Predictors of premarital sexual experience among adolescents in a rural setting in Zimbabwe

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Abstract

The objective of the study was to describe the prevalence of premarital sex and determine the influence of HIV-related knowledge, perception of risk, family-level and peer-level factors on premarital sexual experience among adolescents living in a rural setting in Zimbabwe. Data comes from the 2005 Behavioral Risks and HIV Serostatus Survey of adolescents aged 15-24 years. Logistic regression analyses were conducted to identify risk and protective factors of premarital sex. Twenty-seven percent of adolescents were sexually experienced. Boys were more likely than girls to report having had sex. Although HIV-related knowledge was generally high, the study identified many misconceptions regarding HIV transmission. The results showed that male gender, older age and alcohol use were risk factors. There was no evidence of an association between AIDS-related knowledge and premarital sex. Seeking advice from peers was a significant risk factor of premarital sex debut. For boys, seeking advice from aunts or uncles was protective. In this rural environment, interventions must recognize the influence of social behaviors such as alcohol use as well as family- and peer-level factors on sexual debut. Broad-range prevention strategies should be implemented to target adolescents' social and sexual networks and also stress the connection between substance use and risky sexual behaviors in certain social contexts.

Key words: adolescents, premarital sexual experience, social-cognitive factors, rural Zimbabwe

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Introduction

Although the prevalence rate among Zimbabwean adolescents has declined in recent years (Gregson et al. 2006), adolescents still remain the reservoir for HIV transmission into the foreseeable future, accounting for 50% of the burden of new infections in the country (MoH et al. 2002, UNAIDS 2005b). Heterosexual activity, particularly early premarital sex, among adolescents ages 15-24 has contributed to increased possibility of contracting sexual transmitted infections (STI) including HIV (Pettifor et al. 2004, Hallett et al. 2007). The highest priority of the national AIDS agenda as well as a critical objective for adolescent health in the *Zimbabwe: National HIV and AIDS Strategic Plan 2006-2010* is to reduce the number of HIV infections in this age group (NAC et al. 2006). Therefore, promoting delayed sexual debut among adolescents is one important component of the HIV/AIDS prevention campaigns under the national AIDS strategy (Government of Zimbabwe 2008). To avoid a resurgence of HIV infection in Zimbabwe and to sustain the gains made to date in the decline of HIV prevalence rate (Mahomva et al. 2006, Gregson et al. 2006); a better understanding of factors associated with premarital sexual initiation in the context of HIV prevention in Zimbabwe is needed. Additionally, given its association with risk behaviors, understanding the determinants of premarital sexual initiation is critical for intervention efforts aimed at fostering positive adolescent development and decreasing the negative outcomes of adolescent sexual behavior.

Since the first case of AIDS was diagnosed in 1985, scattered studies in Zimbabwe have documented the association of premarital sexual activity and related predictors among adolescents (Mbizvo et al. 1997). Literature on antecedents of adolescents' sexual behaviors that initially accumulated in the 1990's identified HIV-related knowledge (Boohene, et al. 1991, Campbell et al. 1994, Mbizvo et al. 1995, Kasule et al. 1997), perception of risk for HIV infection (Gregson et al. 1998) as well as individual characteristics as risk and protective factors for premarital sex initiation. Thereafter, limited studies have examined the influence of family- and peer-level factors (Kim et al. 2001, Gavin et al. 2006) and alcohol

consumption (Mataure et al. 2005, Moyo et al. 2000) on adolescent's attitudes and behaviors regarding sexuality and reproduction. Additionally, recent research in Zimbabwe, as elsewhere, has documented that premarital sexual initiation, particularly early age at first sex, is a risk factor for HIV infection among adolescents (Pettifor et al. 2004, Hallett et al. 2007). The accumulated surveys have offered useful information on the prevalence of knowledge, frequency of behavior and factors associated with sex and AIDS. However, the progression towards accumulation of information on adolescent sexual behavior, particularly on antecedents of premarital sex and associated factors predicting such behavior has been sluggish. Moreso, our understanding of factors affecting initiation of premarital sex in the context of HIV prevention remains limited. This study builds on the existing literature examining adolescent sexual behavior, with particular focus on the determinants of premarital sexual experience in a rural setting where most Zimbabweans live. Specifically, this study seek to describe the prevalence of premarital sex and determine the extent to which social-cognitive factors (e.g., knowledge of HIV transmission and prevention, and perception of risk) and seeking advice on sexual matters from family members and peers influence initiation of premarital sex among never-married adolescents age 15-24.

Data and Methods

Data supporting these analyses are derived from the 2005 Behavioral Risks and HIV Serostatus Survey (BSS) which forms part of a project on The Development, Implementation and Evaluation of Interventions for the Care of Orphans and Vulnerable Children. The study site is the rural district of Chimanimani, located in Manicaland province, Zimbabwe. Manicaland has one of the highest HIV seroprevalence in the country (19.7%) and has been a target of HIV prevention programs (CSO and Macro International, 2007). The aim of the survey was to assess the magnitude of the HIV/AIDS problem, as well as the socioeconomic, cultural and behavioral aspects of transmission, care and support. The survey employed a second-generation behavioral surveillance model that involves combining both HIV testing and behavioral surveillance survey in the same study.

In this cross-sectional survey, 13 wards were randomly selected from the total of 23 wards of Chimanimani district. The selection of households from each ward was based on the 2003 Biomedical

4

Research and Training Institute Orphan and Vulnerable Children census data (Munyati et al. 2003). In each of the selected wards, individuals in four age strata of 2-11, 12-24, 15-24 and 25+ years were randomly selected based on proportional sampling using the total population of each age group in each ward. Attempts were made to ensure privacy by conducting the interviews in a 'secluded' place. The questionnaires for each age strata were translated from English into Shona. However, the questionnaires were not translated back, but to ensure accuracy in translation, the translated versions were each reviewed by an independent group of experts and to compare them with the original English texts. Interviewers obtained two written consent forms (assent for those below 18 years) from each respondent for both interview and HIV testing. The interviewers covered the background characteristics of the respondents, education history, work experience, knowledge and perception of HIV/AIDS, stigma, perception of HIV risk, sexual behavior and practices, trends in sexual behavior, interpersonal communication, alcohol and drug use, and reproductive health. A total of 730 adolescents aged 15-24 years were interviewed, 51% had ever had sex. Because of our emphasis on premarital sexual experience, only never-married adolescents are included in the analysis. Eliminating married adolescents results in a sample of 477 adolescents: 286 men and 191 women; this represents 65% of the full sample of adolescents surveyed.

Variables

The dependent variable in our study is premarital sexual experience. We obtained this information from the response of adolescents to the question "how old were you when you had sex for the first time?" Respondents who indicated age at first sex were reported as sexually experienced (coded=1), and coded zero for those who responded "never had sex".

Independent variables

Our analysis included sociodemographic factors to identify characteristics that provide control variables when considering the effects of the selected social-cognitive and contextual antecedents. The control factors included were: gender, age, education, religion, employment status, type of residence, household economic situation and alcohol use.

Key independent variables were selected to assess the social-cognitive and contextual antecedents of premarital sexual initiation based on the Information, Motivation and Behavioral Skills (IMB) model (Fisher et al. 1992): HIV-related knowledge (information), perceived susceptibility of HIV infection (motivation), and seek advice on HIV/AIDS and safe sex from family member and peers (motivation and behavioral skills).

HIV-related knowledge

HIV transmission knowledge. Knowledge of HIV transmission was assessed using 16 items that combined and modified previously published measures of transmission routes and misconceptions about transmissions (Brown et al. 1992). Each item was scored on a self-reported 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree): the responses were collapsed into two categories: correct and incorrect and graded according to correct answer rates. The variable was recoded so that higher scores correlated to higher levels of knowledge. Due to the fact that the responses were positively skewed the variable was divided into two categories: poor knowledge (score 0-11) and good knowledge (12-16).

HIV prevention knowledge. Three items were used to assess knowledge of HIV prevention measures: knowledge that (i) abstaining from sex, (ii) being faithful to one partner, and (iii) using condoms consistently and correctly can prevent HIV infection. These three items had possible responses of yes (coded 1) or no (coded 0), and were entered as independent dummy variables in the analysis.

Perceived AIDS susceptibility

We measured perceived AIDS susceptibility using a single item that assessed self-reported perceived risk of HIV infection. Participants were asked "where do you rate yourself in terms of risk of becoming infected with HIV" using a five-point category response ranging from 1 (*"I will definitely not get infected with HIV/AIDS"*) to 5 (*"I am definitely going to get infected with HIV/AIDS"*), with higher scores indicating increased perceptions of risk to HIV infection. Only 0.2% of respondents gave the response "*I am definitely going to get infected with HIV/AIDS*" and these were combined with the response "*I am probably going to get infected*", (response 4 on the Likert scale). Therefore, four levels of self-assessed risk are used in the analysis: 'no risk', 'small risk', 'moderate risk' and 'high risk'.

6

Advice on HIV/AIDS or safe sex

Advice on sexual matters was measured as, "if you wanted advice on safe sex or HIV/AIDS, who would you be most comfortable speaking to". Responses were categorized as parents, grandparents, aunts or uncles, peers and health professional, using yes (coded 1) or no (coded 0) response categories. Each specified member of the family or social network was entered as an independent dummy variable in the analysis. Seeking advice on HIV/AIDS and safe sex in the "other" category included siblings, teachers, traditional healers and pastors.

Analysis

We performed descriptive analyses to examine the frequency distribution of the sociodemographic factors, HIV-related knowledge, perceived AIDS susceptibility and seeking advice on HIV/ AIDS or safe sex from family or social networks according to premarital sexual experience, with differences examined using contingency table chi-square tests. Then, we examined rates of correct responses to HIV-related knowledge test items according to premarital sexual experience, again using chi-square for differences between groups. Finally, we conducted multivariate logistic regression analyses where premarital sexual experience was entered as the dependent variable. All independent variables were entered into the model simultaneously. Interaction effects were entered into the logistic regression models to assess the extent to which the key variables influenced adolescent engagement in sexual intercourse as a result of gender differences. Only those interaction terms that were significant at the $p<0.05$ level were retained in the final model. Tests for multicolinearity were conducted and according to the variance inflation factor and the tolerance statistic, collinearity between variables in the model was not a problem. STATA 10 was used to analyze the data (StataCorp, College Station, Texas, USA).

Results

Descriptive Data

Table 1 presents background characteristics as well as social-cognitive and contextual antecedents of premarital sexual experience of surveyed adolescents (column 1-2) and also compares the selected variables by adolescent premarital sexual experience (column 3-6). The sample includes more men (60%)

than women (40%). On average, adolescents were 18.3 years old. The median age was 18.0 years (not shown). Slightly above three quarters of the adolescents had completed or had attended secondary or more schooling. About 51% of adolescents reported themselves as Christians, followed by Apostolic (31%) and Traditional (15%). Most of adolescents were residents of communal and resettlement areas, a finding consistent with where the majority of the population live. Almost one in six (59%) of adolescents identified themselves as belonging to households not having enough money for basic needs. About 9% of adolescents indicated ever consuming alcohol. Although HIV transmission and prevention knowledge was generally high, the study identified many misconceptions regarding HIV transmission (not shown). Overall, three quarters of the adolescents considered themselves at no or small risk of contracting HIV (76%), while 8% perceived themselves to be at moderate risk and 15% at high risk. Low risk perception was prevalent even though they are resident in a province with one of the highest HIV prevalence in the country. The results showed that adolescents approached their friends (14%), aunts or uncles (14%) and health professionals (22%) for advice on safe sex and HIV/AIDS.

About 27% of the adolescents report premarital sexual experience (Table 1). There seemed to be higher proportions of men as compared to women that first started having sexual intercourse; with most of sexual initiation happening between ages 15 and 20 (Figure 1). Men were three times more likely to have experienced compared to women (37% vs. 11%, p<0.001). However, there was no significant age difference for first sexual intercourse between men and women. The mean age at first sexual intercourse for men was 17.3 years and the median age was 17.0 years. For women, the mean age at first sexual intercourse was 17.8 years and the median age was 17.5 years (not shown).

Sociodemographic variables associated with premarital sexual experience included age, religion, employment status and household socioeconomic status (Table 1). Additionally, compared to sexually inexperienced adolescents, sexually experienced adolescents were more likely to have used alcohol (28% vs. 3%, p <0.0001), believed that condom use can prevent HIV infection (87% vs. 78%, p<0.05), and assessed themselves to be at moderate to high risk for HIV infection (37% vs. 19%, p<0.0001). Sexually experienced and inexperienced adolescents also differed by which individual they approached to seek

advice on safe sex and HIV/AIDS; analysis of this variable showed that they sought advice from aunts or uncles (21% vs. 12%, p<0.01), peers (28% vs. 9%, p<0.0001), boy/girlfriends (9% vs. 3%, p<0.001) or health professionals (35% vs. 17%, p<0.0001). There were no significant difference between the two groups by education, type of residence, HIV transmission knowledge, abstinence belief, and family level factors of parents and grandparents (Table 1).

Multivariate Analysis

Table 2 summarizes the results of unadjusted and adjusted associations of the selected predictor variables and premarital sexual experience. At the bivariate level (columns 1-3), almost all characteristics with the exception of education, religious affiliation with the Apostolic sects, HIV transmission knowledge, abstinence belief, small risk perception for HIV infection and seeking advice from parents or grandparent, were significant associated with premarital sexual experience (p<0.05). In the adjusted logistic regression analysis, very few of the selected variables were significant predictors of premarital sexual experience, with most variables confounded by other variables (Table 2).

After adjusting for other variables, there was still a strong positive association between gender and premarital sexual experience (Table 2, column 4-6). As expected, males were 4.6 times more likely to have engaged in sex, compared to females (OR=4.56, 95% CI =2.09-9.96). Similarly, older age was associated with premarital sexual experience compared to younger age (age 18-20, OR=4.33, 95% CI =2.26-8.31; age 21-24 OR = 5.15, 95% CI=2.42-11.00). Although, having the expected direction of effect, education, religion, employment status, type of residence and household socioeconomic situation were not predictive of premarital sexual experience. Not surprisingly, odds ratio of premarital sexual experience among adolescents who used alcohol (compared to alcohol non-users) was 7.5 (OR = 7.47, 95% CI = 3.07-18.21). Regression analyses did not indicate that the social-cognitive variables of interest: knowledge of HIV transmission, abstinence belief and being faithful to one sexual partner were associated with premarital sexual experience. However, the odds of premarital sexual experience among adolescents who believed that use of condoms can prevent HIV infection was 1.98, compared to those

who did not belief that condom can prevent HIV infection, although the coefficient is only significant at the 0.10 level.

Perceived risk for HIV infection was strongly associated with premarital sexual experience, however not in the expected direction of effect. Among the adolescents, only those who perceived their risk to be moderate (compared to no risk) were more likely to have engaged in sex (OR=3.32, 95% CI=1.29-8.53). As regards adolescents seeking advice on HIV/AIDS or safe sex from family members and social networks, different patterns emerged. Multivariate logistic regression analysis showed that seeking advice from peers (OR=2.95, 95% CI=1.48-5.86) or health professionals (OR=1.66, 95% CI=0.92-2.98) had no protective effect against initiation of premarital sex; the effect for health professionals is only significant at the 0.10 level. Surprisingly, at odds with traditional norms, seeking advice from aunts or uncles did not confer protective effects against premarital sexual initiation. However, when controlling for interaction effect of gender and seeking advice from aunts or uncles, the direction of effect of aunts or uncles reverses. As expected, male adolescents who sought advice on sex or HIV/AIDS from aunts or uncles were less likely to engage in premarital sex, compared to female adolescents who sought advice on sex or HIV/AIDS from aunts or uncles (OR=0.22, 95% CI=0.05-0.89).

Discussion

The primary objective of this study was to describe premarital sexual experience as well as identify social-cognitive antecedents, family- and peer-level factors associated with premarital sexual experience in a rural setting in Zimbabwe. Our results show that premarital sex is more prevalent among males, and occurs at earlier ages than females. This finding is consistent with results across developing regions which indicate that rates in Latin America rate are up to twice as high among males as among females, while in Asia there are at least five times as high among males as among females (Blum et al. 2005). These results might suggest a gender-based double standard where there are lesser local cultural sanctions on boys to remain virgins until marriage or greater tolerance to premarital sex among boys than girls (Blum et al. 2005). Our study documented the median age at first sexual intercourse at 17.2 years with very little gender differences. This findings show that the mean age at sexual debut is higher compared to data from

Nigeria – 13.7 (Etuk et al. 2004), Jamaica – 13.6 (Stallworth et al. 2004) and Lithuania – 16.0 (Baseviciene et al. 2005). The late age of sexual debut reported among young men and women in Zimbabwe is particularly surprising given the high HIV prevalence rates, compared to those countries whose youth initiate sex at an early age.

The study documented high levels of HIV-related knowledge and identified many misconceptions regarding HIV transmission among this group of rural adolescents. Identified misconception included beliefs that unprotected oral sex was a safe sexual behavior and that transmission of HIV was still possible through mosquito bites or kissing. For example, if adolescents still believe that mosquitoes transmit HIV virus, they may see the use of condoms as futile. Some adolescents also believed that they would be able to tell if a person is infected with HIV. Some researchers report that asymptomatic transmission of HIV is not common in local concepts of disease (Hogsborg et al. 1992). The finding suggest that adolescents may less likely take precautions when having sexual intercourse with healthy-looking partners. The deficiencies in knowledge are not unique in this respect for this population. Similar findings have been reported in adolescent population elsewhere (Lanouette et al. 2003). The high levels of misconceptions about transmission are troubling, given that most theories of risk reduction emphasize the importance of accurate information (Fisher et al. 2002). Additionally, more troubling is that such misconceptions are prevalent in a country that has been experiencing a generalized HIV epidemic for the past two decades and where prevention campaigns have been implemented in most of the country (Government of Zimbabwe 2008). Based on these findings, we conclude that providing accurate information on HIV/AIDS progression, transmission and prevention still remains an important intervention for rural youth.

Consistent with several studies in sub-Saharan Africa (Maswanya 1999, Simbayi et al. 2005) and other developing regions (Ben-Zur et al. 2000, Park et al. 2002), we did not find any evidence of an association between HIV-related knowledge and premarital sexual experience. The results indicate that even though people seem to have basic knowledge about HIV/AIDS, behavior has not changed much (Prohaska et al. 1990). Therefore, the importance of connecting knowledge and behavior and of

11

identifying the missing link between knowledge and behavior change still remains a challenge. Consistent with previous research, we found that a majority of the adolescents in our study perceived themselves as being at little or no risk of HIV infection (Maswanya et al. 1999, MacPhail et al. 2001). Our study showed that adolescents who thought they were more likely at risk of HIV infection were all more likely to be sexually experienced. The results do not support health behavior models that posit that high perception of risk is associated with few risk taking behaviors. However, our findings are consistent with results documented in Kenya (Nzioka 1996, Akwara et al. 2003) and Ecuador (Park et al. 2002). Again, the cause of the discernible gap between perceived susceptibility of HIV infection and sexual experience is that adolescents might be having a sense of invincibility. Among adolescents, HIV infection is seen as a distant rather than an immediate threat: a disease that affects others. Additionally, given the cross-sectional study design, it is difficult to discern whether risk perception is based on previous sexual behavior or whether risk perception preceded their having sex.

Data from the present study illustrate that seeking advice from parents or grandparents had insignificant effects among the youth in our sample. However, seeking advice from peers had significant influence on premarital sexual experience. Several studies among adolescents have found similar results regarding sexual communication with peers on premarital sex (Meekers and Calves 1999, Magnani et al. 2002). However, as Podhisita et al. (2001) points out that such results should be taken with caution since it is difficult to determine whether those who have sex are just more likely to discuss sex with friends or whether discussing sex is a precursor for having sex. Discussing sexuality issues with aunts or uncles was associated with lower likelihood of ever having had sex among males. Karim at al. (2000) in a study of reproductive health risk and protective factors among unmarried youth in Ghana found similar results, again with the effect on female's premarital sexual debut not significant.

As expected, male gender and older age were significant predictors of sexual experience. Our findings also suggested that alcohol use increase the risk of HIV infection. Similarly, previous studies in Tanzania (Maswanya et al. 1999) and in the South Africa (Kaaya et al. 2002, Mpofu et al. 2006) showed the positive association between alcohol use and sexual activities. Substance use is a precursor to many

health-risk behaviors among youth, including early sexual debut and non-use of condoms during sex (Mataure et al 2002, Kalichman et al. 2007). This finding can be used by healthcare providers and health educators to build prevention messages that stress the relationships between substance use and sexual intercourse. For example, if substance use is causing sexual risk-taking, education and counseling should warn young people about the potential dangers of alcohol and other drugs on judgment, and should stress the connection between substance use and risky sexual behaviors in certain social contexts. Such education and counseling should help young people recognize the social cues involved and help them avoid the social situations that may lead to sexual risk behaviors (Santelli et al. 2001).

The limitations of this study should be noted. The cross-sectional design of the study does not allow either developmental or causal inferences. It should also be noted that these data are relevant only in one district in Manicaland province that was purposely selected at the outset of the survey. Thus, generalizing results to adolescent sexual experience beyond this region is incorrect. However, the results represent an important subgroup of Zimbabweans who may be putting themselves at risk of HIV infection. Additionally, the behavioral outcome adopted in the study is based on self-reported information, which is subject to reporting errors and biases (Shew et al. 1997). The type of data-collection procedures used in the study (personal interviewers, in this case) may have contributed to such errors. Furthermore, the constructs assessed in the study were limited; future research might address other hypothesized determinants of adolescent risk behavior, including interpersonal and self-management skills (DiClemente 1998), parental monitoring (Babalola et al. 2005), and cognitive maturity (Pedlow et al. 2003). The relatively small subsample of unmarried men and women is also a limitation of the study.

To conclude, this study clearly demonstrates premarital sex among adolescents in Zimbabwe is low compared to other developing countries. Additionally, the analysis shows that influences on adolescent sexual behavior are complex and that contextual factors such as aunts or uncles, peers, as well as individual characteristics such as gender, age, and use of alcohol play an important role. From a social policy perspective, the present findings raise some important and difficult questions. As some of the factors associated with sexual experience are biological and sociodemographic and thus are not easily

13

amenable to intervention. Clearly, the family and peer-level factors are important, programs and policies that target community members and youth-sexual and social networks warrant greater attention.

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Table 1. Means and percentage distribution of unmarried rural adolescents, by selected characteristics, according to sexual experience, Zimbabwe 2005 The Behavioral Risk and HIV Serostatus Survey, Manicaland Province[a]

Independent Variables	All		Premarital Sexual Experience			
			No		Yes	
	N	%	N	%	N	%
All respondents	477	100.0	350	73.4	127	26.6
Gender				***		
Male	286	60.0	181	63.3	105	36.7
Female	191	40.0	169	88.5	22	11.5
Agegroup				***		
15-17	215	45.1	194	90.2	21	9.8
18-20	163	34.2	107	65.6	56	34.4
21-24	99	20.7	49	49.5	50	50.5
Education						
Primary or less	114	23.9	87	76.3	27	23.7
Secondary or above	363	76.1	263	72.5	100	27.5
Religion				***		
Traditional	71	14.9	40	56.4	31	43.7
Christian	257	53.9	199	74.5	58	22.6
Apostolic	149	31.2	111	77.4	31	25.5
Employment status				***		
Not employed	403	84.5	310	76.9	93	23.1
Employed	74	15.5	40	54.0	34	46.0
Type of residence						
Communal/Resettlement	360	75.5	273	75.8	87	24.2
Commercial Farms/Growth Points	117	24.5	77	65.8	40	34.2
Household socioeconomic status				*		
Not enough money for basic needs	279	58.5	206	73.8	73	26.2
Enough money for basic needs	198	41.5	144	72.7	54	27.3
Alcohol use				***		
No	432	90.6	340	78.7	92	21.3
Yes	45	9.4	10	22.2	35	77.8
HIV transmission knowledge						
Poor knowledge	191	40.0	136	71.2	55	28.8
Good knowledge	286	60.0	214	74.8	72	25.2
HIV prevention knowledge						
Abstinence belief						
Yes	337	70.6	244	72.4	93	27.6
Being faithful belief				†		
Yes	328	68.8	233	71.0	95	29.0
Condom use belief				*		
Yes	383	80.3	272	71.0	111	29.0
Perception of risk for HIV infection				***		
No risk	215	45.1	173	80.5	42	19.5
Small risk	150	31.4	112	74.7	38	25.3
Moderate risk	39	8.2	21	53.8	18	46.2
High risk	73	15.3	44	60.3	29	39.7
Advice on HIV/AIDS or safe sex (yes)[1]						
Parent	19	4.0	12	63.2	7	36.8
Grandparent	33	6.9	23	69.7	10	30.3
Aunt or Uncle**	69	14.5	42	60.9	27	39.1
Peer***	68	14.3	32	47.1	36	53.9
Boyfriend**	19	4.0	8	42.1	11	57.9
Health professional ***	105	22.0	61	58.1	44	41.9
Other*	67	14.1	42	62.9	25	37.3

[a] Chi-square analyses comparing the selected characteristics are statistically significant at the 0.05 level or below with six exceptions. The exceptions are education, type of residence, HIV prevention knowledge, abstinence belief, parent and grandparent. [1]=Affirmative response in parentheses and more than one response possible. [2]Other = others includes teachers, pastors and traditional healers.
*** $p<0.001$; ** $p<0.01$; * $p<0.05$; † $p<0.10$

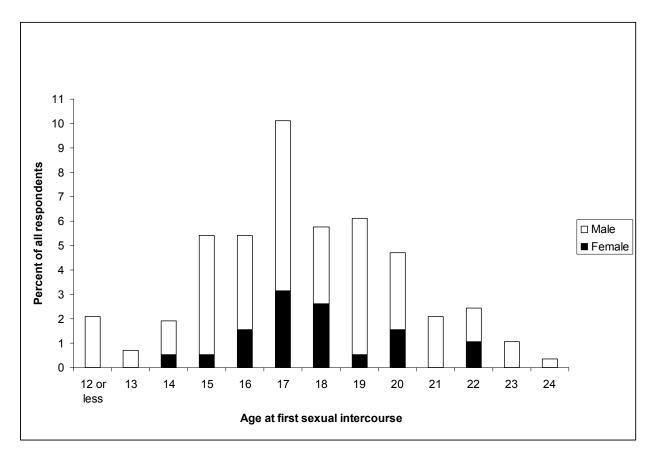Figure 1. Age at first sexual intercourse by gender, Manicaland Province[a]

Table 2. Multiple logistic regression models of risk and protective factors of premarital sexual intercourse, Zimbabwe 2005 The Behavioral Risk and HIV Serostatus Survey, Manicaland Province

Independent Variables	Unadjusted Odds Ratios (N=477)			Adjusted Odds Ratios (N=477)		
	OR	95% CI	p-value	OR	95% CI	p-value
Gender (ref: female)						
Male	4.46	2.69-7.38	<0.0001	4.56	2.09-9.96	<0.0001
Age (ref: 15-17)						
18-20	1.79	1.17-2.72	<0.006	4.33	2.26-8.31	<0.0001
21-24	3.99	2.50-6.36	<0.0001	5.15	2.42-10.99	<0.0001
Education (ref: primary or less)						
Secondary or above	1.22	0.75-2.00	<0.416	0.76	0.38-1.51	<0.438
Religion (ref: traditional)						
Christian	0.64	0.42-0.96	<0.031	0.65	0.31-1.35	<0.247
Apostolic	0.92	0.59-1.42	<0.709	0.80	0.36-1.77	<0.576
Employment status (ref: not employed)						
Employed	2.83	1.69-4.73	<0.0001	1.34	0.65-2.77	<0.422
Type of residence (ref: communal/resettlement)						
Commercial Farms/Growth Points	1.63	1.03-2.56	<0.0001	0.93	0.50-1.73	<0.832
Household socioeconomic status (ref: adequate needs)						
No adequate basic needs	0.94	0.63-1.43	<0.787	0.86	0.50-1.47	<0.572
Alcohol consumption (ref: does not drink)						
Drinks alcohol	12.93	6.17-27.10	<0.0001	7.47	3.07-18.21	<0.0001
HIV transmission knowledge (ref: poor knowledge)						
Good knowledge	0.83	0.55-1.25	<0.381	0.85	0.49-1.47	<0.562
HIV prevention knowledge						
Abstinence belief (ref: no)						
Yes	1.18	0.75-1.87	<0.457	1.14	0.63-2.08	<0.661
Being faithful (ref: no)						
Yes	1.49	0.94-2.36	<0.088	1.09	0.60-1.96	<0.774
Condom belief (ref: no)						
Yes	1.99	1.11-3.56	<0.020	1.98	0.92-4.23	<0.080
Self-reported perceived risk of HIV (ref: no risk)						
Small risk	0.91	0.58-1.41	<0.666	1.14	0.62-2.13	<0.663
Moderate risk	2.59	1.33-5.03	<0.005	3.32	1.29-8.53	<0.013
High risk	2.06	1.22-3.46	<0.007	1.65	0.79-3.44	0.181
Advice on HIV/AIDS or safe sex						
Parent	1.64	0.63-4.27	<0.308	0.91	0.26-3.21	<0.888
Grandparent	1.21	0.56-2.63	<0.621	0.62	0.24-1.61	<0.329
Aunt or uncle	1.98	1.16-3.37	<0.012	3.84	1.32-11.17	<0.013
Friend	3.93	2.31-6.68	<0.0001	2.95	1.48-5.86	<0.002
Boy/girlfriends	4.05	1.59-10.32	<0.003	2.07	0.63-6.86	<0.232
Health professional	2.51	1.59-3.97	<0.0001	1.66	0.92-2.98	<0.093
Other[3]	1.80	1.04-3.09	<0.034	1.25	0.62-2.53	<0.530
Interactions						
Gender * Aunt/Uncle	n/a	n/a	n/a	0.22	0.05-0.89	<0.034

Note: Subtotals are not consistent because of missing data.
n/a = not applicable
*** p<0.001; ** p<0.01; * p<0.05; † p<0.10