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Ethnic identity, region, and attitudes toward male circumcision in a high HIV-prevalence country

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Abstract

We study how considerations of male circumcision as both a favourable practice and as protective against HIV are linked with ethnicity in sub-Saharan Africa, where many ethnic groups do not traditionally circumcise. We focus on Malawi, a country with a high HIV prevalence but low male circumcision prevalence. Survey data from a population-based random sample in rural Malawi (N=3400) was analysed for ethnoregional patterns in attitudes toward male circumcision. We used logit regression models to measure how reported circumcision status, region of residence, and ethnic identity relate to attitudes toward circumcision. Overall, Malawians reported more negative than positive opinions about male circumcision, but attitudes toward circumcision varied by ethnicity and region. The implications for agencies and governments aggressively scaling up the provision of male circumcision are clear: acceptance of circumcision as a tool for HIV prevention could be low in societies divided by ethnoregional identities that also shape the practice of circumcision.

Keywords

HIV/AIDS; male circumcision; ethnicity; attitudes; Malawi

Introduction

Three randomised controlled trials (RCTs) conducted in South Africa, Kenya, and Uganda showed that male circumcision (MC) can reduce the risk of HIV acquisition in heterosexual men by between 51 and 60% (Auvert *et al.* 2005, Bailey *et al.* 2007, Gray *et al.* 2007). These results instigated the World Health Organization (WHO) and the Joint United National Programme of HIV/AIDS (UNAIDS) to release a policy statement in March 2007 on MC. The statement urged countries with high HIV prevalence and low numbers of men who get circumcised to implement MC as part of their comprehensive HIV prevention strategies. In response, government health ministries and non-governmental health agencies in several highly affected countries have endorsed the procedure (World Health Organization 2007).

Although men in many ethnic groups in sub-Saharan Africa get circumcised, in several high HIV-prevalence countries, the majority do not. Critical to the successful implementation of MC will be its acceptability among these traditionally non-circumcising groups, and a number of acceptability studies have been conducted (Halperin *et al.* 2005, Lukobo and Bailey 2007, Ngalande *et al.* 2006, Obure *et al.* 2009, Westercamp and Bailey 2007). After reviewing 13 such studies across nine countries in sub-Saharan Africa, Westercamp and

Bailey (2007) concluded that among non-circumcising populations, MC is widely acceptable, and they declared that future study of MC acceptability is therefore 'unnecessary'. The bulk of the studies reviewed, however, have two critical limitations. First, most 'employed some variation of a convenience sample' (Westercamp and Bailey 2007), which raises concern about whether these findings are informative of wider populations. Second, across the 13 studies, the range of acceptability was wide—between 29 and 87%. This raises important questions about how and why acceptability was quite low in some places but not others.

Researchers and commentators who have expressed concern about the scaling up of MC argue that barriers to its successful implementation include cost, pain, and safety of the procedure (Westercamp and Bailey 2007, Weiss *et al.* 2008). The implication is that once these barriers are removed or reduced, the demand for MC will be high. Although not without its challenges, overcoming poor access to care and lack of knowledge (domains within which these stated barriers fall) often pose fewer difficulties to the public health community than the ideological impediments associated with healthful behaviour and practices do. People attach meaning to their behaviour, including behaviours that are health-specific (Sewell 2005). For example, couples in committed relationships may not use condoms since they imply promiscuity (Chimbiri 2007, Tavory and Swidler 2009).

Considering how the meaning of, and attitudes toward, MC depend on ethnic identities may lead not only to more effective HIV intervention solutions, but also to more cost-effective ones. In sub-Saharan Africa, ethnic groups that practice MC do so as part of coming-of-age, religious, and ethnically-oriented initiation ceremonies. Because not all groups circumcise (indeed, in southern and eastern Africa most do not), this practice becomes part of a set of social and symbolic markers for those groups. The importance of ethnic identity, and hence of MC as part of ethnic identity, deepens in countries where ethnicity is tightly bound with its political history (and its political present). Moreover, should the prevalence of HIV in a country vary widely across ethnoregional lines, it follows that that country's AIDS epidemic will be viewed in ethnic terms by its people (Lieberman 2009).

We suspect this is the case in Malawi. The Yao ethnic group, which comprises 12% of Malawi's population, includes male circumcision as part of adolescent male initiation ceremonies.¹ Although some Yao live in the central region of the country, the majority reside in the southern region. Paradoxically, the southern region has the highest HIV prevalence in the country, although within this region, the Yao do not have the highest HIV prevalence (Poulin and Muula 2011). Yet, the correlation between HIV prevalence and region has been cited by health officials to claim that male circumcision 'does not work' in the country (Tenthani 2010).

Several studies have considered the potential importance of ethnic identity in people's desire to become circumcised for health reasons (Westercamp and Bailey 2007, Weiss *et al.* 2008, Kebaabetswe *et al.* 2003, Tsela and Halperin 2006). The typical argument is that ethnic identity bears little weight: '[R]emaining with one's foreskin is not considered crucial to one's own ethnic identity', as it 'serves as an ethnic marker primarily used by others' (Westercamp and Bailey 2007). This may be the case, but empirical assessments of such claims have been insufficient thus far. To date, the successes and challenges of the few countries in the early phases of the MC intervention programme rollout remain unknown.

¹Historically, adolescent male Yao became circumcised as part of initiation ceremonies, but not always consistently. However, with the colonisation of the British and the Yao history of trading with Arabic peoples, many Yao leaders decidedly made MC a part of Yao tradition in defiance of British invasion (Bone 1982). Today, although most Yao are Muslim and circumcision is viewed as important to the religion of Islam, Malawians primarily identify MC as an ethnic characteristic.

One exception is the Government of Kenya (GoK)'s 2009 'Rapid Results Initiative' in the Nyanza Province, where the Luo ethnic group resides and traditionally does not practice MC. A large proportion of the demand for medical MC unexpectedly has been from those younger than 15 years of age, although the GoK has been targeting those aged 15 years and older (Nyanza Provincial Task Force on Male Circumcision 2010). Thus, even in Nyanza, where one of the RCTs was conducted and demand for MC has been documented as high, the outcomes of the MC rollout have not quite matched the expectations of the public health community. In light of the real potential to stem AIDS in this part of the world if demand for MC is sufficient and the procedure is made affordable and accessible, in this paper we aim to contribute to the knowledge needed by the public health community and local governments when planning to implement MC as a prevention technology. Based on the current literature, and our knowledge of the political and social contexts in Malawi, we suspect that attitudes toward MC are shaped by ethnic identities.

Setting and methods

Setting

Malawi is a southern African country with a population of 15 million people and an estimated HIV prevalence of 12% (National AIDS Commission [Malawi] 2007). More than one dozen ethnic groups reside in the country, the three largest of which map (politically and in the popular imagination) onto the country's three administrative regions: southern, central, and northern. During the colonial era, administrators and local authorities mobilised some ethnic groups for political purposes, effectively creating ethnic divisions in the political arena that persist today (Vail and White 1989, Kaspin 1995, Posner 2004).

Most men in Malawi do not get circumcised. Nationwide, 20.7% of adult men are circumcised (National Statistical Office (NSO) [Malawi] and ORC Macro 2005). Most of these are of the Yao ethnic group. Data from the 2004 Malawi Demographic and Health Survey show that throughout the country, 85.1% of adult Yao men are circumcised (authors' calculations). Yao undergo circumcision during boys' initiation ceremonies known as *jando*. The Yao reside predominantly in the southern region, but some live in the central region close to Lake Malawi. The central region is comprised mostly of the Chewa and Ngoni ethnic groups, and the northern region is where most Tumbuka live. The majority of these latter groups are Christian, and the men usually do not get circumcised. Those of the Lomwe group, who make up 18% of Malawi's population and largely reside in the southern region, also get circumcised.

Archived media suggest many Malawians were aware of the results of the RCTs when they became news. Malawi's two major daily newspapers, as well as local radio programmes, covered the trial results. On 5 November 2007, for example, a full-page article published in *The Nation* discussed MC and debated its protective effects (Mwalwanda 2007). The article begins with the story of a widow's 20-year-old son who sought circumcision even though it was 'not part of his late father's culture'. The journalist reported the widow 'suspected her son must have taken the decision following media reports about findings of some clinical studies showing that male circumcision, to a certain degree, provides protection against HIV'. The majority of men and women in Malawi do not regularly read a newspaper: 26% of men and 13% of women in Malawi read a newspaper once a week (National Statistical Office (NSO) [Malawi] and ORC Macro 2005). However, most listen to the radio: 85% of men and 67% of women report listening to the radio at least once a week (National Statistical Office (NSO) [Malawi] and ORC Macro 2005), where they would be exposed to reports of the RCTs' results.

Evidence suggests people suspected a connection between MC and HIV risk well before the trial results, although the precise nature of the relationship was uncertain. Everyday conversations from a large collection of ethnographic journals collected in southern Malawi since 1999 show that as early as 2001, Malawians were suspicious of a link between MC and HIV infection (Watkins 2008). Beginning in 2005, around the time of newsprint and radio coverage of the RCT in South Africa, local discussions about the role of MC in HIV infection began to include the South African MC trial. Some Malawians touted the success of the RCTs; others were suspicious. In one conversation captured in a journal in 2006, two women debated what the trial meant for women's risk of infection. Ultimately, they agreed that the results must mean that MC is effective for men but not for women. Other conversations reveal a deep skepticism of MC as an effective form of HIV prevention. In these cases, the suspicious Malawians usually claimed that the Yao are infected with HIV, and the Yao are circumcised; therefore, MC must not work in Malawi.

These anecdotes are useful in revealing on-the-ground debates surrounding MC, and in indicating the potential importance of ethnicity in these debates. They cannot, however, show how the wider rural Malawian population views MC in the context of its AIDS epidemic. Therefore, the goal of this research is to determine how attitudes toward circumcision are patterned by ethnicity and region of residence in the population.

Methods and data

The data we draw upon come from the Malawi Longitudinal Study of Families and Households (MLSFH), a study of men and women from 122 villages in the districts of Rumphi, Mchinji, and Balaka, located in the northern, central, and southern regions, respectively (see Figure 1). The MLSFH has collected six waves of data since its first round in 1998. The MLSFH project's overall aims were to collect information on family planning, social networks, and AIDS. Though the original sampling strategy in 1998 was not designed to be representative of the overall rural population in Malawi, the sample's characteristics are similar to those of the rural population interviewed by the Malawi Demographic and Health Surveys (Anglewicz *et al.* 2009).

Wave 5 was conducted between June and August 2008, well after the results of the RCTs had been circulated by the media. The Wave 5 survey included two questions pertinent to this research. The first was designed to ascertain knowledge about MC and HIV, asking, 'Do you think circumcision increases, decreases or does not affect the chance of HIV transmission during unprotected intercourse'? The second queried attitudes toward MC by asking, 'If your friend who wasn't already circumcised decided to get circumcised, what would you think of him'? Responses were open-ended and interviewers were provided with a pre-coded list from which they would select all responses mentioned. If a respondent gave a response not available as a pre-coded option, the interviewer wrote the response given verbatim (see Table 1).

In the same wave, but on a different (earlier) day, the survey team administered a survey to the same respondents that gathered background information such as ethnic identity, age, and radio ownership. Not all respondents were interviewed for both surveys, reducing the sample size.² We can impute age and ethnicity from previous waves of the survey, but not radio ownership. Fluctuations in sample size in the analyses reflect these data limitations.

The 2008 sample included 3384 women and 2631 men, of which 57% (3400) were successfully interviewed by the team enumerating the survey with questions about

²Attempts were made to interview all respondents for both surveys, but in some cases respondents were absent when one of the surveys was fielded.

circumcision (see Table 2 for summary statistics of the sample). The sample was 60% female with an average reported age of 41 (range: 18 to 101). Ethnicity varies across sample population by district: the largest group in Mchinji is the Chewa with a minority Ngoni population, the Rumphu sample consists mostly of Tumbukas, and Yaos make up the largest group in the Balaka site, with small Lomwe and Chewa populations. Respondents reported whether they or, in the case of women, their partners were circumcised; of the 3378 responses to the circumcision question (9 reported not knowing and 13 respondents have missing data on this question), 1021 (30%) respondents reported they or their partners were circumcised. Most of the respondents reporting in 2008 that they or their partners were circumcised (944, or 92%) resided in Balaka.

Results

Despite the local media coverage on the RCTs on MC in sub-Saharan Africa, only 14% of our study population reported that circumcision *decreases* the chances of HIV infection. Conversely, 35% of respondents reported that circumcision *increases* the chances of HIV infection. There was much variation, however, by region and ethnicity within Malawi. Compared to other ethnic groups, more Yaos—who traditionally circumcise—reported that MC *decreases* HIV transmission. Although few Yaos reside in the central and northern regions, those who did were more likely to report MC *increases* chance of infection (43% and 78%, respectively) than Yaos in the southern region (26%).

All but nine respondents in the sample responded to the question of what they would think if an uncircumcised friend decided to get circumcised. Thirty-one per cent offered positive responses, 57% offered negative responses, and 2% offered neutral responses. Because responses were open-ended and multiple responses were allowed, some respondents (9%) offered both positive and negative responses. Sixty-nine per cent of the respondents in the southern research site had positive attitudes toward MC, whereas for the central and northern sites, 14% of the study populations had positive attitudes. Twenty per cent of the southern region respondents had negative opinions of MC while 73% of central respondents and 74% of northern respondents had negative opinions of MC. A chi-squared test of the regional differences is statistically significant at the 0.001 level (not shown).

Examining the constellation of ethnicity and region in shaping reported attitudes toward MC is again illuminating. Yaos in the southern region are much more likely than Yaos in the central region to have positive attitudes toward MC; the few Yaos in the north reported only negative attitudes toward MC. Similarly, Chewas and Ngonis in the southern region are more likely than Chewas and Ngonis, respectively, in the central region to have positive attitudes toward MC.

We created a logistic regression model to evaluate these differences in attitudes and opinions formally. The iterative model included reported circumcision status, residence in the southern region (Balaka research site), Yao ethnicity, gender, age, household radio ownership, education, and household construction indicators as covariates. The results are reported in Table 3. Our data show that being circumcised (or, in the case of women, having a circumcised spouse) increases the odds of a positive opinion of MC, as does residing in Balaka, and being Yao (Models 1 through 3). Interestingly, controlling for being circumcised and being Yao, Balaka residents have increased odds (OR 2.321) of a positive opinion toward MC. Gender, age, educational attainment, and measures of wealth are not significantly correlated with attitudes toward MC.

Because Yao ethnicity and Balaka residency are highly correlated, and to determine whether a regional effect persists, we also ran these analyses with a sample limited to non-Yao

respondents (Models 4 and 5). With this restricted sample, we found that those who were circumcised (OR 6.496) or resided in Balaka (OR 2.188) have increased odds of a positive opinion of MC. As in Model 3, this latter finding suggests that evaluations of MC in relation to HIV risk and the AIDS epidemic, although highly correlated with ethnic identities, are also related to geographic proximity to those circumcised.

Discussion

Our data showed that attitudes toward male circumcision (MC) differ by region and ethnicity in Malawi. Not surprisingly, the Yao—the ethnic group with a vast majority of men circumcised—had greater odds of positively evaluating MC, as measured by attitudes toward MC and by beliefs of MC as protective against HIV acquisition, compared to all other ethnic groups. Ethnic groups that do not circumcise had greater odds of positive evaluations of MC if they resided near the Yao in Balaka in the southern region, such as the Chewa. Beyond Balaka, however, Malawians generally have negative opinions of MC and report that MC *increases* risk of HIV transmission, including the Chewa and Ngoni in the central region and the Tumbuka in the northern region.

Malawi is one of the few countries with high HIV prevalence and with relatively low numbers of men practicing circumcision. The Malawian government has long hesitated to adopt MC as an HIV intervention, claiming insufficient evidence that MC will slow the spread of HIV in Malawi (PlusNews 2010). Our findings suggest that ethnic circumscription of circumcision practices could contribute to this claim, as well as the fact that ecological correlations show that in the southern region of the country, where most Yao live, HIV prevalence is highest (Poulin and Muula 2011). Contrast this scenario with Kenya, which has high MC uptake (Dickson 2010), and where, interestingly, despite the ethnic circumscription of MC there, the Luo are renegotiating identities around MC, seeing MC as a ‘modern’ strategy for coping with a ‘modern’ challenge, despite contradicting customary practices (Wawire 2010).

We acknowledge that all studies using self-reports are subject to socially desirable responses, and this study is no exception. However, because this study uses data from a large, population-based random sample, with several ethnic groups represented, it overcomes a major limitation that the majority of acceptability studies have. If attitudes toward MC are patterned by ethnicity, population-based survey data will illuminate them.

To our knowledge, the only published article on the acceptability of MC in Malawi used data from focus group discussions, with convenience samples of 318 men and women, from four districts. The study found ‘no overt antipathy to circumcision’ and ‘that nearly all Malawians associate MC with improved hygiene’ (Ngalande *et al.* 2006). Our results largely contradict these findings, especially in communities where men typically do not get circumcised. Whereas the authors suggest the main barriers to MC are purely medical concerns—of infection or illness resulting from the circumcision—our study suggests that attitudes toward MC are socially situated, shaped by ethnic circumscription of the practice and the placement of MC as a signifier for group membership and status.

Conclusion

The MC trials in sub-Saharan Africa gave hope for an efficacious biomedical intervention to prevent the spread of HIV, a disease with a deadly outcome and no vaccine or cure. What the RCTs show as efficacious, however, remains an open question with respect to effectiveness. We are convinced that in a controlled setting, MC is protective against HIV. But HIV lives, and thrives, in uncontrolled settings, where people locate themselves and

their attitudes according to perceptions of custom and modernity. Our study suggests that choices made in relation to MC are placed within social situations, and barriers to the rollout and uptake of MC in places where the practice of MC is defined along ethno-regional lines should be considered to help ensure high uptake rates.

Ethno-regional identities have not been a barrier to MC uptake in other countries, such as in Kenya. The government of Kenya, however, quickly adopted MC as part of its HIV prevention strategy, whereas Malawi did not. The socio-political climate in Kenya is also very different from Malawi's, in which the status and political power of the ethnic groups practicing circumcision in Kenya is elevated, unlike in Malawi.

Of course, reported attitudes toward MC may not predict actual responses or service utilisation if MC were to be offered as an HIV prevention intervention or male reproductive health measure. Yet the findings from our study suggest that medical knowledge alone may not be sufficient to generate HIV-related health-seeking behaviour. RCTs are hailed for their ability to test causal relationships and thus provide incontrovertible evidence of efficacy of interventions. It is imperative, though, that we recognise the limitation of RCTs in measuring effectiveness and the need for other methods of inquiry and attention to ethnic and social variables to inform policy choices. Political and ethno-regional divisions need to be considered as well, and public health programmes must recognise that medical interventions are embedded in complex social fields when designing and conducting acceptability studies.

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Figure 1.
Map of MLSFH research sites

Table 1

Categorisation of attitudes toward male circumcision

Positive	Negative	Neutral
He would be cleaner/better hygiene (500)	He would be losing his culture/tradition (1030)	He will be having a lot of sex (38)*
He would be protecting himself against HIV (264)	He would risk getting a disease (579)	His choice/right/freedom/wish (81)
He would be protecting himself against STIs (240)	He would be foolish (497)	No opinion (58)
He was smart/intelligent (190)	He would be going against his religion (309)	Disbelief (1)
He would be healthy (163)	He will be having a lot of sex anyhow (96)*	
He was modern (142)	Other people would make fun of him (69)	
Other people would admire him (74)	He would have less sexual pleasure (23)	
He will be more desired by women (58)	He is putting himself at risk for HIV (15)	
He would be doing it for culture/custom/tradition (54)	He should not do it (12)	
He would be protecting his partner against HIV (48)	He would give less sexual pleasure (6)	
He would have more sexual pleasure (42)	He has a disease (3)	
He would be protecting his partner against STIs (41)		
He would give more sexual pleasure (34)		
He would be doing it for marriage (5)		

Notes: Responses were open-ended to a MLSFH 2008 survey question asking, 'If your friend who wasn't already circumcised decided to get circumcised, what would you think of him'? Numbers in parentheses indicate frequency in the sample of 3400 respondents; the sum across responses is greater than 3400 because respondents could offer more than one response.

* At first glance these two responses may seem indistinguishable; however, in the Malawian context, while there is no negative connotation with having lots of sex, there is a negative view of promiscuity, which is insinuated by 'anyhow' in the statement 'He will be having a lot of sex anyhow'.

Table 2

Summary statistics of study population

Observations	Full sample		Non-Yao Sample		North (Rumphu)		Center (Mchinji)		South (Balaka)		
	3400	2436	1034	1268	1098	Mean	SD	Mean	SD	Mean	SD
<i>Respondent characteristics</i>											
Male	0.40	0.49	0.42	0.49	0.42	0.49	0.42	0.49	0.37	0.48	
Married	0.73	0.44	0.77	0.42	0.79	0.40	0.68	0.47	0.73	0.44	
Age	41.49	16.99	40.77	16.15	40.74	16.63	41.16	16.26	42.58	18.08	
School >3 years	0.63	0.48	0.73	0.44	0.90	0.29	0.61	0.49	0.37	0.48	
<i>Household assets</i>											
Radio	0.68	0.47	0.71	0.45	0.78	0.41	0.67	0.47	0.59	0.49	
Improved walls	2.20	0.84	2.11	0.89	2.25	0.87	1.82	0.91	2.52	0.53	
Improved roof	0.20	0.40	0.21	0.40	0.28	0.45	0.14	0.35	0.17	0.38	
<i>Circumcision</i>											
Circumcised (or has circumcised spouse)	0.30	0.46	0.10	0.30	0.02	0.15	0.04	0.20	0.86	0.34	
Positive attitude toward male circumcision	0.32	0.46	0.18	0.39	0.14	0.35	0.14	0.34	0.69	0.46	
<i>Ethnic identity</i>											
Chewa	0.31	0.46	0.44	0.50	0.02	0.15	0.76	0.43	0.07	0.26	
Tumbuka	0.28	0.45	0.39	0.49	0.89	0.31	0.01	0.10	0.00	0.04	
Yao	0.24	0.43	-	-	0.01	0.09	0.02	0.15	0.70	0.46	
Ngoni	0.05	0.23	0.08	0.26	0.03	0.17	0.06	0.24	0.07	0.25	
Lomwe	0.04	0.19	0.05	0.22	0.01	0.08	0.01	0.11	0.10	0.29	

Notes: Full sample includes respondents successfully interviewed by the team enumerating the MLSFH survey with questions about circumcision during Wave 5 in 2008. Non-Yao sample is restricted to all of the respondents that reported an ethnicity other than Yao. School >3 years includes respondents who reported finishing 3 or more years of formal schooling. Improved walls is equal to 1 if household wall materials are basic (mud), 2 if made of sunburnt bricks, and 3 if made of fire-burnt bricks. Improved roof indicates a respondent's household has iron sheets or sisal tiles (rather than grass thatch).

Table 3.

Predictors of positive attitudes toward male circumcision

	(1)	(2)	(3)	(4)	(5)
Circumcised	16.33 ^{***} (13.13 – 20.30)	7.876 ^{***} (5.693 – 10.90)	6.180 ^{***} (4.313 – 8.855)	10.62 ^{***} (7.732 – 14.59)	6.496 ^{***} (4.382 – 9.630)
Balaka resident		2.648 ^{***} (1.889 – 3.712)	2.321 ^{***} (1.632 – 3.302)		2.188 ^{***} (1.496 – 3.202)
Yao ethnicity			1.697 ^{***} (1.227 – 2.348)		
Male	1.007 (0.819 – 1.238)	0.994 (0.807 – 1.224)	0.983 (0.797 – 1.212)	1.127 (0.879 – 1.444)	1.106 (0.862 – 1.420)
Age	0.997 (0.991 – 1.004)	0.998 (0.992 – 1.004)	0.998 (0.992 – 1.005)	0.998 (0.990 – 1.006)	0.998 (0.990 – 1.006)
Owns radio	0.775 ^{**} (0.624 – 0.962)	0.804 ^{**} (0.646 – 1.000)	0.788 ^{**} (0.632 – 0.981)	0.812 (0.620 – 1.065)	0.837 (0.637 – 1.100)
School >3 years	0.942 (0.744 – 1.192)	1.049 (0.824 – 1.335)	1.112 (0.870 – 1.421)	1.047 (0.781 – 1.404)	1.125 (0.836 – 1.514)
Improved walls	1.172 ^{**} (1.025 – 1.340)	1.058 (0.920 – 1.218)	1.052 (0.914 – 1.211)	1.154 [*] (0.995 – 1.339)	1.065 (0.912 – 1.244)
Improved roof	0.973 (0.746 – 1.269)	1.027 (0.784 – 1.345)	1.043 (0.795 – 1.368)	0.940 (0.682 – 1.294)	1.005 (0.727 – 1.389)
Sample	Full	Full	Full	Non-Yao	Non-Yao
Observations	2,899	2,899	2,895	2,174	2,174
Pseudo R-squared	0.284	0.292	0.296	0.118	0.126
Log Lik	-1303	-1288	-1279	-901.8	-894.2

Notes: Results of a logit regression where dependent variable is binary measure equal to 1 if respondent gave an overall positive opinion in response to the question: 'If your friend who wasn't already circumcised decided to get circumcised, what would you think of him'? Odds ratios reported with confidence intervals in parentheses. Source: ML-SFH 2008.

^{***} $p < 0.01$,
^{**} $p < 0.05$,
^{*} $p < 0.1$.