

CORRELATES OF MULTIPLE SEXUAL PARTNERSHIPS AMONG FORMERLY MARRIED MEN IN ZIMBABWE

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ABSTRACT

The main purpose of this study was to determine socio-economic factors associated with multiple sexual partnerships among formerly married men aged 15-54 years in Zimbabwe. This is an analytical cross-sectional study, based on secondary data drawn from the 2005-2006 Zimbabwe Demographic and Health Survey (ZDHS) and 353 formerly married men were included in this study. The outcome variable used in this study was derived from data collected on the number of sex partners, including wife, in the past twelve months prior to the survey. This variable was used as a proxy for multiple sexual partnerships. The independent variables were selected from demographic, socio-economic and sexual behavior factors hypothesized to be associated with multiple sexual partnerships. A Negative Binomial regression model was estimated to determine correlates of multiple sexual partnerships and age, geographical region, being away from home for at least a month and access to newspapers and magazines were found to be significantly associated with multiple sexual partnerships among formerly married men in Zimbabwe.

Key words: Multiple sexual partnerships, formerly married men, Zimbabwe

Introduction

Over the years, considerable effort has been expended on understanding HIV transmission and main drivers of the HIV pandemic (Lurie and Rosenthal, 2009). It has been suggested that the main mode of HIV transmission is heterosexual sex (Ahlburg, *et al.*, 1997 and Buve *et al.*, 2002) and that the main drivers of HIV infection in sub-Saharan Africa are multiple and concurrent sexual partnerships, and, low prevalence of condom use and male circumcision (Halperin & Epstein, 2007 and Mah & Halperin, 2010). In Zimbabwe, Lopman *et al.* (2007) reported that the number of sexual partners was a significant predictor of HIV incidence infection. Thus, reduction of multiple and concurrent sexual partnerships among men and women have been earmarked as the key priority intervention to reduce incidence of HIV in sub-Saharan Africa (Halperin & Epstein, 2007). Therefore, recently there has been an increasing interest in understanding multiple sexual partnerships (MSP) among sexually active adolescents and adults (Masatu, *et al.*, 2007 and Benefo, 2007). In particular, much attention has been given to the study of prevalence and determinants of

MSP (Santelli, *et al.*, 1998; Kimuna and Djamba, 2005 and Kongnyuy, *et al.*, 2006).

Although there is extensive literature on the sexual behavior of married and never married people, little attention has been paid to sexual behavior of formerly married individuals. Therefore the current study was aimed at understanding the sexual behavior of formerly married men in Zimbabwe and the main objective of the study was to determine socio-economic factors associated with multiple sexual partnerships among formerly married men aged 15-54 years in Zimbabwe.

This study, by determining socio-economic correlates of multiple sexual partnerships among formerly married men in Zimbabwe, will contribute to the ongoing debate about understanding factors that are associated with HIV/AIDS risk sexual behaviors of men. Therefore, the results from this study will be very useful to health educators as a basis for designing interventions for multiple sexual partnerships reduction among men.

Literature review

Multiple sexual partnerships are among the sexual behaviors that put people at risk of HIV transmission.

Others include the early onset of sexual activity, unprotected sex, multiple concurrent sex partners, and commercial sex” (Kongnyuy, *et al.* 2006). Several risk factors associated with multiple sexual partnerships have been identified as alcohol use, education, wealth and the main protective factors for high-risk sexual behaviors have also been identified as religiosity, religious affiliation and delaying sexual debut (Hill *et al* 2004; Kongnyuy *et al* 2006 and Uchudi *et al*, 2010). However, to date there has been little agreement on the relative importance of each of these factors. In this section, the likely impacts of the most important socio-economic characteristics on MSP behavior are discussed.

There is consensus that alcohol use facilitates engagement in high-risk sexual behavior. Kongnyuy & Wiysonge (2007) using data from 2004 Cameroon Demographic and Health Survey concluded that alcohol use increased the probability of having extramarital sex. These findings are supported by Uthman & Kongnyuy (2008) who reported that Nigerian women who drank alcohol were more likely to have multiple concurrent sex partners. Fisher *et al* (2007) carried out a systematic review and meta-analysis of African studies and reported that alcohol users were more likely to be HIV-positive implying that alcohol users are more likely to engage in risky sexual behavior.

People who lack human capital skills are more likely to engage in risky sexual behavior; therefore increasing human capital skills can greatly reduce the likelihood of involvement in risky sexual behavior. It is generally accepted that formal education is one way of enhancing human capital development skills, hence people who are more educated are less likely than their less educated counterparts to engage in multiple sexual behavior. Furthermore, health education can also be acquired informally through the media, health promotion programs and campaigns (Uchudi *et al*, 2010). Newspapers, radios and television may play an important role in health awareness and prevention of risky sexual behavior.

There is no clear association between education and risky sexual behavior. Three studies in Zambia, Cameroon and Brazil have shown that men with at least primary school education, were more likely to engage in extramarital activities (Benefo, 2007; Kongnyuy & Wiysonge, 2007; Hill, *et al.*, 2004). However, other studies in sub-Saharan Africa, Finland and Estonia showed the opposite; that formal education and exposure to media for both males and females reduced the likelihood of involvement in multiple sex partnerships (Uchudi *et al.*, 2010; Nikula *et al* 2009). However, another Zambian study, showed no association between education and extramarital partnerships (Kimuna and Djamba, 2005).

Income is highly correlated with level of education, occupation and employment status. Wealth is hypothesized to be positively associated with multiple sexual partnerships (Kimuna and Djamba 2005 and Bingenheimer, 2010). However, there is no consensus on the association between wealth and high-risk sexual behavior among men. In Cameroonian men, wealth was significantly associated with extramarital sex (Kongnyuy & Wiysonge, 2007) whereas in Zambian men, such an association was not found (Kimuna and Djamba, 2005).

With regard to employment status, multiple sexual partnerships have also been attributed to physical separation between husband and wife due to work (Poudel *et al*, 2004 and Dube & Sachingongu, 2008). Therefore males who have a paid job are likely to have multiple sex partners especially if the job requires travelling (e.g. migrant labours and truck drivers), because of the temporary separation from their spouses. Santelli, *et al* (1998) reported that among women aged 15-44 years in USA, working outside the home was one of the risk factors for having multiple sex partners in the previous month.

Although a few studies have taken age at first sex as a response variable (Masatu *et al* 2009), most studies have used this variable to explain multiple sexual behaviors among different populations (Santelli, *et al* 1998; Hill *et al* 2004 and Kongnyuy *et al* 2006). Uchudi *et al* (2010, p.13) stated that “early sexual activity leads to a long period of premarital sexual activity during which partner changes are relatively common, resulting in development of higher risk sexual orientation”. The empirical literature has consistently found that first sex at a young age is

associated with increased risk of engaging in multiple sexual partnerships. However, the cut-off point for age at first sex is not clear from the empirical literature. The cut-off points for age at first coitus range from 13 to 17 years (Santelli, *et al*, 1998, Hill *et al*, 2004, Kongnyuy *et al*, 2006, Masatu *et al*, 2009 and Uchudi *et al*, 2010)

Culture has emerged as an important factor in explaining sexual behaviors in many societies. An example is the African culture that permits polygamy and condones males' promiscuity because there is a general belief that men's sexual drives cannot be controlled (Shelton, 2009). The proxy measures for culture which have been mainly used in the empirical literature are; place of residence (rural/urban), geographical regions, race and ethnicity. Although, living in an urban area has been associated with an increased risk of engaging in extramarital sex (Benefo, 2007), most studies did not find any significant difference in sexual behavior of urban and rural residents (Kimuna and Djamba 2005; Maise *et al*, 2007; Kongnyuy & Wiysonge, 2007 and Uchudi *et al*, 2010). Differences in sexual behaviours between geographical regions have also been demonstrated (Hill *et al*, 2004; Kimuna & Djamba, 2005 and Kongnyuy & Wiysonge, 2007).

Previous research suggests that marital status is a significant predictor of multiple sexual partnerships (Santelli, *et al*, 1998; Kongnyuy *et al* 2006; Madise *et al* 2007). Although, Kongnyuy *et al* (2006) reported that being married increased the risk of engaging in extramarital sex among Cameroonian men, most studies found marriage to be a protective factor from involvement in multiple sex partnerships (Santelli, *et al* 1998, Madise *et al* 2007, Hill *et al* 2004).

However, Uchudi *et al* (2010) used a different approach all together. Instead of including marital status as a predictor variable in the regression model, they ran separate regression models for married and unmarried participants in addition to a model combining both married and unmarried participants. The rationale is that association between each predictor and multiple sexual behaviors differs by marital status. This is a reasonable argument since the results from Uchudi *et al* (2010) study show that the associations are different for some of the variables in terms of both significance and size of the coefficients. However, Uchudi *et al* (2010) study was not exhaustive since they excluded widowed/divorced/separated participants. It is very important to investigate how the sexual behavior of the formerly married men or women compare with that of never and currently married men or women.

Research Design and Method

This is an analytical cross-sectional study, based on secondary data drawn from the 2005-2006 Zimbabwe Demographic and Health Survey (ZDHS). The main purpose of the ZDHS sample was to provide estimates for population and health indicators at the national and provincial levels (CSO, 2006).

The ZDHS used three questionnaires, namely the Household Questionnaire, the Women's Questionnaire, and the Men's Questionnaire, to collect data on health, sexual, marital and household characteristics from a nationally representative sample of women aged 15-49 years and men aged 15-54 years. This study used the men's questionnaire to extract socio-economic characteristics of formerly married men who participated in the ZDHS. Formerly married men comprised the divorced, separated or widowed men. In this dataset, 264 reported that they were either divorced or separated, while 89 reported that they were widowed. Thus, a total of 353 formerly married men were included in this study.

The outcome variable used in this study was derived from data collected on the number of sex partners, including wife, in the past twelve months prior to the survey. This variable was used as a proxy for multiple sexual partnerships. The independent variables were selected from demographic, socio-economic and sexual behavior factors hypothesized to be associated with multiple sexual partnerships. The demographic variables included in this study were age (4 categories), geographical region (10 provinces), place of residence (rural/urban). Four variables characterizing socio-economic status of the formerly married men were; “away from home” defined as whether a participant has been away from home for more than a month in the last 12 months prior to the interview, education, income (measured by wealth index), and access to media (measured by frequency of reading newspapers). Three sexual behavior variables included in this study were: “age at first sex”, “sexual attitude” and “HIV knowledge”. The cut-off point for early age of first sex was based on the mean sexual debut of the sexually experienced men who participated in the survey and participants were classified under early age of first sex category if sexual debut was below 20 years. “Sexual attitude” was defined as whether the participant agreed with the notion that “husband has right to have sex with other women”, and “HIV Knowledge” defined as whether the participant knew that limiting sex to one partner reduced risk of HIV infection.

Statistical methods of data analysis

The ZDHS, has a complex sampling design, therefore the analyses took into account sampling weights, stratification and clustering nature of the data (using the `svy` Stata command). The analyses were done in three stages; descriptive, bivariate and multivariate analyses.

In the bivariate analysis, a negative binomial regression model was estimated to assess the relationship between the number of sexual partners and each of the selected demographic, socio-economic and behavioral characteristics. Adjusted relative risk ratios and their confidence levels at 95% were estimated and variables were retained in the model, if the association was significant at the 10% level. Finally, in the multivariate analysis, a negative binomial regression model was used to determine the factors independently associated with multiple sexual partnerships at the 5% level of significance. Adjusted

relative risk ratios and their confidence levels at 95% were estimated.

Ethics approval

The University of Witwatersrand Committee for Research on Human Subjects approved the study. The protocol number is M110531. Permission to use the ZDHS dataset was granted by Macro International USA.

Results and discussion

The number of sexual partners ranged from 0 to 6 among the formerly married men. Nearly 34% reported no sexual activity and about 5% reported more than 3 sexual partners in the past 12 months.

In order to determine correlates of multiple sexual partnerships of the formerly married men, Poisson and Negative Binomial regression models were estimated and the results showed that the Negative Binomial regression model fitted the data very well. Therefore the Negative Binomial regression model was used to calculate relative risks and 95% confidence intervals for the risk factors.

In the bivariate analysis, age, residence, region, education, income, newspaper reading, age at first sexual intercourse, sexual attitude and HIV knowledge were significantly associated with multiple sexual partnership at the 5% level of significance. In addition, “away from home” was significant at 10% level and was also included in the multivariate negative binomial regression analysis. In multivariate analysis, age, region, away from home and newspaper reading remained significant at 5% level.

The results presented in Table 1 show that the risk of MSP was about 46% higher in men aged 15-24 compared with either men aged 35-44 (RR = 0.53%; 95%CI: 0.37, 0.77) or men aged 45-54 (RR = 0.54%; 95%CI: 0.29, 1.02). These findings are in general agreement with previous studies that have examined the determinants of multiple sex partnerships using logistic regressions (Kimuna and Djamba, 2005; Kongnyuy and Wiysonge, 2006 and Nikula, et al, 2009)

The implication of these findings is that among the formerly and currently married men, those aged 15-34 were at a higher risk of MSP compared with the other age groups. Several studies have reported that the risk of HIV infection increases with MSP (Lopman, *et al*, 2007 and Do & Meekers, 2009). Thus the findings from this study imply that men aged 15-34 years are at greater risk of HIV infection as a result of their risky sexual behavior.

Regional variations in multiple sexual partnerships were also reported. However, out of the ten provinces, participants from only two provinces reported multiple sexual partnerships that were significantly different from the other provinces. The results show that living in Bulawayo and Mashonaland East is associated with less risk of engaging in multiple sexual partnerships. These regional differences in sexual behavior may be explained by the cultures of the ethnic groups living in those provinces (Kimuna and Djamba, 2005). In Zimbabwe, it is quite common to find two or more ethnic groups living in one province and hence no ethnic culture can dominate. However, Mashonaland East seems to be the only province where one ethnic group (Zezuru) dominates and thus the low risk sexual behavior observed in the study may be a reflection of the Zezuru culture. These findings confirm what has been reported in other countries (Kimuna and Djamba, 2005, Benefo, 2007 and Sambisa *et al*, 2009) and therefore suggest that socio-cultural practices play an important role in determining the sexual behavior of men.

Being away from home for more than a month was significantly associated with multiple sexual partnerships and this is consistent with the previous research. For example, Lydie, *et al* (2004) reported that among a sample of unmarried men in Cameroon, away from home for more than a month was associated with multiple sexual partnerships. Mitsunaga, *et al*, (2005) also found that time away from home was associated with risk of extramarital sex.

The study found a significant association between frequencies of reading newspapers and multiple sex

partnerships. Generally, MSP risk increased with frequency of reading newspapers. The MSP risk among formerly married men was 138% higher for men with access to newspapers daily (RR = 2.38%; 95%CI: 1.53, 3.69) compared with their counterparts with no access to newspapers. The point estimates of the adjusted relative risk ratios increase consistently with the frequencies of reading newspapers. A possible explanation for this behavior is that the newspapers might not be carrying messages that discourage risky sexual behavior but instead they might be fully loaded with messages encouraging sex. Such messages can easily remind them of their past romantic experiences and therefore leading to this observed risky sexual behavior. However, the findings are not consistent with the previous research. For example, Uchudi *et al* (2010) using pooled DHS data from 20 sub-Saharan Africa, reported that exposure to media for both males and females reduced the likelihood of involvement in multiple sex partnerships. A possible explanation for this difference in the findings may be due to the way the media variable was defined. Uchudi *et al* (2010) defined access to media as having access to newspaper, radio or TV and this is different from the measurement used in this study where each form of media was treated as a separate variable

Limitations

There are a number of limitations to be considered when interpreting the results from this study. First, the cross-sectional nature of the data limits establishing causality between MSP and each of the factors. The second limitation is that the study relied on self reported risky sexual behavior which may be over reported or under reported because it is a very sensitive issue, especially among Christians. The third limitation is recall bias. Participants may have had problems in remembering the number of sexual partners, frequency of reading newspapers, age at first intercourse and the number of times the participant had been away from home. The fourth limitation is about missing data on some of the variables. The missing data may have influenced the regression results.

Table 1: Negative binomial regression analysis of factors associated with multiple sexual partnerships in the last 12 months

Characteristics	Bivariate Results RR(95% CI)	Multivariate Results RR(95% CI)
Age		
15-24	1.00	1.00
25-34	0.91 (0.67 , 1.24)	1.02 (0.76 , 1.39)
35-44	0.49 (0.35 , 0.69)***	0.53 (0.37 , 0.77)***
45-54	0.49 (0.25 , 0.62)***	0.54 (0.29 , 1.02)*
Residence.		
Urban	1.00	
Rural	0.76 (0.61 , 0.97)**	
Region		
Manicaland	1.00	1.00
Mashonaland Central	0.70 (0.45 , 1.08)*	0.72 (0.41 , 1.25)
Mashonaland East	0.52 (0.36 , 0.74)***	0.57 (0.41 , 0.78)***
Mashonaland West	0.89 (0.62 , 1.27)	0.73 (0.49 , 1.08)
Matebeleland North	0.85 (0.59 , 1.23)	0.77 (0.43 , 1.36)
Matebeleland South	0.67 (0.45 , 1.01)*	0.95 (0.69 , 1.32)
Midlands	0.77 (0.50 , 1.19)	0.94 (0.67 , 1.31)
Masvingo	1.17 (0.66 , 2.07)	1.36 (0.88 , 2.10)
Harare	1.01 (0.68 , 1.50)	0.85 (0.61 , 1.17)
Bulawayo	0.96 (0.68 , 1.37)	0.64 (0.47 , 0.89)***
Education		
None	1.00	
Incomplete. Primary	2.29 (0.78 , 6.72)	
Complete Primary	2.21 (0.73 , 6.69)	
Incomplete secondary	2.89 (1.00 , 8.33)**	
Complete Secondary	4.16 (0.85 , 20.48)*	
Higher	2.66 (0.69 , 10.36)	
Away from home		
No	1.00	1.00
Yes	1.22 (0.95 , 1.55)*	1.30 (1.01 , 1.68)**
Income		
Poor	1.00	
Middle	1.16 (0.88 , 1.52)	
Rich	1.30 (1.02 , 1.65)**	
Newspaper reading		
None	1.00	1.00
Less than once a week	1.47 (1.16 , 1.88)***	1.63 (1.23 , 2.16)***
At least once a week	1.43 (1.09 , 1.89)***	1.74 (1.26 , 2.42)***
Almost everyday	1.79 (1.14 , 2.81)***	2.38 (1.53 , 3.69)***
Age at first intercourse		
≥20	1.00	
≤ 19	1.47 (1.46 , 1.48)***	
Sexual attitude		
No	1.00	
Yes	1.61 (1.21 , 2.13)***	
HIV Knowledge		
Yes	1.00	
No	1.25 (1.0 , 1.57)**	

Coefficients are relative risks. *p < 0.10, ** p < 0.05, ***p < 0.01

Conclusion

Multiple sexual partnership is now widely considered as a key factor in accelerating HIV infection. This study found that MSP was more common in the 15-34 age groups. The other important variables found to be associated with MSP are geographical regions (capturing cultural differences among men), away from home and access to newspapers and magazines. However, place of residence, education, income, age at first sex, sexual attitude and HIV knowledge were not significantly associated with MSP, although they have been found to be significantly associated with MSP in the international literature.

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