Sexuality Education and Men's Sexual and Reproductive Health Practices in a high HIV Prevalence Setting:

Does Exposure to Sexuality Education Improve Sexual and Reproductive Health Outcomes in Botswana?

Kenabetsho Bainame[1], Serai D Rakgoasi[2],Mpho Keetile[3] and Motsholathebe Bowelo[4]

University of Botswana

Department of Population Studies

bainamek@gmail.com

Abstract

Exposure to sexuality education is expected to have a positive effect on an individual's sexual and HIV risk practices and behaviors in later life. This paper uses data from the 2007 Botswana Family Health survey (BFHS-2007) to investigate the association between exposure to sexuality education in schools and men's sexual and reproductive health practices. The BFHS-2007 sampled 4030 men between ages of 12-29 years, and solicited responses on a wide range of issues, including exposure to sexuality education, sexual and reproductive practices; fertility as well as partner characteristics. About 82% of men were exposed to sexuality education, of which silightly more than 50% have had sexual initiation. A high percentage of respondents who have not received sexuality education would have not used a condom at sexual debut and would have desired a child. The paper concludes that if introduced early, sexuality education improves life skills in sexual initiation, condom use and childbearing.

Key words: HIV, Sexuality education, health, reproductive practices, fertility, partner

Introduction

Formal sexuality education has been hailed as a key strategy for promoting safer sexual behaviors for men of all ages (Department of Health and Human Services, 2000). Several studies have also indicated that sexuality education programs increase participants' knowledge on human reproduction and methods of contraception and alter some of their attitudes (Kirby, 1984). Among young men who have taken sexuality education courses, studies show that they report more tolerant attitudes towards the sexual behaviors of others but little change in the values that govern their personal behaviors (Esere, 2008). Recently, sexuality education has received renewed interest, especially in sub-Saharan Africa (Esere, 2008). Comprehensive sexuality education has been observed to be effective at assisting young people to make healthy decisions about sex and to adopt healthy sexual behaviors [Alford, 2003, 2008 & Kirby, 2001, 2005).

In Botswana school-based programs that provide young people with sexual health information, life skills, and services to meet their sexual and reproductive health needs have been a subject of debate for some time and there seem to be no remedy in the immediate future. According to Mills (2009) there is no formal sexuality education in schools in Botswana, and studies show that many parents are uncomfortable talking about sexuality with their children. However, young people receive some information about sexuality and HIV prevention both informally from friends and acquaintances, and through Botswana's HIV prevention social marketing programs (Mills, 2009).

Meanwhile a collaborative regional curriculum scan conducted in 2011, to assess the content, quality, and delivery methods of sexuality education (SE) curricula in ten Eastern and Southern African countries, showed that Botswana and Swaziland sexuality education curricula stood out as the strongest. In fact, in Botswana, both the curriculum and frameworks were opined to be strong and thoughtfully

address what it means to grow up in a high HIV prevalence setting (UNESCO &UNFPA, 2012). This inconsistency on sexuality education literature for Botswana is noteworthy. According to a newspaper report (Mmegi 2011) sexuality education was the subject of debate at the two-day moral education "Pitso" or Conference, organized by the Ministry of Education and Skills Development (MoE&SD) to solicit ideas from tribal leaders, legislators, churches, teachers and students on the extent and breadth of sexuality education and issues of sexuality coverage in the Junior Certificate (JC) curriculum.

According to Botswana Council of Non-Governmental Organizations (BOCONGO) sexuality education should not be opposed as long as it sticks to the basics, such as male and female anatomy, matters of contraceptives and reproduction. Their view is that sexuality education curricula should consider morality of the society. The main argument was from a moralistic approach that obscures the power dynamics that are the real threat to young people's sexual health and rights. According to the Xinhua News Agency (2011 cited by UNESCO & UNFPA, 2012), '. the government was faced with challenges of the textbook evaluation procedures concerning sexuality education and issues of sexuality coverage in the Junior Certificate (JC) curriculum and currently looking into ways of revising the system' and the use of the moral education textbook was suspended while consultation goes on to get ideas on the depth and context of sexuality education in moral education.

In Botswana, the 2005 curriculum emphasized promoting tolerance and respect, healthy relationships and communication and decision-making skills while the 2010 framework added outcomes and indicators on gender equality, human rights, vulnerability reduction and HIV treatment, all of which were missing from the 2005 curriculum. Relatively there are few studies which have attempted to measure behavior effects of sexuality education programs among young men. To our knowledge there is little evidence on the effects of sexuality education on men's sexual and reproductive health practices in Botswana. Documentation of whether exposure to sexuality education affects sexual and reproductive health outcomes is essential for development of proper interventions to maintain and bolster sexuality education programs. Young people in Botswana need sexuality education that prepares them for accessing sexual and reproductive health services when they need such services. The 2011-2015 UNAIDS strategy recommends comprehensive sexuality education and suggests its incorporation into education and health programmes as a much needed intervention to revolutionize HIV prevention.

In this article we examine the effects of sexuality education on the sexual reproductive health outcomes of young men in Botswana-specifically focusing on sexual relations, use of contraceptive methods, childbearing, number of partners with biological children and partner antenatal attendance.

Research questions

- Does exposure to sexuality education influence men's sexual and HIV risk practices / behaviors?
- In particular, does exposure to sexuality education influence:
  - Engagement in sexual relations?
  - Contraceptive use at first sex?
  - Having children?
  - Number of women with whom men father children?
  - Partner's attendance of ANC?
  - Among men who were exposed to sexuality education – Does the level at which men were exposed (primary; secondary or tertiary) have a significant influence on men's sexual and HIV risk practices / behaviors?

Methodology

Data source

The paper uses data from the Botswana Family Health Survey IV of 2007 (BFHS-IV) to assess the role of exposure to sexuality education on the sexual and HIV risk behaviors and practices of men in Botswana. The Botswana Family Health Survey IV (BFHS-IV) is the fourth in a series of nationally representative demographic surveys whose main objectives were to collect information on fertility, contraception, health and antenatal attendance about men aged 12 to 49 years. The three preceding surveys are the Botswana Family Health Survey 1984 (BFHS-I) and the Botswana Family Health Survey 1988

(BFHS-II) and the Botswana Family Health Survey 1996 (BFHS-III).

Sampling Strategy for BFHS-IV

The BFHS IV uses a weighted, nationally representative sample of women in the 15-49 age group and men in the age group 12-49 years. The BFHS IV utilized a two-stage sampling design, with the primary sampling unit being the census enumeration areas (EAs) and the second stage being the household. The sample design was self-weighting at household level (within the urban and rural sectors) but not at the national level. In the first stage, EAs were systematically selected, with probability proportional to size in each of the (five) strata, (two urban, three rural) using the following equation:

$P_i = (a_b * M_{bi}) / M_b$

Where P_i = first stage selection probability

a_b = number of EAs selected in a particular strata

M_{bi} = measure of size of the i-th selected EA

M_b = measure of size of the strata under consideration.

At the second stage, individual households were selected with probability of selection inversely proportional to size, using the following formula:

$P_i = f / (a_b * M_{bi} / M_{b)}$

Where $f = P_1 * P_2$ = self-weight

Pi = first stage selection probability

a_b = number of EAs selected in a particular strata

M_{bi} = measure of size of the *i*-th selected EA

M_b = measure of size of the strata under consideration

To achieve the required sample size, 7860 households were needed, giving an overall sampling fraction (f) of one in twenty-five (1/25) in urban areas and one in sixty-four (1/64) in rural areas. A total of 393 EAs were selected with probability proportional to size, producing a total of 7,031 that were successfully interviewed with a response rate of 90 percent. The cities/towns and urban villages had almost the same response rate of 90.5 percent and 90.4 percent respectively. In rural areas the response rate was lower at 88.0 percent. In the households interviewed 7,319 women aged 12 - 49 years were identified as eligible for the individual questionnaire of which 6,916 were successfully interviewed, giving a response rate of 94.5 percent. A total of 6,712 eligible men (aged 12-49 years) were identified in the households, out of these, 6,101 were successfully interviewed giving a response rate of 90.9 per cent slightly lower than the female response rate. Finally 2,837 children aged 0-4 years were listed in the household questionnaire and only 2,726 questionnaires were completed for the children, yielding a response rate of 96.1 percent.

For purposes of this paper, the BFHS IV sample was restricted to include only males between the ages of 12 to 29 years. This resulted in a sample size of 4,030, on which this analysis is based.

Data analysis

The logistic regression analysis is used to evaluate the effect of exposure to sexuality education; as well as the effect of level of education at which men were exposed to sexuality education, on selected indicators of men's sexual and reproductive health practices.

Logistic regression model is suitable for this analysis because it provides an interpretable linear model for a categorical dependent variable. This method also allows us to test the significance of a given predictor whilst controlling for all other predictors in the model (DeMaris, 1992). Even though the model allows for the inclusion of continuous variables, all predictor variables in the model are categorical variables.

The model

Model specification needed: Let P_i be the probability that the i^{th} respondent with sexuality education) and (1 - P_i) be the probability that the respondent has not received sexuality education. Therefore P_i / (1 - P_i) is equal to the odds that the i^{th} respondents with sexuality education. Also, the log P_i / (1 - P_i) is the log odds of the i^{th} respondents with sexuality education. Let x_{i1}, x_{i2}, x_{i3}, ..., x_{ik} be a set of k predictor variables. We model the logit instead of P_i itself because linear models produce predicted values in the (- ,+)

range rather than the restricted (0,1) range (Agresti and Finlay, 1986). Then the logit model for the log odds of having recived sexuality education given a particular vector of scores on the k predictor variables is:

$$\log P_i / (1 - P_i) = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + ... + \beta_k x_{ik}$$

and the corresponding multiplicative model for the odds is:

$$P_i / (1 - P_i) = e^{\beta 0} + e^{\beta 1 xi1} + e^{\beta 2 xi2} + ... + e^{\beta kxik}$$

The estimates for the regression coefficients are obtained by the method of maximum likelihood. The betas represent the change in the log odds due to the unit increments in the values of the predictors (DeMaris, 1992). Interpreting logistic regression results in terms of odds, e^{β}, is a summary statistic for the partial effect of a given predictor on the odds, controlling for other predictors in the model. For multivariate analysis, logistic regression results were obtained on the effect of exposure to and timing of sexuality education on a variety of sexual and reproductive health practices and outcomes. The analysis was based on three (3) models for the five dependent variables (being sexual relations, contraceptive use at first sex, having a biological child, whether children have the same biological mother and antenatal attendance):

MODEL 1: Gross effects (dependent and independent variable only)

MODEL 2: Net Effects (Independent variable plus background variables)

MODEL 3: Net Effects (Independent variable plus background variables + any other variables that have an influence on the dependent variable).

RESULTS

Socio-demographic Characteristics

The 2007 Botswana Family Health Survey solicited responses from 4030 males aged between 12-29 years (it should however be noted that for some background variables this number was not attained due to non-response). In this survey population, 40.2 percent were rural residents and 33.6 percent resided in urban villages. The age distribution mirrors that of the national population, with fewer respondents in the age groups 12-14 years (17.7 percent) and 25-29 years (25.8 percent). It can also be deciphered from the data that the survey population has some form of literacy, with over 95 percent having attained primary education or more. The data also show a predominantly Christian population (71.1 percent), many of the respondents have never been married (86.8 percent) and 32.9 percent were not in employment (also see table 1).

Exposure and timing of Sexuality education and selected Sexual and Reproductive Health Practices and Outcomes

This study targeted 4030 males aged 12-29 years. Out of the 4027 men aged 12-29 years responding to the question on attendance of sexuality education classes, 81.9 percent have ever attended classes on sexuality education. Of the 3266 who attended sexuality education classes, 52.5 percent attended classes on sexuality education for the first time while in primary school and the remaining 47.5 were in secondary schools or higher.

Sexuality education classes covered topics such as HIV/AIDS, Sex, STI's, Physical changes and others. The results of the analysis show that most respondents (97.1 per cent) attended classes on HIV/AIDS, this was followed by Sex (96.4 percent), STI's (96.2 percent), and Physical changes (95.3 percent). Topics on Delivery, Prostitution, Homosexuality and lactation did not receive as much attendance. Amongst 4026 males aged 12-29 years, 50.9 percent reported to have engaged in sexual relations. About 78 percent did so before reaching the age of 20 years. The data from the BFHS 2007 also shows that out of the 2054 respondents who have ever had sexual relations, 86.2 percent used some form of contraception the first time they had sex.

It can further be found from the data that of the 2054 respondents who have ever had sexual relations, 29.8 percent went on to have a biological child and 17.4 percent did so before reaching the age of 20 years. The study also found out that of the 2054 respondents, 3.2 percent had three or more children, 7.6 had two children and 19.0 percent had one child. For those who had two or more children, 61.5 percent were with the same biological mother.

Respondents were also asked questions related to antenatal attendance, where out of the

523 respondents, 85.7 percent reported that their partner had antenatal check-ups and 28.1 percent were present during antenatal check-ups.

The BFHS 2007 solicited responses on radio listenership and television viewership. Of the 4027 respondents, 9.2 percent watched television only, 12.4 percent had access to none, 13.8 percent listened to radio only and 65.1 percent listened to radio and watched television (see table 2).

Association between sexuality education and sexual and reproductive health practices & outcomes

Data in table 3 shows that 51.8 per cent of respondents who have attended classes on sexuality education have had sexual relations compared with 46.7 percent among those who have not attended classes on sexuality education. A chi-square test shows that there is statistically significant association between sexuality education and sexual relations ($\chi^2 = 5.391$, $Df = 1$, $P = 0.000$). A further examination of table 3 shows that use of contraception during the first sexual relation is higher among respondents who attended sexuality education (88.0 percent) compared with 77.3 percent among those who did not attend sexuality education classes. There is a statistically significant relationship between sexuality education and use of contraceptives the first time they had a sexual relation ($\chi^2 = 24.205$, $Df = 1$, $P = 0.000$). It can also be found that 38.0 percent of respondents who did not attend sexuality education classes had a biological child compared with 28.0 percent among those who attended sexuality education classes. Again the chi-square test also show a statistically significant association between sexuality education and having a biological child ($\chi^2 = 11.838$, $Df = 1$, $P = 0.001$). These statistically significant associations extended to variables on age at first sexual relations ($\chi^2 = 9.317$, $Df = 2$, $P = 0.000$), radio listenership and TV viewership ($\chi^2 = 67.745$, $Df = 3$, $P = 0.000$) and whether their partners attended antenatal check-ups ($\chi^2 = 12.128$, $Df = 1$, $P = 0.001$). However, there were no statistically significant differences between respondents who attended sexuality education classes and those who did not for the following variables: whether the respondent had children with the same woman, and whether they accompanied their partners for antenatal check-ups.

Association between timing of sexuality education and selected sexual and reproductive health practices and outcomes

The data from table 4 shows that 46.3 percent of respondents who attended sexuality education classes at primary and grades preceding primary level have had sexual relations, this compares with 58.1 percent of respondents who attended sexuality education during secondary or higher levels. The relationship is statistically significant ($\chi^2 = 39.334$, $Df = 1$, $P = 0.000$). It was also found that there was statistically significant relationship between timing of sexuality education and radio listenership and television viewership ($\chi^2 = 4.338$, $Df = 3$, $P = 0.005$) (see table 4). Usage of contraceptives at first sex, age at first sex, ever had biological child, age at first birth, antenatal attendance and whether children have the same biological mother were found not to have a statistically significant relationship with the timing of exposure to sexuality education.

The effect of exposure to and timing of sexuality education on selected sexual and reproductive health practices and outcomes

In this section binary logistic regression results were obtained on the effect of exposure to and timing of sexuality education on a variety of sexual and reproductive health practices and outcomes. The analysis was based on three (3) models for the five dependent variables (being sexual relations, contraceptive use at first sex, having a biological child, whether children have the same biological mother and antenatal attendance):

MODEL 1: Gross effects (dependent and independent variable only)

MODEL 2: Net Effects (Independent variable plus background variables)

MODEL 3: Net Effects (Independent variable plus background variables + any other variables that have an influence on the dependent variable).

Sexual Relations:

Results of the effects of each of the independent variables on the likelihood of having had sexual

relations are in most instances statistically significant (see table 6). However, the net effect of background variables on the likelihood of having had sexual relations is pronounced for the following variables: age, current level of education, marital status, labour force participation and religion. For instance, respondents who attended sexuality education classes in primary school or at lower levels were 1.802 (P=0.005) times more likely to have had sexual relations than respondents who did not attended sexuality education classes, if all other background variables are held constant. While on that, those who attended sexuality education classes at secondary or higher were 1.397 more likely to have had sexual relations than those who had not attended sexuality education classes, though this was not statistically significant.

Table 5 also shows that if all other variables in the equation are held constant, young men under 20 years were far much more less likely (exp (β) = 0.094, P=0.000) to have had sexual relations compared to those aged 25-29 years. Respondents who are employed (exp (β) = 1.386, P=0.036) and had ever been in a union (exp (β) = 17.003, P=0.000) were more likely to have had sexual relations compared to the unemployed and never married in that order. Model 3 in table 5 shows the effect of sexuality education on the likelihood of having had sexual relations bears on radio listenership and television viewership, age, marital status, labour force participation and some extent religious affiliation. The results from table 5 show that respondents who listen to radio and watch television were 2.509 (P=0.000) times more likely to have had sexual relations compared with respondents who were not exposed to radio and television. The introduction of the variable on radio listenership and television viewership also improved the coefficients on religious affiliations such that Christians were 0.696 times less likely to have had sexual relations compared to respondents with no religion.

***Contraceptive use at first sexual relation*:**

Data in table 6 shows that male respondents aged 12-29 years who had attended sexuality education classes when they were in primary or lower grades were 2.048 (P=0.00) times more likely to have used a contraceptive method the first time they had a sexual encounter as compared to their counterparts who were not exposed to sexuality education. This phenomena was also prevalent in cities/towns, urban villages, those aged less than 25 years, and those who listened to radio and watch television (see model 1 in table 6). When the dependent variables contraceptive use at first sexual intercourse is run against background characteristics, respondents who were exposed to sexuality education at primary or lower grades were 1.163 (P=0.524) times more likely to have used a contraceptive method the first time they had sex compared to respondents who did not attend sexuality education classes. However, place of residence seem to be an important factor in determining the use of contraceptive method at first sex since residents of cities and towns were 1.522 (P=0.032) times more likely to use some form of contraceptive at first sex as opposed to their counterparts in rural areas. The statistical significance of the relationship fades when variables on age at first sex and radio listenership and television viewership are introduced in the model 3 (see table 6).

***Biological Child*:**

Exposure to sexuality education has an effect on the likelihood of having a biological child. The results in table 7 show that respondents who attended sexuality education classes at primary or lower levels were 0.608 (P=0.001) times less likely to have a biological child compared to those with no sexuality education (as shown in model 1). Similarly respondents who had attended sexuality education classes when they were in secondary school or at higher level were less likely to have a biological child compared to those with no sexuality education (exp (β) = 0.668, P=0.004). When background variables are introduced in model 2 and 3, the statistical significance fades though the relationship remain the same. It is noteworthy to mention that the variables on age and marital status are statistically significant in all three models. For instance it was found that respondents under 20 years were 0.063 (P=0.000) times less likely to have had a biological child than those aged 25-29 years. While respondents ever in union were 6.602 (P=0.000) times more likely to have had a

biological child compared to respondents who have never been in union if all other variables are held constant.

Biological Children born to the same Mother: Respondents were asked the number of children they have and whether they were with the same biological mother, the results in table 8 show that though respondents who were exposed to sexuality education at primary level and lower (exp (β) = 1.225, P=0.603), and those with secondary school and higher (exp (β) = 1.005, P=0.990) were more likely to have fathered children with more than one women, they were not statistically significant. In fact the only statistically significant relationship is in the effect of respondents ever in union on the likelihood of having children with different mothers in all three (3) models. In assessing the net effect of the background variables and age at first and exposure to radio and television, respondents who listen to radio were 0.294 (P=0.031) times were less likely to have children with different mothers compared to respondents who were not exposed to radio or television.

Antenatal Attendance: Data on the relationship between the exposure to sexuality education and antenatal attendance show that both respondents who were exposed to sexuality education at primary or lower level and those exposed at secondary or higher levels were more likely to have had their partner undergo antenatal check-ups compared to those who never attended. However, when background variables were introduced in the model, the relationship was not statistically significant (see table 9). Apparently, respondents under the age of 20 years and respondents affiliated to other religious denomination other than Christianity were less likely to have had their partner undergo antenatal check-up (see table 9).

Discussion

Comprehensive sexuality education has been hailed as a key strategy for promoting safer sexual behaviours in the population (Department of Health and Human Services, 2000).There is evidence that sexuality education (CSE) that is scientifically accurate, culturally and age-appropriate, gender-sensitive and life skills-based can provide men with the knowledge, skills and efficacy to make informed decisions about their sexual and reproductive health practices (Toroitich-Ruto 1997; UNESCO 2009). Findings from this study indicate that 82% of men had ever attended classes on sexuality education. This is consistent with the findings of the Collaborative Regional Curriculum Scan conducted by UNESCO & UNFPA (2012) that Botswana's sexuality education curricula is one of the best in terms of coverage and content in Eastern and Southern Africa. It is also worth noting that about half of the respondents who received sexuality education did so while in primary school. This is indicative of uncertainties of when sexuality education should be introduced in schools. On one hand the parents, community and religious leaders hold a moral view while on the other civic society see it as opportunity to empower young people on matters of contraceptives and reproduction. In the USA a similar debate ensue, the question centers on who should teach students about issues relating to sex such as intercourse, pregnancy, contraception, gender identity, sexual orientation, sexually transmitted diseases, and relationships (Isadora and Flynn, 2015).

Our findings show that most respondents have attended classes on topics such as HIV/AIDS, sex, STI'S, and physical changes. Meanwhile, few men in our sample indicated that they had ever attended classes on topics such as delivery, prostitution, homosexuality and lactation. This is reasonably so because in a high HIV/AIDS prevalence setting such as Botswana the most relevant sexuality education program would be on the HIV/AIDS related topics. For instance, a study by UNESCO (2011), between 2001 and 2009, found that after the introduction of sexuality education in Estonia, there were significant improvements in sexual and reproductive health outcomes. Almost 7,200 STIs and 2,000 HIV infections were averted. About 4% of the reductions in HIV infections were attributed to sexuality education in the same study.

Results indicate that males who had attended sexuality education classes in primary school level were more likely to have used contraceptives the first time they had sexual intercourse. According to UNESCO (2009), the

primary goal of sexuality education is to equip children and young people with the knowledge, skills and values to make responsible choices about their sexual and social relationships in a world affected by HIV. This is even more important in Botswana where HIV prevalence is very high. Educating children at a very young age about their sexuality and health will go a long way in helping them to make correct decisions in their adult life. The focus should not only be on the abstinence focused education programs but in the comprehensive sexuality education programs which are more holistic in their approach. In the United States for instance, it has been established that comprehensive sexuality education programs delivered to children have significant benefit to children in their later life (UNESCO 2011).

Moreover, it was observed from the findings of the study that respondents who were exposed to sexuality education classes were less likely to have a biological child. Males who had exposure to sexuality education at all levels of education were more likely to have had their partners undergo antenatal check-ups.

Conclusion

The study concludes that sexuality education plays a part in improving life skills in sexual relations, use of contraceptive and childbearing. This is to say that males use knowledge acquired from attending sexuality education classes to avert pregnancy and ultimately births. It should concern policy makers that among those receiving sexuality education some go on to have a biological, especially those who had a biological child before reaching age 20. However, there are no differences in behavior with regard to antenatal support and bearing of children with other women. There is further observation that many of the young people in this age group listen to radio and watch TV. It therefore may not come as a coincidence that some of the life skills attained that affect their sexual and reproductive health decision come from these sources. It is evident that sexuality education is relevant in improving the life skills insofar as sexual initiation and contraceptive use are concerned. This emphasis why it is important that the timing of exposure to sexuality education should come before young person's reaches sexual maturity.

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Appendix

Table 1: Percentage Distribution of the Survey Population by Socio-demographic Characteristics, BFHS 2007

Place of residence	Number	Percent
City/Town	1,054	26.2
Urban Village	1,356	33.6
Rural	1,620	40.2
Total	4,030	100.0
Age		
<20	1892	46.9
20-24	1,098	27.2
25-29	1,040	25.8
Total	4,030	100.0
Level of education		
Primary or below	1177	29.2
Secondary or higher	2852	70.8
Total	4,029	100.0
Marital Union Status		
Ever in Union	531	13.2
Never in Union	3,496	86.8
Total	4,027	100.0
Labor participation[1]		
Employed	1,300	67.1
Unemployed	638	32.9
Total	1,938	100.0
Religious affiliation		
Christianity	2,855	71.1
Other Religion	194	4.8
No Religion	966	24.1
Total	4,015	100.0

[1] The participation rate refers to the number of people who are either employed or are actively looking for work. The respondents who were no longer actively seeking employment were not included in the participation rate.

Table 2: Exposure and timing of exposure to sexuality education among men in Botswana, and selected sexual & reproductive practices & outcomes, BFHS 2007

	Number	Percent
Have you ever attended classes on sexual education		
Yes	3306	81.9
No	721	18.1
Total	4027	100.0
In which level of education were you when you received the first lesson		
Primary or below	1756	53.1
Secondary or higher	1550	46.9
Total	3306	100.0
Have you ever had sexual relations		
Yes	2054	50.9
No	1972	49.1
Total	4026	100.0
How old were you when you had sex for the first time		
Less than 20 years	1597	77.8
20-24 years	400	20.0
25-29 years	44	2.2
Total	2041	100.0
Exposure to radio or television		
Both radio and television	2618	65.1
Radio only	524	13.3
Television only	379	9.2
None	506	12.4
Total	4027	100.0
Did you or your partner use any contraceptive method during this first sexual relation		
Yes	1772	86.2
No	282	13.8
Total	2054	100.0
Have you ever had biological children		
Yes	627	29.8
No	1427	70.2
Total	2054	100.0
How many biological children do you have		
0	1427	70.2
1	400	19.0
2	160	7.6
3+	67	3.2

Total	2054	100.0
How old were you when your (first) child was born		
Less than 20 years	108	17.4
20-24 years	359	57.8
25-29 years	158	24.8
Total	625	100.0
Do all of your biological children have the same biological mother		
Yes	134	61.5
No	91	38.5
Total	225	100.0
When mother was pregnant with child did she have any antenatal check-ups		
Yes	444	85.7
No	79	14.3
Total	523	100.0
Were you present during any of those antenatal check-ups		
Yes	130	28.1
No	314	71.9
Total	444	100.0

Table 3: Association between exposures to sexuality education and selected sexual and reproductive health practices and outcomes, BFHS 2007

	Have you ever attended classes on sexual education		
Have you ever had sexual relations	Yes	No	Total
Yes	1711 (51.8)	343 (46.7)	2054 (50.9)
No	1594 (48.2)	378 (53.3)	1972 (49.1)
Total	3305	721	4026
	$\chi^2 = 5.391$	Df = 1	P = 0.000
How old were you when you had sex for the first time			
Less than 20 years	1360 (79.4)	237 (69.9)	1597 (77.8)
20-24 years	315 (19.0)	85 (25.3)	400 (20.0)
25-29 years	28 (1.7)	16 (4.7)	44 (2.2)
Total	1703	338	2041
	$\chi^2 = 9.317$	Df = 2	P = 0.000
Exposure to radio or television			
Both radio and television	2313 (69.7)	305 (44.0)	2618 (65.1)
Radio only	393 (12.4)	131 (17.5)	524 (13.3)
Television only	296 (8.7)	83 (11.4)	379 (9.2)
None	304 (9.2)	202 (27.1)	506 (12.4)
Total	3306	721	4027

	$\chi^2 = 67.745$	Df = 3	P = 0.000
Did you or your partner use any contraceptive method during this first sexual relation			
Yes	1510 (88.0)	262 (77.3)	1772 (86.2)
No	201 (12.0)	81 (22.7)	282 (13.8)
Total	1711	343	2054
	$\chi^2 = 24.205$	Df = 1	P = 0.000
Have you ever had biological children			
Yes	493 (28.2)	134 (38.0)	627 (29.8)
No	1218 (71.8)	209 (62.0)	1427 (70.2)
Total	1711	343	2054
	$\chi^2 = 11.838$	Df = 1	P = 0.001
How many biological children do you have			
0	1218 (71.8)	209 (62.0)	1427 (70.2)
1	318 (18.1)	82 (23.4)	400 (19.0)
2	134 (7.6)	26 (7.5)	160 (7.6)
3+	41 (2.4)	26 (7.1)	67 (3.2)
Total	1711	343	2054
	$\chi^2 = 8.457$	Df = 3	P = 0.000
How old were you when your (first) child was born			
Less than 20 years	80 (16.7)	28 (19.9)	108 (17.4)
20-24 years	281 (57.3)	78 (59.5)	359 (57.8)
25-29 years	130 (25.9)	28 (20.6)	158 (24.8)
Total	491	134	625
	$\chi^2 = 0.870$	Df = 2	P = 0.419
Do all of your biological children have the same biological mother			
Yes	102 (62.0)	32 (59.9)	134 (61.5)
No	71 (38.0)	20 (40.1)	91 (38.5)
Total	173	52	225
	$\chi^2 = 0.070$	Df = 1	P = 0.791
When mother was pregnant with child did she have any antenatal check-ups			
Yes	357 (88.6)	87 (75.2)	444 (85.7)
No	52 (11.4)	27 (24.8)	79 (14.3)
Total	409	114	523
	$\chi^2 = 12.128$	Df = 1	P = 0.001
Were you present during any of those antenatal check-ups			
Yes	105 (28.4)	25 (26.9)	130 (28.1)
No	252 (71.6)	62 (73.1)	314 (71.9)
Total	357	87	444
	$\chi^2 = 0.070$	Df = 1	P = 0.791

Table 4: Association between level at which respondents were exposed to sexuality education and selected sexual and reproductive health practices and outcomes, BFHS 2007

	In which level of education were you when you received the first lesson		
Have you ever had sexual relations	Primary or below	Secondary or higher	Total
Yes	800 (46.3)	911 (58.1)	1711 (51.8)
No	955 (53.7)	639 (41.9)	1594 (48.2)
Total	1755	1550	3305
	$\chi^2 = 39.334$	Df = 1	P = 0.000
How old were you when you had sex for the first time			
Less than 20 years	653 (81.8)	707 (77.1)	1360 (79.4)
20-24 years	135 (16.9)	180 (20.9)	315 (19.0)
25-29 years	10 (1.3)	18 (2.0)	28 (1.7)
Total	798	905	1703
	$\chi^2 = 2.572$	Df = 2	P = 0.076
Exposure to radio or television			
Both radio and television	1184 (68.1)	1119 (71.6)	2313 (69.7)
Radio only	218 (12.5)	175 (12.1)	393 (12.4)
Television only	188 (10.5)	108 (6.7)	296 (8.7)
None	156 (8.8)	148 (9.5)	304 (9.2)
Total	1756	1550	3306
	$\chi^2 = 4.338$	Df = 3	P = 0.005
Did you or your partner use any contraceptive method during this first sexual relation			
Yes	702 (87.5)	808 (88.4)	1510 (88.0)
No	98 (12.5)	103 (11.6)	201 (12.0)
Total	800	911	1711
	$\chi^2 = 0.316$	Df = 1	P = 0.574
Have you ever had biological children			
Yes	232 (27.2)	261 (29.1)	493 (28.2)
No	568 (72.8)	650 (70.9)	1218 (71.8)
Total	800	911	1711
	$\chi^2 = 0.666$	Df = 1	P = 0.414
How many biological children do you have			
0	568 (72.8)	650 (70.9)	1218 (71.8)
1	153 (17.9)	165 (18.4)	318 (18.1)
2	54 (6.5)	80 (8.7)	134 (7.6)
3+	25 (2.8)	16 (2.0)	41 (2.4)
Total	800	911	1711
	$\chi^2 = 1.183$	Df = 3	P = 0.314

How old were you when your (first) child was born			
Less than 20 years	39 (16.8)	41 (16.6)	80 (16.7)
20-24 years	128 (54.5)	153 (59.8)	281 (57.3)
25-29 years	65 (28.7)	65 (23.6)	130 (25.9)
Total	232	259	491
	χ^2 =0.792	Df = 2	P = 0.453
Do all of your biological children have the same biological mother			
Yes	47 (64.6)	55 (60.0)	102 (62.0)
No	31 (35.4)	40 (40.0)	71 (38.0)
Total	78	95	173
	χ^2 = 0.353	Df = 1	P = 0.552
When mother was pregnant with child did she have any antenatal check-ups			
Yes	169 (85.9)	188 (91.1)	357 (88.6)
No	30 (14.1)	22 (8.9)	52 (11.4)
Total	199	210	409
	χ^2 = 2.704	Df = 1	P = 0.100
Were you present during any of those antenatal check-ups			
Yes	43 (24.0)	62 (32.1)	105 (28.4)
No	126 (76.0)	126 (67.9)	252 (71.6)
Total	169	188	357
	χ^2 = 2.538	Df = 1	P = 0.111

Table 5: Logistic regression coefficients showing the effect of exposure to sexuality education and level of exposure on likelihood of having had sexual intercourse

	MODEL 1		MODEL 2		MODEL 3	
Exposure to sexuality education and level of exposure	Sig.	Exp (β)	Sig.	Exp (β)	Sig.	Exp (β)
Exposed to sexuality education at primary level/below	.853	.982	.005	1.802	.024	1.634
Exposed to sexuality education at secondary level/higher	.000	1.584	.140	1.397	.208	1.335
Never been exposed to sexuality education		1.000		1.000		1.000
Place of residence						
City/Town	.000	1.997	.114	1.385	.459	1.164
Urban Village	.062	1.158	.779	1.053	.606	.910
Rural		1.000		1.000		1.000
Age group						
Less than 20 years	.000	.013	.000	.094	.000	.096
20-24 years	.000	.368	.000	.507	.000	.520
25-29 years		1.000		1.000		1.000
Level of education						

Primary or below	.000	.270	.027	.638	.165	.745
Secondary or higher		1.000		1.000		1.000
Marital Union Status						
Ever in Union	.000	104.609	.000	17.003	.000	17.336
Never in Union		1.000		1.000		1.000
Labour participation						
Employed	.000	1.952	.036	1.386	.017	1.448
Unemployed		1.000		1.000		1.000
Religious affiliation						
Christianity	.000	.672	.053	.724	.033	.696
Other Religion	.061	1.393	.210	.665	.265	.699
No religion		1.000		1.000		1.000
Exposure to radio or television						
Both radio and television	.000	1.909			.000	2.509
Radio only	.000	2.114			.026	1.761
Television only	.632	.930			.035	1.901
None		1.000				1.000

MODEL 1: Gross effects (dependent and independent variable only)

MODEL 2: Net Effects (Independent variable plus background variables)

MODEL 3: Net Effects (Independent variable plus background variables + any other variables that have an influence on the dependent variable)

Table 6: Logistic regression coefficients showing the effect of exposure to sexuality education and level of exposure on likelihood of using a contraceptive method during first sexual encounter

	MODEL 1		MODEL 2		MODEL 3	
Exposure to sexuality education and level of exposure	Sig.	Exp (β)	Sig.	Exp (β)	Sig.	Exp (β)
Exposed to sexuality education at primary level/below	.000	2.048	.524	1.163	.467	1.195
Exposed to sexuality education at secondary level/higher	.000	2.247	.483	1.198	.401	1.251
Never been exposed to sexuality education		1.000		1.000		1.000
Place of residence						
City/Town	.002	1.693	.032	1.522	.196	1.301
Urban Village	.000	1.964	.001	1.942	.006	1.812
Rural		1.000		1.000		1.000
Age group						
Less than 20 years	.001	2.619	.049	3.191	.020	3.847
20-24 years	.009	1.468	.718	.939	.912	1.020
25-29 years		1.000		1.000		1.000
Level of education						
Primary or below	.000	.379	.001	.465	.016	.552

Secondary or higher		1.000		1.000		1.000
Marital Union Status						
Ever in Union	.000	.400	.000	.441	.000	.455
Never in Union		1.000		1.000		1.000
Labour participation						
Employed	.379	.862	.514	1.126	.565	1.112
Unemployed		1.000		1.000		1.000
Religious affiliation						
Christianity	.941	.988	.418	.864	.342	.840
Other Religion	.015	.518	.062	.564	.060	.559
No religion		1.000		1.000		1.000
How old were you when you had sex for the first time						
Less than 20 years	.091	1.978			.836	.896
20-24 years	.022	2.690			.480	1.477
25-29 years		1.000				1.000
Exposure to radio or television						
Both radio and television	.000	2.308			.169	1.429
Radio only	.541	.868			.203	.709
Television only	.050	1.905			.369	1.407
None		1.000				1.000

MODEL 1: Gross effects (dependent and independent variable only)

MODEL 2: Net Effects (Independent variable plus background variables)

MODEL 3: Net Effects (Independent variable plus background variables + any other variables that have an influence on the dependent variable)

Table 7: Logistic regression coefficients showing the effect of exposure to sexuality education and level of exposure on likelihood of having had a biological child

	MODEL 1		MODEL 2		MODEL 3	
Exposure to sexuality education and level of exposure	Sig.	Exp (β)	Sig.	Exp (β)	Sig.	Exp (β)
Exposed to sexuality education at primary level/below	.001	.608	.219	.751	.128	.700
Exposed to sexuality education at secondary level/higher	.004	.668	.276	.768	.228	.746
Never been exposed to sexuality education		1.000		1.000		1.000
Place of residence						
City/Town	.106	.817	.122	.771	.238	.809
Urban Village	.029	.761	.736	.945	.825	.961
Rural		1.000		1.000		1.000
Age group						
Less than 20 years	.000	.043	.000	.081	.000	.063
20-24 years	.000	.215	.000	.336	.000	.287
25-29 years		1.000		1.000		1.000

Level of education						
Primary or below	.000	1.680	.195	1.321	.150	1.373
Secondary or higher		1.000		1.000		1.000
Marital Union Status						
Ever in Union	.000	9.327	.000	6.082	.000	6.602
Never in Union		1.000		1.000		1.000
Labour participation						
Employed	.000	2.045	.081	1.303	.073	1.322
Unemployed		1.000		1.000		1.000
Religious affiliation						
Christianity	.305	.888	.216	.834	.196	.825
Other Religion	.977	1.006	.084	.615	.227	.719
No religion		1.000		1.000		1.000
How old were you when you had sex for the first time						
Less than 20 years	.491	1.287			.000	6.809
20-24 years	.524	1.274			.007	3.814
25-29 years		1.000				1.000
Exposure to radio or television						
Both radio and television	.000	.539			.135	.693
Radio only	.129	.739			.413	.802
Television only	.018	.545			.049	.504
None		1.000				1.000

MODEL 1: Gross effects (dependent and independent variable only)

MODEL 2: Net Effects (Independent variable plus background variables)

MODEL 3: Net Effects (Independent variable plus background variables + any other variables that have an influence on the dependent variable)

Table 8: Logistic regression coefficients showing the effect of exposure to sexuality education and level of exposure on likelihood of fathering children with more than one woman

	MODEL 1		MODEL 2		MODEL 3	
Exposure to sexuality education and level of exposure	Sig.	Exp (β)	Sig.	Exp (β)	Sig.	Exp (β)
Exposed to sexuality education at primary level/below	.603	1.225	.169	1.992	.111	2.424
Exposed to sexuality education at secondary level/higher	.990	1.005	.380	1.571	.417	1.589
Never been exposed to sexuality education		1.000		1.000		1.000
Place of residence						
City/Town	.326	.706	.486	.742	.510	.739
Urban Village	.453	.769	.548	.778	.508	.738
Rural		1.000		1.000		1.000
Age group						
Less than 20 years	-	-				

20-24 years	.175	.581	.279	.607	.400	.672
25-29 years		1.000		1.000		1.000
Level of education						
Primary or below	.438	1.292	.377	1.505	.441	1.469
Secondary or higher		1.000		1.000		1.000
Marital Union Status						
Ever in Union	.023	2.007	.026	2.185	.022	2.381
Never in Union		1.000		1.000		1.000
Labour participation						
Employed	.409	.737	.161	.570	.084	.469
Unemployed		1.000		1.000		1.000
Religious affiliation						
Christianity	.781	1.098	.664	1.178	.652	1.188
Other Religion	.406	1.754	.346	1.967	.216	2.455
No religion		1.000		1.000		1.000
How old were you when you had sex for the first time						
Less than 20 years	.795	8.0770			.811	3.096
20-24 years	.790	1.3759			.692	5.298
25-29 years		1.000				1.000
Exposure to radio or television						
Both radio and television	.052	.429			.225	.507
Radio only	.084	.406			.031	.294
Television only	.460	.555			.417	.460
None		1.000				1.000

MODEL 1: Gross effects (dependent and independent variable only)

MODEL 2: Net Effects (Independent variable plus background variables)

MODEL 3: Net Effects (Independent variable plus background variables + any other variables that have an influence on the dependent variable)

Table 9: Logistic regression coefficients showing the effect of exposure to sexuality education and level of exposure on likelihood of having their partners undergo antenatal check-up

	MODEL 1		MODEL 2		MODEL 3	
Exposure to sexuality education and level of exposure	Sig.	Exp (β)	Sig.	Exp (β)	Sig.	Exp (β)
Exposed to sexuality education at primary level/below	.025	2.010	.354	1.400	.373	1.395
Exposed to sexuality education at secondary level/higher	.000	3.371	.054	2.251	.090	2.177
Never been exposed to sexuality education		1.000		1.000		1.000
Place of residence						
City/Town	.630	.861	.221	.646	.152	.602
Urban Village	.864	.948	.483	.779	.696	.863
Rural		1.000		1.000		1.000
Age group						

Less than 20 years	.709	.667	.000	.698	.000	.794
20-24 years	.243	.720	.250	.705	.606	.847
25-29 years		1.000		1.000		1.000
Level of education						
Primary or below	.002	.424	.118	.576	.093	.519
Secondary or higher		1.000		1.000		1.000
Marital Union Status						
Ever in Union	.126	1.486	.445	1.259	.768	1.099
Never in Union		1.000		1.000		1.000
Labour participation						
Employed	.076	1.738	.222	1.504	.241	1.528
Unemployed		1.000		1.000		1.000
Religious affiliation						
Christianity	.898	.963	.711	.885	.726	.884
Other Religion	.019	.335	.029	.363	.021	.326
No religion		1.000		1.000		1.000
How old were you when you had sex for the first time						
Less than 20 years	.711	.673			.284	.374
20-24 years	.750	1.428			.908	.893
25-29 years		1.000				1.000
Exposure to radio or television						
Both radio and television	.414	1.354			.679	1.223
Radio only	.962	.978			.829	1.126
Television only	.963	1.030			.900	1.112
None		1.000				1.000

MODEL 1: Gross effects (dependent and independent variable only)

MODEL 2: Net Effects (Independent variable plus background variables)

MODEL 3: Net Effects (Independent variable plus background variables + any other variables that have an influence on the dependent variable)