Grades 1–5)	0.59	0.12–2.77	1.59	0.78–3.26	1.88	0.94–3.75	1.43	0.66–3.13	1.09	0.53–2.22	0.32**	0.14–0.71
Middle (Grades 6–7)	1.11	0.09–13.70	3.70*	1.09–12.61	2.78*	1.04–7.42	1.95	0.73–5.17	2.26^{+}	0.90–5.67	0.15*	0.03–0.74
Upper (Grades 8+)	–	–[a]	1.26	0.29–5.52	1.21	0.35–4.19	3.10^{+}	0.85–11.24	5.42*	1.27–23.08	–[b]	–
Female youth												
Religious affiliation												
Non-religious	1		1		1		1		1		1	
Catholic	–[c]	–	4.32*	1.35–13.78	1.89	0.62–5.71	0.57	0.17–1.87	2.79	0.69–11.28	1.09	0.35–3.43
Protestant	0.85	0.13–5.49	1.97	0.63–6.18	1.53	0.49–4.76	0.64	0.19–2.20	2.87	0.69–11.99	0.948	0.29–3.09
AIC/Zionist	1.74	0.24–12.37	1.99	0.58–6.85	1.37	0.40–4.72	0.51	0.12–2.11	2.98	0.61–14.58	1.23	0.35–4.32
Education levels												
No Education	1		1		1		1		1		1	
Primary (Grades 1–5)	7.20*	1.52–34.21	1.89	0.84–4.29	2.16^{+}	0.96–4.86	6.57***	2.12–20.39	7.35***	2.29–23.57	0.915	0.40–2.08
Middle (Grades 6–7)	–[d]	–	8.99*	1.02–79.72	5.72*	1.30–25.05	41.81***	6.74–259.46	14.22***	2.95–68.56	2.25	0.59–8.61
Upper (Grades 8+)[e]	–	–	–	–	–	–	–	–	–	–	–	–

$^{+}p < 0.10$.
*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.
[a]One hundred percent of upper-level males knew about HIV.
[b]No upper level males said that HIV could be passed by a curse.
[c]One hundred percent of Catholic female youth knew about HIV.
[d]One hundred percent of middle-level female youth knew about HIV.
[e]Not enough upper-level females to run the analysis.

Table 4. Binary logistic regression analysis of HIV-related sexual behaviors and prevention among youth in southern Sofala province by religious affiliation and education level. The data were age-adjusted.

	Sexual experience				Condom usage at last sex				Multiple partnerships			
	Male youth		Female youth		Male youth		Female youth		Male youth		Female youth	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Religious affiliation												
Non-religious	1		1		–[a]		–[a]	–	1		–[c]	–
Catholic	1.22	0.68–2.17	5.32	0.64–44.24	1		1		1.16	0.46–2.93	1	
Protestant	1.51	0.81–2.81	1.76	0.18–16.91	0.69	0.28–1.74	2.67	0.14–49.13	1.26	0.48–3.34	0.81	0.07–9.91
AIC/Zionist	0.47*	0.23–0.96	4.43	0.47–41.40	0.23*	0.06–0.82	–[b]	–	0.97	0.32–2.89	0.69	0.05–8.71
Education levels												
No Education												
Primary (Grades 1–5)	0.98	0.37–2.63	1.86	0.61–5.68	0.49	0.14–1.69	–[e]	–	0.55	0.20–1.48	–[e]	–
Middle (Grades 6–7)	2.81^{+}	0.88–9.02	4.38	0.99–19.46	1.19	0.29–4.87	–	–	0.99	0.29–3.06	–	–
Upper (Grades 8+)	1.40	0.27–7.39	–[d]	–	2.31	0.54–9.94	–	–	0.24^{+}	0.05–1.20	–	–

$^{+}p < 0.10$.
$^{*}p < 0.05$.
$^{**}p < 0.01$.
$^{***}p < 0.001$.
[a]No non-religious male or females used condoms at last sex.
[b]No AIC/Zionist female reported condom usage at last sex.
[c]No non-religious female reported multiple partnerships in the past year.
[d]The only female with upper-level education was not sexually active.
[e]Sample size too small for analysis.

HIV prevention for their secondary abstinence while no sexually active non-religious females abstained from sex in the previous 4 months.

Condom use at last sex

Among sexually active youth, none of the non-religious youth reported using a condom during their last sex. After adjusting for age, AIC/Zionist males (27%) were significantly less likely to use condoms during last sex compared with Catholic (67%) and Protestant (47%) males (Table 4). No sexually active AIC/Zionist females reported condom usage during last sex compared with 67% (2/3) of Catholic females. All youth who reported condom usage during last sex identified their last partners as boy/girlfriends, fiancés, or friends.

Multiple partnerships

Religiously affiliated youth, both male and female, did not significantly differ from non-religious in regards to multiple partnerships in the past year (Table 4). However, of young males who reported their last sex was with a prostitute, 75% (3) were non-religious, and none had used condoms. Only 20% (6/30) sexually active females had multiple partners in the past year which was not significant for religious congregation ($\chi^2 = 0.76$; df = 3; $p = 0.9433$) or education level ($\chi^2 = 5.04$; df = 3; $p = 0.1687$). In general, youth who reported multiple partners were 9.4 × more likely to use condoms than those with one main partner (95% CI = 4.22–21.0, $p = 0.0000$).

Discussion

Religious affiliation and education levels are increasing the knowledge of HIV transmission and prevention of youth in rural Central Mozambique but have limited influence on their HIV-related sexual behaviors. While education significantly influenced knowledge about HIV transmission and prevention for both males and females, religious affiliation only influenced the responses of males. This gender difference suggests that males are being exposed to HIV information in venues other than their religious congregations. This view is substantiated by local religious leaders who recognize the lack of adequate teaching concerning HIV transmission and prevention to their youth (Noden & Gomes, unpublished interviews).

The link between religious affiliation and education level occurs when a young person reaches the end of primary school education (Grades 1–5). Their options are to move to a government school in a nearby city or go to rural religiously affiliated day (Catholic or Protestant) or boarding (Catholic) schools. Because of culturally defined gender roles, higher education options are more available for males, explaining the high percentage of primary level among females. Once enrolled in a religiously affiliated higher-level school, it is common to affiliate to a particular religious congregation as it permeates daily life. This is confirmed as the majority of males with education levels of Grade 6 or higher affiliated as Catholic or Protestant which is the same education level which responded correctly to HIV transmission and prevention questions (Table 3). Within these schools, youth are exposed to HIV information from teachers trained in the Mozambique education system which specifically addresses HIV-related issues. This is corroborated by the lack of knowledge among AIC/Zionist-affiliated and non-religious youth who lack opportunities for education above primary school. Therefore, while results imply that religious affiliation is contributing to the HIV prevention and transmission facts of youth, it is more likely that affiliation is related to the education options currently available and not necessarily to teaching received in their religious congregations.

As reported by others (Agha et al., 2006; Nweneka, 2007; Trinitapoli, 2009), the connection between religious affiliation and HIV knowledge and prevention did not correspond to altered HIV-related sexual behaviors. While affiliation had no effect on Catholic or Protestant youth, it appears to influence the initiation of sexual activity among AIC/Zionist males. Comprising a large proportion of rural religious life in Mozambique (INE, 1999), these religious congregations have strong teachings concerning abstinence before marriage and faithfulness in marriage which mirror both Christian as well as local cultural beliefs (Agadjanian, 2001; Garner, 2000; Noden, Gomes, & Ferreira, 2009; Pfeiffer, 2002, 2005). Gregson et al. (1999) identified that, while polygamy was acceptable in ZCC, they tended to be more restrictive on members extra-martial relationships which also influenced the sexual behaviors of youth. This limiting influence, however, appears to breakdown as AIC/Zionist males are also less likely to use condoms (Pfeiffer, 2002). The most probable explanation for lack of condom use among AIC/Zionist youth derives from the identity of their last sexual partners as girlfriends/fiancés together with the perceived low risk and trust involving intimate partners (Manuel, 2005; Prata, Vahidnia, & Fraser, 2005).

While Catholic and Protestant youth did not differ from non-religious youth in regards HIV-related sexual behaviors, differences exist which appear to be protective. Three of the four youth who reported their last partner was a prostitute were non-religious.

Condom usage comparisons were only made among religiously affiliated youth because no non-religious youth reported usage during their last sexual encounter. Also, all females who reported secondary abstinence were linked to religious congregations. These indicators imply that aspects of religious affiliation have a positive influence as confirmed by others (Johnson & Way, 2006; Koffi & Kawahara, 2008; Trinitapoli, 2009). Non-religious youth were also more likely than religiously affiliated youth to agree that a shaman's curse could infect another person, possibly demonstrating their alignment with traditional religious beliefs which are wary of condoms (Green, 2003; Pfeiffer, 2004) and consider it murder to "kill" sperm (Coast, 2007). Together, these results indicate that non-religious youth in Central Mozambique lack educational options which could ameliorate their HIV risk. Future prevention strategies need to target them as a vulnerable group (Bastien, 2008) to increase their HIV awareness and find ways to integrate them into available educational structures.

Results also indicate that regional HIV strategies need to proactively build the capacity of religious congregations and the schools they manage in regards to HIV transmission, prevention, and behavior modification (Agadjanian, 2005; Agadjanian & Sen, 2007; Pfeiffer, 2007). While beginning to occur in the rural Catholic schools of Central Mozambique (Gomes, personal communication), the need exists to focus on the leadership of these religious institutions because of the high level of mistrust generated from not being included in the initial national HIV prevention strategic planning initiatives (Pfeiffer, 2004). Future programs should also target religious congregations to build trust and develop HIV prevention strategies (CNCS, 2004; Green, 2003; Largarde et al., 2000; Pfeiffer, 2004) involving culturally relevant training related to cultural understandings of HIV transmission and prevention, not just transmitting generic information (Agadjanian, 2005; Agadjanian & Sen, 2007; Pfeiffer, 2007).

While possible limitations occurred, every effort was made to reduce their effects. One limitation related to the ability of a survey to measure only affiliation but not commitment. Commitment to one's religious ideals, identified as more important than affiliation in regards to affecting sexual behavior among youth (Odimegwu, 2005), is difficult to measure because a person can attend religious meetings for social reasons without being committed to the tenants of that particular religious congregation (Gilbert, 2008; Nweneka, 2007; Trinitapoli, 2009). Therefore, affiliation can provide suggestions as to relationships between HIV knowledge and religious congregations (Frank, Esterhuizen, Jinabhai, Sullivan, & Taylor, 2008) but further follow-up in-depth interviews are necessary to link the commitment together with the attitudes and behavior (Odimegwu, 2005). Also, it is recognized that a similar study in the region with a larger sample size would be beneficial due to the small female sample size.

In conclusion, results from this study imply that religious affiliation, possibly as the result of educational opportunities and access to HIV/AIDS education afforded by religious-affiliated schools in areas where government-run schools continue to be limited, may be contributing to increased knowledge about HIV transmission and prevention and positive response to stigma-related AIDS scenarios for youth in rural Central Mozambique. However, the increased knowledge does not appear to influence HIV-related sexual behaviors. By targeting non-religious youth and strategically incorporating both religious and educational institutions into a HIV prevention strategy, the youth in this rural area will have access to relevant information to assist them in their choices as pertaining to HIV/AIDS.

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