

Religion, Condom Use Acceptability and Use within Marriage among Rural Women in Malawi

Adamson S. Muula PhD, MPH, Department of Epidemiology, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, USA; Department of Public Health, Division of Community Health, College of Medicine, University of Malawi, Blantyre, Malawi

James C. Thomas PhD, MPH, Department of Epidemiology, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, USA

Audrey E. Pettifor PhD, MPH, University of North Carolina at Chapel Hill School of Dentistry and School of Medicine, USA

Ronald P. Strauss PhD, DMD, Executive Associate Provost, University of North Carolina at Chapel Hill, Executive Associate Provost, University of North Carolina at Chapel Hill, USA

Chirayath M. Suchindran PhD, MSPH, Department of Biostatistics, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, USA

Steve R. Meshnick PhD, MD, Department of Epidemiology, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, USA

Correspondence may be directed to: Adamson S. Muula PhD, MPH, E-mail: muula@email.unc.edu.

Abstract

Introduction: Correct and consistent condom use within an HIV-discordant partnership could prevent sexual transmission of human immunodeficiency virus (HIV).

Methods: Data on ever-married women from rural Malawi were obtained from the Malawi Diffusion and Ideational Change Project (MDICP) of 2006. We assessed the strength of association between religion and acceptability of condom use within marriage in general and also when one of the partners is suspected or known to be HIV infected.

Results: A total of 1,664 ever-married women participated in the MDICP 2006. Of these, 66.7% believed condom use was acceptable within marriage when one partner suspects or knows that the other was HIV infected; 38.2% believed condoms were acceptable within marriage generally. Only 13.8% reported ever having used condoms within the current or most recent marriage. Multivariate analysis found no difference in acceptability of condoms within marriage between Christians and Muslims, or between Catholics and all but one of the individual denominations assessed.

Conclusion: Christian women in rural Malawi were no more or no less likely to accept condom use than Muslim women; there was also no difference in attitude toward condom use within marriage among Malawian women.

Introduction

Consistent and correct condom use may be associated with an 80% reduction in human immunodeficiency virus (HIV) risk (Weller and Davis 2001, 2002). Despite sexual transmission of HIV being common within marriage, condom use in long-term relationships is low (Dunkle et al. 2006; Higgins and Sun 2007; Montgomery et al. 2008; Moyo et al. 2008; Oddens et al. 1994; Versteeg and Murray 2008).

Marriage is an independent risk factor for the acquisition of HIV via unprotected sexual intercourse in a serodiscordant relationship (USISP) in many parts of sub-Saharan Africa (SSA), where the HIV epidemic is generalized (Glynn et al. 2001; 2003, Smith 2007). Mermin et al. 2008 reported that among married study participants in Uganda with recent HIV infection, 38% of the incident infections occurred among people whose spouses had long-standing infection, 14% in spouses with recent infection and just under half (49%) in spouses who were not HIV infected. Dunkle et al. (2008) have estimated that from 55.1% to 92.7% of new heterosexually acquired HIV infections among adults in urban Zambia and Rwanda occurred within serodiscordant marital or cohabitating relationships. Furthermore, these authors also suggested that interventions for couples, which reduced transmission from 20% to 7% every year, could avert 35.7% to 60.3% of HIV infections in these settings.

Religion can influence attitudes toward condom use within and outside marriage. By contributing to an individual's concept of identity or by normalizing certain values and beliefs (Gilbert 2008), religion can affect an individual's preferences toward condom use. Religion can influence the perception that condoms are unnatural and therefore not acceptable within marriage (Crosby et al. 2008; Ngalande et al. 2006; Richters et al. 2003). The adverse attitudes toward condom use among unmarried young people in some religions may spill over and generate similar attitudes toward condom promotion within couples (Kalipeni and Ghosh 2007). Pfeiffer (2004) has reported that Pentecostal and African Independent Churches (AIC) in Mozambique have openly discouraged condom use among church members.

To improve our understanding of the acceptability of condom use within marriage, we assessed whether condom use acceptability differed by religion in ever-married women in rural Malawi. Investigating condom use within marriage generally, and when there is a perceived risk of HIV infection, offers useful and different insights compared to assessing condom acceptability within marriage under all circumstances (even when there is no concern of HIV infection).

Method

Sampling Strategy and Study Setting

We used data from the Malawi Diffusion and Ideational Change Project (MDICP) conducted in 2006 in three rural districts of Malawi: Rumphi in the north, Mchinji in the centre and Balaka in the south. The MDICP is a collaborative research project of the University of Pennsylvania and the University of Malawi. Comprehensive descriptions on the design, rationale and conduct of data collection over previous rounds of the MDICP have been described elsewhere (Poulin 2007; Watkins et al. 2003). The data collection attributes remained largely unchanged in the 2006 sample. The survey was conducted with the aim of collecting data on, among other topics, sexual behaviours, religion,

self-perceived risk of HIV acquisition and HIV serostatus among individuals aged 15 years or above.

Rumphu district has a patrilineal kinship, lineage system and virilocal residence pattern (a married woman lives in her husband's village). The Tumbuka tribe, the inhabitants of Rumphu district are predominantly Presbyterian Protestant. In Balaka (south), the Yao, the predominant tribe in the district, are primarily Muslim, follow a matrilineal system of kinship and an uxorilocal residence pattern (a married man leaves his village and stays in his wife's village). There is also a sizeable population of Catholics in the district.

Mchinji district, in the centre of the country, follows a less rigid matrilineal system whereby inheritance may be matrilineal or patrilineal and residence virilocal or uxorilocal, depending on the fulfillment of certain marital cultural requirements. Mchinji is inhabited by the Ngoni, Chewas and Senga; all these tribal groups are largely Christian. The distribution of religions in the study districts follows the introduction of Islam by the Arabs in the 1400s and Christianity by the British and South African mission Protestants in the 1800s (Bone 1982; Foster 1997; Foster and Banda 1999).

In each district, a cluster sampling strategy was used and a total of 145 villages eventually selected. A week prior to fieldwork, the research team compiled household lists of individuals normally resident in those villages. A sample of eligible married women was then randomly selected from the household list. About 500 households were selected in each of the districts, and women aged 15 years or older were recruited from the selected households. In Mchinji and Rumphu districts, the sampling was designed to cover Census Enumeration Areas (CEAs) included in the 1988 Traditional Methods of Child Spacing in Malawi (TMCSM) survey (Kalipeni and Zulu 1993; Krugmann-Randolf 1989; Srivastava and M'manga 1991). Balaka was selected for its rural location and its Yao and Muslim majority.

Since villages varied in size, sampling fractions used were inversely proportional to village populations, such that smaller villages were oversampled. Trained research assistants administered the survey questionnaires in Chichewa language in Mchinji, and in Yao and Chichewa in Balaka and Tumbuka for Rumphu district. Each survey participant was interviewed in private. As far as was practical, female research assistants interviewed women participants. HIV testing was done from saliva samples using OraQuick™ (OraSure Technologies, Bethlehem, PA, USA). HIV test results were made available to study participants who consented to get them.

Data Analysis

Outcome variables were condom use acceptability within marriage in general and acceptability within marriage when one of the partners was known or suspected to be HIV infected. The outcomes were created from the responses to the question "Do you think it is acceptable to use a condom with a spouse to protect against HIV/AIDS?" The second question was "How about when one spouse suspects or knows that the other might have HIV/AIDS: is it acceptable to use a condom in that situation?" The exposure variable was religious faith or denomination (Christian, Muslim, Catholic, Presbyterian, Church of Christ, African Independent Churches [AIC], and "other Protestants" – a combination of smaller protestant churches).

We calculated frequencies, proportions, means and medians of socio-demographic and behavioural characteristics in order to describe the sample. To assess whether a variable met the criteria for a confounder, we estimated its bivariate association with the exposure and the outcome. A two-sided cut-off α -level of .05 was used.

We conducted multivariate logistic regression analysis to estimate the effect of religion (Christian versus Muslim) on the acceptability of condom use within marriage, independent of confounders. The initial model had the outcome, exposure and all covariates (tribe; district of residence; whether the married woman lived in her village, her spouse's village or a neutral place – neither her village nor her husband's village; educational level current marital status; and age). These covariates have previously been reported to be associated with condom use or with religion (Kienne et al. 2009; Kongnyuy and Wiysonge 2007; Rankin 2008; Washington et al. 2009) but not considered to be on the causal pathway. We arrived at the most parsimonious model through stepwise backward logistic

regression. Potential confounders were retained in the model if, following their removal, the effect estimate changed by at least 5%. Data were analyzed using Stata software, Version 10 (Statacorp, College Station, TX, USA).

We conducted power calculations using nQuery software (Statistical Solutions Limited, Saugus, MA, USA) to assess if the study had adequate power to show a difference. With a two-tailed α of .05, the power to detect a statistically significant difference in condom acceptability between Christians and Muslims was 84%. The results reported are for complete case analysis.

The MDICP research protocol was reviewed and institutional review board (IRB) approval granted by the University of Pennsylvania and University of Malawi, College of Medicine Research and Ethics Committee (COMREC). For the purposes of our study, however, de-identified data were obtained from the University of Pennsylvania Population Research Center. The protocol for our secondary analysis received IRB exemption from the Public Health and Nursing IRB of the University of North Carolina at Chapel Hill, USA.

Results

A total of 1,664 ever-married women participated in the MDICP 2006; their median age was 34 years (interquartile range 25–43 years). The study districts had nearly equal representation in the total sample: 526 (31.6%) in Mchinji, 569 (34.2%) in Balaka, 530 (31.9%) in Rumphu and 39 (2.3%) were uncategorized by district. Most of the women, (1,467, or 88.2%) were currently married, the remainder divorced, separated or widowed. The sample distribution by individual religions was 281 Catholics (17.0%); 278 (16.9%) Presbyterians, 400 (24.3) Muslims, 291 (17.6%) belonging to the AIC and 88 (5.4%) from other Christian churches.

The majority (57.1%) of women in Balaka reported having no formal education, compared to a third (33.0%) in Mchinji and 3.3% in Rumphu. Christians were slightly younger (mean age 34.8 years, 95% confidence interval [CI] 34.1–35.4) than Muslims (mean age 37.4 years, 95% CI 35.4–39.5; $P < .01$).

Prevalence of HIV Infection and Sexual Behaviours

Overall HIV prevalence in the sample was 6.8% (95% CI 5.5–8.2). Prevalence of HIV infection by socio-demographic characteristics was as follows: currently married, 5.2% (95% CI 3.9–6.5); separated or divorced, 17.6% (95% CI 10.1–25.2); and widowed, 22.2% (95% CI 10.8–33.7). Although HIV prevalence was lower among Christians, 6.5% (95% CI 5.1–7.9), than Muslims, 9.4% (95% CI 4.2–14.5), the difference was not statistically significant ($P = .22$).

Compared to Muslims, a slightly lower proportion of Christians had no data on HIV status (6.9% versus 7.7%), but the difference was not statistically significant ($P = .70$). The prevalence of a history of extramarital sex was the same for Christians, 2.6% (95% CI 0.1–5.1), and Muslims, 2.6% (95% CI 1.8–3.5; $P = .96$). Further description of the sample is shown in Table 1.

Acceptability of Condom Use within Marriage

Slightly more than half of the women (55.9%) responded to the question of whether they had ever used a condom in the current or most recent marital relationship. Of these women, 128 (13.8%, 95% CI 11.5–16.0) reported that they had used condoms within the current or most recent marriage. There was no difference in proportions among Christians, 14.7% (95% CI 12.1–17.2), and Muslims, 10.1% (95% CI, 6.7–13.7; $P = .16$). Proportions of women who reported ever using condoms in the current or most recent marriage in individual religious denominations are shown in Table 2.

Overall, the majority, 66.7% (95% CI 63.7–69.5), believed it was acceptable to use condoms within marriage when one spouse suspected or knew that the other was HIV infected. However, a smaller proportion, 38.2% (95% CI 35.9–40.5) reported that condoms were acceptable in marriage in general. Proportions of women who believed condom use was acceptable within marriage and reported “ever use” are shown in Table 2. In general, condom acceptability in the hypothetical situation of when HIV infection in a partner was known or suspected was higher than acceptability

generally. Condom “ever use” reported in sexual intercourse with a spouse was, however, much lower than acceptability in both situations when HIV was suspected or known, as well as when these conditions were not mentioned. Further description of the proportions of women who accepted condom use is shown in Table 2.

Table 1. Socio-demographic characteristics of rural ever-married women in the Malawi Diffusion and Ideational Change Project 2006

Characteristics	Muslim		Christian
Age in years			
Age 15–24	62	(20.3)	161 (17.5)
Age 25–34	95	(31.1)	314 (34.2)
Age ≥35	149	(48.7)	444 (48.3)
Education			
No education	214	(63.7)	209 (19.2)
Primary education	120	(35.7)	778 (71.4)
Secondary or higher	2	(0.6)	103 (9.5)
Marital status			
Currently married	330	(98.2)	1052 (96.5)
Divorced/separated	4	(1.2)	11 (1.0)
Widowed	1	(0.3)	7 (0.6)
District of residence			
Rumphi	1	(0.3)	479 (43.9)
Mchinji	3	(0.9)	466 (42.8)
Balaka	332	(98.8)	141 (12.9)
HIV-related history			
Ever had HIV test	206	(61.3)	686 (63.1)
Knew HIV status	182	(88.4)	617 (90.1)
Primary partner tested	153	(46.2)	454 (42.6)
Residence after marriage			
Virilocal residence	77	(23.5)	747 (71.7)
Uxorilocal residence	238	(72.6)	217 (20.8)
Other residence	13	(4.0)	78 (7.8)
History of extramarital sex	8	(0.02)	36 (0.03)
Uses alcohol	3	(0.9)	64 (5.9)
Women with HIV test results available	143	(92.3)	1477 (93.1)

Table 2. Percentages of women who reported condom acceptability or use within marriage among women in rural Malawi, 2006

Religious denomination	Acceptability of condom use		
	When HIV infection known/suspected in the partner ^a	Under any condition	Ever used condom in most recent marriage
Catholic	70.0 (63.0–76.6)	36.1 (30.4–41.7)	16.1 (10.3–22.0)
All protestants	66.3 (62.5–70.1)	31.1 (28.1–34.2)	15.6 (12.1–19.0)
Church of Christ	61.1 (52.3–70.0)	37.0 (30.1–43.9)	10.4 (4.2–16.7)
Presbyterian	62.6 (56.0–69.3)	25.6 (20.4–30.8)	20.1 (12.5–27.8)
Indigenous churches	70.1 (63.6–76.2)	28.4 (23.1–33.6)	11.9 (7.0–16.9)
Other Christians	71.8 (63.7–79.8)	38.3 (35.8–40.8)	21.4 (13.3–29.4)
Islam	64.8 (57.6–71.9)	56.2 (51.2–61.1)	10.1 (6.7–13.7)
All Christians	67.2 (64.2–70.2)	36.9 (34.5–39.4)	14.7 (12.1–17.2)

^a Condom acceptability when one suspects or knows that their partner is HIV infected.

Association between Socio-demographic Characteristics, Religion and Condom Use Acceptability within Marriage

We assessed the association between condom acceptability when HIV is suspected in a spouse, or HIV-positive infection status is known, and socio-demographic variables. Results are shown in Tables 3.

Christian women were 71% more likely than Muslim women to report condom use acceptability within marriage if their partner was suspected or known to be HIV infected, controlling for other factors. However, the adjusted odds ratio (AOR) included the null, 95% CI 0.89–3.29. In the case of individual religious denominations, after controlling for age, tribe and education, Presbyterians were 47% less likely to have reported condom use acceptability compared to Catholics (AOR = 0.53; 95% CI 0.32–0.88). However, there were no differences in condom acceptability within marriage between Catholics and the other non-Islamic religions – other Christians, Church of Christ, and African indigenous churches (Table 4). The same was found when Muslims were considered the referent (data not shown).

Association between Condom Acceptability and Reported Use within Marriage

Women who believed that condoms were acceptable when HIV infection was known or suspected in a spouse were 10% less likely to have used condoms themselves (AOR = 0.90; 95% CI 0.43–1.88). As this model included religion as a covariate, the odds ratio represented the effect of the belief that condoms were acceptable over and above the role of religion. Removing religion from the model resulted in a substantial change in the effect estimate (AOR = 0.49; 95% CI 1.00–2.04), although the 95% CI still barely included the null.

Condom acceptability in general was associated with a 24% increase in having ever used a condom in the most recent marriage, independent of education, tribe, age and religion (AOR = 1.24; 95% CI 0.75–2.07). The effect was about half as much when religion was removed from the multivariate model, suggesting that some of the influence of condom acceptability was explained by religion (AOR = 1.12; 95% CI 0.69–1.83).

Christians were 27% more likely than Muslims to report having used ever a condom in their current or most recent marriage (AOR = 1.27; 95% CI 0.49–3.30) after controlling for tribe, though not with statistical significance.

Table 3. Unadjusted prevalence odds ratios (OR) and 95% confidence intervals (CIs) of condom acceptability among ever-married women in the Malawi Diffusion and Ideational Change Project 2006.

Characteristics	OR (95% CI)
Marital status	
Married	1.00
Divorced or separated	0.60 (0.37–0.96)
Widowed	0.53 (0.27–1.03)
Education	
No formal education	1.00
Primary education	1.57 (1.14–2.16)
Secondary education	1.57 (0.88–2.78)
Age in years	
15–24	1.00
25–34	0.95 (0.64–1.40)
Age ≥35	0.81 (0.57–1.16)
Tribe	
Chewa	1.00
Yao	1.14 (0.79–1.66)
Lomwe	3.77 (1.43–9.99)
Tumbuka	1.60 (1.18–2.17)
Ngoni	1.69 (0.79–3.62)
Other tribes	1.52 (0.68–3.41)
Had extramarital affairs in current marriage	
No	1.00
Yes	0.80 (0.36–1.78)
Religion	
Muslim	1.00
Christian	1.34 (0.82–2.16)
Religion	
Catholics	1.00
Presbyterians	0.74 (0.48–1.13)
Church of Christ	0.69 (0.43–1.12)
African Independent Church	1.02 (0.66–1.58)
Other Christian	1.12 (0.68–1.85)

Table 3. Continued

Muslims	0.82 (0.52–1.26)
Study site	
Mchinji	1.00
Balaka	1.54 (1.09–2.16)
Rumphi	1.78 (1.31–2.40)
Place of residence	
Husband's village	1.00
Wife's village	0.95 (0.71–1.28)
Other village	2.24 (1.17–4.82)
Uses alcohol	1.34 (0.57–3.29)
Ever had HIV test	1.44 (1.10–1.88)
Partner has had HIV test	1.19 (0.91–1.55)

Table 4. Adjusted prevalence odds ratio (AOR) and 95% confidence interval (CI) of the association between condom acceptability when HIV is suspected or known and religion among ever-married women in the Malawi Diffusion and Ideational Change Project 2006, controlled for education, age and tribe

Religion	AOR (95% CI)
Catholic	1.00
Presbyterian	0.53 (0.32–0.88)
Church of Christ	0.59 (0.34–1.04)
African Indigenous Churches	0.83 (0.49–1.40)
Other Protestants	1.41 (0.66–3.02)
Muslim	1.33 (0.58–3.07)

Table 5. Adjusted prevalence odds ratio (AOR) and 95% confidence interval (CI) of the association between condom use and religion among ever-married women in the Malawi Diffusion and Ideational Change Project 2006 controlling for age, tribe and education

Religion	AOR (95% CI)
Catholics	1.00
Presbyterians	0.77 (0.34–1.76)
Church of Christ	0.70 (0.28–1.79)
African indigenous churches	0.55 (0.25–1.74)
Other protestants	1.79 (0.75–4.30)
Muslims	1.26 (0.44–3.64)

Discussion

In a study of ever-married rural women in Malawi, we found no differences in condom use acceptability within marriage between Muslims and Christians. Catholics were also no different in condom acceptability compared to the majority of individual religious denominations. However, Presbyterians were less likely than Catholics to report condom acceptability when one partner was known or suspected to be infected.

We had hypothesized that Muslim women would be less likely to accept condom use or less likely to use condoms within marriage. Malawian Muslim women are more likely than Christian women to be in polygamous marriages. Being in a polygamous marriage could limit a woman's power to bargain for condom use when she suspects or knows that her spouse is HIV infected (al-Krenawi 1998; Slonim-Nevo and al-Krenawi 2006). However, the fact that condom acceptability and reported use among Muslims did not differ significantly from Christians suggests that this mechanism may not be applicable or that Christians had their own barriers to condom acceptability in this setting. Our findings may suggest that different faiths or denominations in Malawi were promoting or failing to promote condom use within marriage equally.

We recognize that our findings may not be applicable to women in other socio-political and cultural settings, even when they share the same religion with their Malawian counterparts. We suggest that the expression of and the influence of religion in people's lives differ depending on the prevailing socio-cultural and political environment. In addition, the observed difference in condom acceptability between Catholics and Presbyterians, if not due to chance, may suggest the heterogeneity that exists within the Christian faith.

The grouping of Malawian Muslims into one denomination may have masked heterogeneity within Islam. Malawian Muslims are largely Sunni Muslims, but Shias also exist. Malawian Sunni Muslims are largely Sukuti or Quadriyya Sufis. Any comparisons made between Muslims in Malawi and their counterparts elsewhere, such as in Iran (with the majority of the population being Shia and the country a theocracy), or where different sects of Sunni predominate, may be problematic (Sicard 2000; Thorold 1993; Sekalesfar 2008).

We measured condom use rather than sexual activity. We found that when compared to Catholics, only Presbyterians were less likely to believe that condom use within marriage was acceptable. However, actual condom use did not vary by religion.

Compared to Presbyterianism, Malawian Catholicism is more conservative in that it discourages promotion or use of modern contraception. As a consequence, Presbyterian churches involved in community HIV prevention programs include condom promotion within marriage, while Catholics generally do not. Catholic organizations or institutions discourage condom use, as is the situation elsewhere (Kinsman 2001; McCarthy 2009; Roehr 2009; Shannon 1991). We had expected that the Presbyterian liberal position on condoms would result in more acceptability of condoms among Presbyterians than among Catholics. However, we found the opposite. Additional studies are therefore required to explore the reasons for this paradoxical finding.

Higher proportions of women in the overall sample and in all the religions asserted that condom use was acceptable within marriage compared to the proportions of women who reported ever using condoms in their current or most recent marriage. We also found there was no difference in condom use between women who believed that condoms were acceptable within marriage and those who held no such beliefs. Our findings suggest that a positive attitude alone is not enough to influence behaviours. Condom use depends on the willingness of a partner to use one and on condom availability and access, as well on the fertility intentions of the couple (Jones et al. 2005; Oddens et al. 1994). However, we did not assess whether the women had knowledge of their partner's HIV status or had suspected that he may be infected. The questions on acceptability in an HIV serodiscordant marriage were therefore hypothetical for some, while for others this represented their actual current situation. It is possible that some women would have answered differently, had they known that the husband was infected or suspected him to be so.

In a study conducted in KwaZulu Natal, South Africa, Maharaj and Cleland (2003) reported that

a woman's perceived risk of HIV infection from her partner was an important predictor of eventual condom use. However, Anglewicz et al. (2010) reported that both men and women in rural Malawi were only able to estimate their spouse's HIV infection status poorly, often overestimating, although women were slightly better than men at estimating their spouse's HIV status. If perceived risk of acquiring HIV within marriage would encourage condom use, then more women would prefer condom use to prevent infection when they know or suspect that a partner is infected.

We noted in our study that women who had a positive attitude toward condoms were no more or no less likely to have used condoms than those with a negative attitude.

In this study, women who were widowed, separated or divorced had a higher prevalence of HIV than currently married women (22.2%, 17.6% and 5.2%, respectively). It is plausible to suggest that among widows, many had become widowed after losing their husbands to AIDS (Caldwell 1997). Some of the women, following the death of a husband, may have been pushed into poverty (D'Souza 2000; Mendenhall et al. 2007). With limited economic opportunities, some may have engaged in transactional sex, thus being exposed to HIV infection.

The absence of a statistically significant difference in HIV prevalence between Christians and Muslims deserves further study.

The present study had several limitations. Firstly, data were collected via self-reports. To the extent that study participants misreported, this may have biased our results. Although it is possible to verify reports of condom use in recent sex (within a day or so after intercourse) using laboratory markers on vaginal swab specimens (Gallo et al. 2006), such an approach was not feasible in the MDICP. Secondly, as data were cross-sectional, we cannot assign causation between religion and the outcomes. In some instances, HIV infection may have led to a change in religion.

The question about acceptability of condom use within marriage did not allow an assessment of whether the attitude differed if the woman herself, or the spouse, was suspected to be HIV infected. This may be the case, as an individual's desire, practice and commitment to prevent HIV transmission may be different, depending on whether the person himself or herself is actually or potentially infected, or whether a sexual partner is. We suspect that acceptability of condom use may differ when the husband is suspected or known to be HIV infected compared to when the woman is infected or suspected to be so. In addition, condom use is actualized within a dyadic context and involves a complex negotiation of risk and trust within the partnership (Gerbert et al. 2006). The part of the question that dealt with HIV infection being suspected (not confirmed) implied that condom use would be decided when a partner suspects the other to be infected, and the suspected partner has perhaps not discussed this possibility with the spouse. Many prevention with positives (PWP) or positive prevention (PP) programs promote an approach that encourages HIV-infected persons to take the lead to prevent further transmission through openness between sexual partners (Gilliam and Straub 2009; Montgomery et al. 2008). Individuals make proactive efforts to know their own or their partner's HIV status and not to rely on suspicion. A limitation in the current study is the fact that our assessment of reported condom use within marriage was limited because we did not assess the relationship dynamics within which use or non-use occurred.

Finally, sampling in the MDICP was in three rural districts. To the extent that these women differ in outcomes or confounders from urban residents or women in other districts of Malawi, the findings from this study may not be representative of all women in the country.

Conclusion

In a study of ever-married women in rural Malawi, there was no difference in attitudes toward condom use or reported use within marriage between Muslim and Christian women. There were also no differences in attitudes between Catholics and most of the individual religious denominations. Presbyterians were less likely to accept condom use within marriage compared to Catholics when HIV was suspected or known to occur in a spouse. Based on our findings we conclude that Christians, Muslims and the other religions (except Presbyterians) are just as likely to perceive condoms as acceptable or not acceptable within marriage. We suggest future studies should explore

the official doctrines (rules and regulations, principles, legal opinions) of religions as well as expressed teachings (what actually gets disseminated in congregations) regarding condom use.

Acknowledgements

We thank ORC Macro, Calverton, Maryland, USA, for giving us permission to use the Malawi Demographic and Health Survey (MDHS) data.

References

- al-Krenawi, A. 1998. "Family Therapy with a Multiparental/Multispousal Family." *Family Process* 37(1): 65–81.
- Anglewicz, P.A., S. Bignami-Van Assche, S. Clark and J. Mkandawire. 2010. "HIV Risk among Currently Married Couples in Rural Malawi: What Do Spouses Know about Each Other?" *AIDS Behaviour* 14(1):103–12.
- Bone, D.S. "Islam in Malawi." 1982. *Journal of Religion in Africa* 3: 126–38.
- Caldwell, J.C. 1997. "The Impact of the African AIDS Epidemic." *Health Transition Review* 7: 169–88.
- Crosby, R., R. Milhausen, W.L. Yarber, S.A. Sanders and C.A. Graham. 2008. "Condom 'Turn offs' among Adults: An Exploratory Study." *International Journal of STD and AIDS* 19(9): 590–4.
- D'Souza, S. 2000. "Poverty among Widows of Kinshasa, Congo." *Journal of Health, Population and Nutrition* 18(2): 79–84.
- Dunkle, K.L., R. Stephenson, E. Karita, E. Chomba, K. Kayitenkore, C. Vwalika, L. Greenberg and S. Allen. 2008. "New Heterosexually Transmitted HIV Infections in Married or Cohabiting Couples in Urban Zambia and Rwanda: An Analysis of Survey and Clinical Data." *The Lancet* 371(9631): 2183–91.
- Dunkle, K.L., R.K. Jewkes, M. Nduna, J. Levin, N. Jama, N. Khuzwayo, M.P. Koss and N. Duvvury. 2006. "Perpetration of Partner Violence and HIV Risk Behaviour among Young Men in the Rural Eastern Cape, South Africa." *AIDS* 20(16): 2107–14.
- Foster, G. 1997. "The Religion and the State in Tanzania and Malawi." *African and Asian Studies* 32: 163–84.
- Foster, P.G. and G.A. Banda. 1999. "The Last Church of God and His Christ." *Journal of Religion in Africa* 29: 442–64.
- Gallo, M.F., F.M. Behets, M.J. Steiner, M.M. Hobbs, T.H. Hoke, K. Van Damme, L. Ralimamonjy, L. Raharimalala and M.S. Cohen. 2006. "Prostate-specific Antigen to Ascertain Reliability of Self-reported Coital Exposure to Semen." *Sexually Transmitted Diseases* 33(8): 476–9.
- Gerbert, B., D.W. Danley, K. Herzig, K. Clanon, D. Ciccarone, P. Gilbert and M. Allerton. 2006. "Reframing 'Prevention with Positives': Incorporating Counseling Techniques That Improve the Health of HIV-Positive Patients." *AIDS Patient Care and STDS* 20(1): 19–29.
- Gilbert, S.S. 2008. "The Influence of Islam on AIDS Prevention among Senegalese University Students." *AIDS Education and Prevention* 20(5): 399–407.
- Gilliam, P.P. and D.M. Straub. 2009. "Prevention with Positives: A Review of Published Research, 1998–2008." *Journal of the Association of Nurses in AIDS Care* 20(2): 92–109.
- Glynn, J.R., M. Caraël, A. Buvé, R.M. Musonda, M. Kahindo; Study Group on the Heterogeneity of HIV Epidemics in African Cities. 2003. "HIV Risk in Relation to Marriage in Areas with High Prevalence of HIV Infection." *Journal of Acquired Immune Deficiency Syndrome* 33 (4): 526–35.
- Glynn, J.R., M. Caraël, B. Auvert, M. Kahindo, J. Chege, R. Musonda, F. Kaona, A. Buvé A; Study Group on the Heterogeneity of HIV Epidemics in African cities. 2001. "Why Do Young Women Have a Much Higher Prevalence of HIV than Young Men? A Study in Kisumu, Kenya and Ndola, Zambia." *Journal of Acquired Immune Deficiency Syndrome* 15(Suppl 4): S51–S60.
- Higgins, L.T. and C. Sun. 2007. "Gender, Social Background and Sexual Attitudes among Chinese Students." *Culture, Health and Sexuality* 9(1): 31–42.
- Jones, R.K., J.E. Darroch and S. Singh. 2005. "Religious Differentials in the Sexual and Reproductive Behaviors of Young Women in the United States." *Journal of Adolescent Health* 36(4): 279–88.
- Kalipeni, E. and J. Ghosh. 2007. "Concern and Practice among Men about HIV/AIDS in Low Socioeconomic Income Areas of Lilongwe, Malawi." *Social Science & Medicine* 64(5): 1116–27.
- Kalipeni, E. and E.M. Zulu. 1993. "Gender Differences in Knowledge and Attitudes toward Modern and Traditional Methods of Child Spacing in Malawi." *Population Research and Policy Review* 12(2): 10–21.
- Kiene, S.M., W.D. Barta, H. Tennen and S. Armeli. 2009. "Alcohol, Helping Young Adults to Have Unprotected Sex with Casual Partners: Findings from a Daily Diary Study of Alcohol Use and Sexual Behavior." *Journal of Adolescent Health* 44(1): 73–80.

- Kinsman, J., J. Nakiyingi, A. Kamali and J. Whitworth. 2001. "Condom Awareness and Intended Use: Gender and Religious Contrasts among School Pupils in Rural Masaka, Uganda." *AIDS Care* 13(2): 215–20.
- Kongnyuy, E.J. and C.S. Wiysonge. 2007. "Alcohol Use and Extramarital Sex among Men in Cameroon." *BMC International Health and Human Rights* 7(6): 1–7.
- Krugmann-Randolf, I. 1989. "Mary Wants Only Six Children. Family planning in Malawi." *Development and Cooperation* 2: 4–7.
- Maharaj, P. and J. Cleland. 2005. "Risk Perception and Condom Use among Married or Cohabiting Couples in KwaZulu-Natal, South Africa." *International Family Planning Perspectives* 31(1): 24–9.
- McCarthy, A. 2009. "The Pope, Condoms, and HIV. Why the Pope May Be Right." *British Medical Journal* 338: DOI: 10.1136.
- Mendenhall, E., L. Muzizi, R. Stephenson, E. Chomba, Y. Ahmed, A. Haworth and S. Allen. 2007. "Property Grabbing and Will Writing in Lusaka, Zambia: An Examination of Wills of HIV-infected Cohabiting Couples." *AIDS Care* 19(3): 369–74.
- Mendenhall, E., L. Muzizi, R. Stephenson, E. Chomba, Y. Ahmed, A. Haworth and S. Allen. 2007. "Property Grabbing and Will Writing in Lusaka, Zambia: An Examination of Wills of HIV-infected Cohabiting Couples." *AIDS Care* 19(3): 369–74.
- Montgomery, C.M., S. Lees, J. Stadler, N.S. Morar, A. Ssali, B. Mwanza, M. Mntambo, J. Phillip, C. Watts and R. Pool. 2008. "The Role of Partnership Dynamics in Determining the Acceptability of Condoms and Microbicides." *AIDS Care* 20(6): 733–40.
- Moyo, W., B.A. Levandowski, C. MacPhail, H. Rees, and A. Pettifor. 2008. "Consistent Condom Use in South African Youth's Most Recent Sexual Relationships." *AIDS and Behavior* 12(3): 431–40.
- Ngalande, .R.C., J. Levy, C.P. Kapondo and R.C. Bailey. 2006. "Acceptability of Male Circumcision for Prevention of HIV Infection in Malawi." *AIDS and Behavior* 10(4): 377–85.
- Oddens, B.J., A.P. Visser, H.M. Vemer and W.T. Everaerd. 1994. "Contraceptive Use and Attitudes in Reunified Germany." *European Journal of Obstetrics and Gynecologic Reproductive Biology* 57(3): 201–8.
- Pfeiffer, J. 2004. "Condom Social Marketing, Pentecostalism, and Structural Adjustment in Mozambique: A Clash of AIDS Prevention Messages." *Medical Anthropology Quarterly* 18(1): 77–103.
- Poulin, M. 2007. "Sex, Money, and Premarital Partnerships in Southern Malawi." *Social Science & Medicine* 65(11): 2383–93.
- Rankin, S.H., T. Lindgren, S.M. Kools and E. Schell. 2008. "The Condom Divide: Disenfranchisement of Malawi Women by Church and State." *Journal of Obstetric, Gynecologic, and Neonatal Nursing* 37: 596–604.
- Richters, J., A.E. Grulich, R.O de Visser, A.M. Smith and C.E. Rissel. 2003. "Sex in Australia: Contraceptive Practices among a Representative Sample of Women." *Australia and New Zealand Journal of Public Health* 27 (2): 210-6.
- Roehr, B. 2009. "Pope Claims That Condoms Exacerbate HIV and AIDS Problem." *British Medical Journal* 338: DOI: 101136.
- Sekalesfar, F. 2008. "Abortion Perspectives of Shia Islam." *Studies in Ethics, Law and Technology* 2(3): 4, Retrieved March 20, 2011. <<http://www.bepress.com/selt/vol2/iss3/art4>>; DOI: 10.2202/1941-6008.1066.
- Shannon, D. 1991. "Bishops on Birth Control: A Chronicle of Obstruction." *Conscience* 12(6): 14–7.
- Sicard, S.V. 2000. "The Arrival of Islam in Malawi and the Muslim Contribution to Development." *Journal of Muslim Minority Affairs* 20(2): 291–311.
- Slonim-Nevo, V. and A. Al-Krenawi. 2006. "Success and Failure among Polygamous Families: The Experience of Wives, Husbands, and Children." *Family Process* 45(3): 311–30.
- Smith, J.D. 2007. "Modern Marriage, Men's Extramarital Sex, and HIV Risk in Southeastern Nigeria." *American Journal of Public Health* 97(6): 997–1005.
- Srivastava, M.L. and M. M'manga. 1991. "Traditional and Modern Methods of Child Spacing in Malawi: Knowledge, Attitude and Practice." Demographic Unit, University of Malawi, Zomba, Malawi.
- Thorold, A. 1993. "Metamorphoses of the Yao Muslims." In I. Brenner. *Muslim Identity and Social Change in Sub-Saharan Africa*. Indiana: Indiana University Press.
- Versteeg, M. and M. Murray. 2008. "Condom Use as Part of the Wider HIV Prevention Strategy: Experiences from Communities in the North West Province, South Africa." *Social Aspects of HIV and AIDS Research Alliance Journal* 5(2): 83–93.

- Watkins, S., J. Behrman, H.-P. Kohler and E.M. Zulu. 2003. "Introduction to Research on Demographic Aspects of HIV/AIDS in Rural Africa." *Demographic research* S1(1): 1–30. Retrieved March 20, 2011. <<http://www.demographic-research.org.libproxy.lib.unc.edu>>.
- Washington, T.A., Y. Wang and D. Browne. 2009. "Difference in Condom Use among Sexually Active Males at Historically Black Colleges and Universities." *Journal of American College Health* 57(4): 411–8.
- Weller, S. and K. Davis. 2001. "Condom Effectiveness in Reducing Heterosexual HIV Transmission." *Cochrane Database Systematic Reviews* 3: CD003255.