Does circumcision influence risky sexual behaviour among circumcised sexually active men in Zambia? **Evidence from the 2013-14 Zambia Demographic and Health Survey**

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Introduction

Low circumcision and high rates of heterosexual acquired HIV infections are among factors that have "prompted" Zambia to adopt, encourage and spearhead Voluntary Medical Male Circumcision (VMMC) as a tool against HIV infection (Welsh et al., 2013). At Global and Regional levels, VMMC is being encouraged for countries with high generalised HIV prevalence. The standpoint is based on evidence from several fronts which suggest the inhibition role circumcision plays in preventing HIV and other sexually transmitted infections (STIs).

It is evident that uncircumcised men are more likely to get infected with the virus that causes AIDS if they have unprotected sex with women who are infected (Wabwire-Mangen et al., 2009). However, male circumcision has been said to have a protective effect against HIV and other sexually transmitted infections (Grey et al., 2007, Bailey et al., 2007 and Auvert et al., 2005).

Notwithstanding the aforementioned, information on the role circumcision plays in protecting circumcised men against STIs including HIV have not gone unchallenged. For example, there are assertions suggesting that, circumcision is, in fact leading men to adopt "careless" and risky sexual behaviours and thereby exposing themselves to potential HIV infection. This is so because in some circles, people thank that once one is circumcised, one feels forever protected. The Ugandan Ministry of Health and ICF International (2012), found that there is complacency in HIV prevention strategies partly due to messages on what circumcision can and cannot do. As a result, some men, even amongst the married, are practicing risky sex such as concurrent multiple relations, inconsistent condom use and transactional sex among others.

Some researchers have explained this situation using the Behaviour Risk Compensation Theory which proposes that people tend to adjust their behaviour in response to the perceived level of risk; usually behaving less cautiously where they feel more protected, and more cautiously where they feel a higher level of risk. In the context of viewing circumcision as a natural condom, it is possible the Behaviour Risk Compensation Theory may suffice thereby driving men to feel less at risk and engage in risky sexual behaviour including non-marital sex, non-condom use, and high number of sexual partners (Hedlund, 2000; Adams and Hillman, 2001; Bonner, 2001; Riess et al., 2010). This may not be the same for uncircumcised men. However, there is very little or no evidence suggesting how this theory works in practice or giving more insight explaining whether indeed men engage in risky sexual behaviour because they feel "more protected" (Cassell et al., 2006; Eaton and Kalichman, 2009). In addition, there seems to be no study currently which has highlighted and tested whether or not circumcised men "feel"

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more protected than uncircumcised men and therefore engage in risky sexual behaviour.

Given this on-going discourse, this paper therefore aimed at investigating whether or not circumcision was having any effect on risky sexual behaviour. Questions this paper aimed to answer were two:

1. Does circumcision influence risky sexual behaviour among circumcised men in Zambia? and;
2. How do socio-economic and demographic characteristics influence this behaviour?

Data and Methods

Demographic Health Survey (DHS) data collection procedures follow a standard format comparable across different surveys and countries. Data for this paper relied on the 2013-14 ZDHS dataset for men aged 15-59 years old. The number of eligible men sampled was 14773 representing a response rate (RR) of 91.1 percent of eligible respondents. Standard information collected through DHS includes questions on circumcision, sexual behaviour, and socio-economic and demographic variables such as age, marital status, education, wealth quintile among others. This information formed part of the analysis process for this paper.

The analytical structure included re-coding men as either circumcised (1) or not circumcised (0) at the time of the survey. Circumcision status was first linked to socio-demographic and economic characteristics and thereafter linked to specific risky sexual behaviour. Socio-demographic and economic characteristics were linked to both the status of being circumcised and identified specific risky sexual behaviours. This analytical approach was necessary to provide specific explanatory modifications associated with the identified risky sexual behaviour on one hand and circumcision on the other hand. The following terms were used to describe "risky sex" in general:

Risky sex was defined as engaging in concurrent sexual partnerships or multiple on-going partnerships or overlapping partnerships (Zambia Sexual Behaviour Survey 2009); where a man was having two or more steady sex partners other than their "permanent" partner in the last 12 months (Chikusta et al., 2015).

Two plus sexual partners is where a man had sexual relations or encounters with two or more non-marital/non-cohabiting sexual partners in the last 12 months.

Alcohol intake before sex; the ZDHS collects data on whether a respondent took or drank alcohol before they engaged in sex. This behaviour is classified "risky" because alcohol consumption is known to influence one's perception of risk and decision making on safe sex (ZSBS, 2009). Having taken alcohol before any sexual encounter qualifies to be classified as risky sexual behaviour because of associated judgement errors.

Paid sex; in this paper, all men who reported to have ever paid for sex were also associated or considered to have engaged in risky sexual behaviour (Chikusta et al., 2015)

Condom use during last sexual intercourse; within the confines of risky sex, condom use was important. In this paper, all men reporting to have engaged in any risky sexual encounters were also asked to state whether or not they used a condom the last time they had sex with a non-marital or non-cohabiting sexual partner.

Using Stata, logistic regression was applied to test possible associations between circumcision and background characteristics on one hand and, between circumcision and identified risky sexual behaviours on the other hand (Ibid, 2015). Due to the complex multistage sampling designs employed in DHS methodologies, a weight variable calculated and used in the 2013-14 ZDHS was also used to take stock of this complexity and also to reflect the population as closely as possible.

Results

Background characteristcis and circumcision status

Table 1 shows outcomes of the regression model between background characteristics and circumcision status. The table shows that men who are aged 35-44 and 45-54 were more likely to be circumcised compared to other age groups (OR=0.691, p<0.001; OR=0.761, p<0.047). Education and marital status seem to have no particular statistical influence on circumcision. However, circumcision status was associated with all provinces except Lusaka (OR=1.198, p<0.287) and Southern (OR=0.859, p<0.432) provinces respectively. In the same way, circumcision was also associated with both residence – rural (OR=0.615, p<0.0001) as well as the middle wealth quintile (OR=0.831, p<0.041) and rich (OR=1.389, p<0.0001).

Table 1: **CIRCUMCISION AND BACKGROUND CHARACTERISTICS**

n=14763					
Background Variables	Odds Ratio	Logit	P>|t|	Confidence Interval (95%)	
Age					
15-24	1				
25-34	0.864	-0.146	0.165	0.703	1.062
35-44	0.692	-0.368	0.001	0.553	0.866
45-54	0.761	-0.273	0.047	0.582	0.997
55+	0.756	-0.280	0.153	0.515	1.110
Education					
No Education	1.000				
Primary	0.924	-0.079	0.643	0.661	1.292
Secondary+	1.197	0.180	0.298	0.853	1.679
Marital Status					
Never Married	1.000				
Married/LT*	0.937	-0.065	0.544	0.760	1.156
Formerly Married	0.966	-0.035	0.804	0.735	1.269
Province					
Central	1.000				
Copperbelt	1.987	0.687	0.000	1.425	2.772
Eastern	0.560	-0.580	0.001	0.397	0.790
Luapula	2.208	0.792	0.002	1.331	3.663
Lusaka	1.198	0.180	0.287	0.859	1.669
Muchinga	0.675	-0.393	0.039	0.465	0.981
Northern	0.670	-0.400	0.080	0.428	1.049
N/Western	28.754	3.359	0.000	16.451	50.258
Southern	0.859	-0.153	0.432	0.586	1.257
Western	7.150	1.967	0.000	4.585	11.150
Residence					
Urban	1.000				
Rural	0.615	-0.486	0.000	0.506	0.749
Wealth quintile					
Poor					
Middle	0.831	-0.185	0.041	0.696	0.992
Rich	1.389	0.329	0.000	1.156	1.669

Circumcision status and associated sexual behaviour

One important issue this paper attempted address was on whether circumcision plays a role in influencing risky sexual behaviour. In the following sections, different "risky sexual behaviours" are presented to associate or situate how circumcision maybe influencing them. Results of these associations are presented in Tables 2, 3, 4, 5 and 6.

Risky Sex

Table 2 shows relationships between circumcision, risky sex and socio-demographic and economic characteristics. Data in this table suggests that there is no association between being circumcised and engaging in "risky sex". However, after adjusting to include background characterises of respondents, there were

instances where circumcision was strongly associated with risky sex. For example, circumcised men aged 45 and over were more likely to engage in risky sex compared to other age groups (OR=0.398, p<0.0001 and OR=0.324, p<0.0001). Similarly, circumcised married men or those reporting to be living with a partner and those who said they are formerly married were also more likely to indulge in risky sex (OR=0.016, p<0.0001). While there are significant associations between circumcision, some provinces and risky sex, there is no association with residence. The table also shows that circumcision status, risky sex and wealth have a significant relationship.

Table 2: **RISKY SEX BAHAVIOUR AND BACKGOUND CHARACTERISTICS**

n=11291					
Background Variables	Odds Ratio	Logit	P>|t|	Confidence Interval (95%)	
Circumcision status	1.083	0.080	0.458	0.878	1.336
Age					
15-24	1.000				
25-34	1.029	0.029	0.850	0.763	1.389
35-44	0.782	-0.246	0.115	0.575	1.062
45-54	0.398	-0.922	0.000	0.281	0.563
55+	0.324	-1.127	0.000	0.192	0.547
Education					
No Education	1.000				
Primary	1.244	0.218	0.259	0.851	1.817
Secondary+	1.366	0.312	0.133	0.909	2.053
Marital Status					
Never Married	1.000				
Married/LT[3]	0.000	-7.718	0.000	0.000	0.001
Formerly Married	0.016	-4.137	0.000	0.006	0.041
Province					
Central	1.000				
Copperbelt	0.602	-0.508	0.008	0.412	0.878
Eastern	1.258	0.230	0.248	0.852	1.859
Luapula	0.496	-0.702	0.008	0.296	0.830
Lusaka	0.814	-0.206	0.272	0.563	1.176
Muchinga	0.494	-0.704	0.001	0.325	0.752
Northern	0.558	-0.584	0.008	0.363	0.857
N/Western	0.741	-0.299	0.164	0.486	1.131
Southern	1.812	0.594	0.002	1.246	2.634
Western	2.271	0.820	0.000	1.539	3.353
Residence					
Urban	1.000				
Rural	1.067	0.065	0.607	0.833	1.366
Wealth quintile					
Poor	1.000				
Middle	1.048	0.047	0.682	0.837	1.313
Rich	1.396	0.333	0.026	1.040	1.873

[3] Living with someone as if married

Sex with two or more non-marital/non-cohabiting partners

Sex with two or more non-marital/non-cohabiting partners is a critical driver for HIV transmission. According to table 3, circumcision was highly associated with having two or more non-marital/non-cohabiting sexual partners (OR=1.193, p<0.014). This phenomenon was more pronounced among men who are between 25-34 and 35-44 years old respectively (OR=1.663, p<0.0001; OR=1.568, p<0.0001). Men who are married and circumcised were also highly likely to have two or more non-marital/non-cohabiting sexual partners compared to those who reported being formerly married (OR=1.479, p<0.0001). Circumcised men from Eastern, Southern and Western provinces seem to be having two or more non-marital/non-cohabiting sexual partners compared to other provinces (OR=1.652, p<0.001, OR=2.137, p<0.0001 and OR=2.125, p<0.0001 respectively). In the same way, residents of rural areas and men who are in the middle and rich wealth quintiles respectively are highly likely to have two or more non-marital/non-cohabiting sexual partners (OR=1.447, p<0.0001; OR=1.185, p<0.029; OR=1.276, p<0.022).

Table 3: **TWO+ SEXUAL NON-MARITAL/COHABITING PARTNERS AND BACKGOUND CHARACTERISTICS**

n=14763					
Background Variables/	Odds Ratio	Logit	P>|t|	Confidence Interval (95%)	
Circumcision status	1.193	0.177	0.014	1.037	1.373
Age					
15-24	1.000				
25-34	1.663	0.509	0.000	1.357	2.039
35-44	1.568	0.450	0.000	1.267	1.941
45-54	1.108	0.103	0.411	0.867	1.416
55+	0.989	-0.011	0.952	0.684	1.429
Education					
No Education	1.000				
Primary	1.187	0.172	0.229	0.897	1.572
Secondary+	1.211	0.191	0.204	0.901	1.626
Marital Status					
Never Married	1.000				
Married/LT*	1.479	0.392	0.000	1.207	1.812
Formerly Married	1.242	0.216	0.203	0.890	1.732
Province					
Central	1.000				
Copperbelt	0.749	-0.289	0.067	0.549	1.021
Eastern	1.652	0.502	0.001	1.224	2.231
Luapula	0.773	-0.257	0.147	0.546	1.095
Lusaka	0.905	-0.100	0.525	0.664	1.233
Muchinga	0.967	-0.034	0.844	0.689	1.356
Northern	1.107	0.101	0.540	0.800	1.530
N/Western	0.774	-0.257	0.165	0.538	1.112
Southern	2.137	0.759	0.000	1.594	2.865
Western	2.125	0.754	0.000	1.551	2.913
Residence					

Urban	1.000				
Rural	1.447	0.370	0.000	1.224	1.710
Wealth quintile					
Poor	1.000				
Middle	1.185	0.170	0.029	1.018	1.380
Rich	1.276	0.243	0.022	1.036	1.571

Paid Sex

Paying for sex is also a measurement of risky sexual behaviour. This usually happens when people seek sexual gratification from one time acquaintances or when they seek sex from individuals who are selling it.

Table 4: **PAID SEX AND BACKGOUND CHARACTERISTICS**

	n=12688				
Background Variables/	Odds Ratio	Logit	P>|t|	Confidence interval (95%)	
Circumcision status	0.906	-0.099	0.420	0.713	1.152
Age					
15-24	1.000				
25-34	0.972	-0.029	0.832	0.743	1.270
35-44	0.763	-0.271	0.118	0.543	1.071
45-54	0.371	-0.992	0.000	0.220	0.626
55+	0.302	-1.196	0.016	0.114	0.801
Education					
No Education	1.000				
Primary	1.084	0.080	0.767	0.636	1.847
Secondary+	0.920	-0.083	0.776	0.518	1.634
Marital Status					
Never Married	1.000				
Married/LT*	0.577	-0.550	0.001	0.420	0.793
Formerly Married	2.429	0.887	0.000	1.645	3.585
Province					
Central	1.000				
Copperbelt	0.475	-0.744	0.001	0.305	0.739
Eastern	0.376	-0.979	0.000	0.252	0.560
Luapula	0.740	-0.301	0.169	0.482	1.137
Lusaka	0.663	-0.411	0.022	0.467	0.942
Muchinga	0.401	-0.915	0.001	0.239	0.671
Northern	0.300	-1.205	0.000	0.194	0.463
N/Western	0.977	-0.023	0.911	0.652	1.465
Southern	0.506	-0.680	0.001	0.337	0.761
Western	0.886	-0.121	0.664	0.514	1.529
Residence					
Urban	1.000				
Rural	0.750	-0.288	0.046	0.565	0.995
Wealth quintile					
Poor	1.000				
Middle	1.089	0.085	0.482	0.858	1.383
Rich	0.686	-0.377	0.033	0.486	0.969

Data in table 4 shows that there is no statistical association between circumcision and paying for sex. However, when background variables are factored in, the regression model alters this relationship. In this case, table 4 shows that, older circumcised men (45-55+) were likely to pay for sex compared to other age groups (OR=0.371, p<0.0001; OR=0.302, p<0.016) although logits of these results are all in the negative (the likelihood therefore is less generally). Data in table 4 also shows that, circumcised married men and those men who reported to be formerly married were paying for sex. In fact, the odds of being circumcised and paying for sex were almost twice as likely for men who reported to be formerly married compared to those who reported to be married (OR=0.577, p<0.001; OR=2.429, p<0.0001). By province and residence, it is also evident that a substantial number of men are paying for sex. In this example, apart from Luapula, North-Western and Western provinces, the rest of men in other provinces paid for sex. What is also evident from data in table 4 is that, rich men were more likely to pay for sex comparatively (OR=0.686, p<0.033).

Alcohol use

Another risky behaviour which in many cases leads to impaired decision is consumption of alcohol before sex. This phenomenon has in recent times been associated to HIV infection. This analysis aimed at situating circumcision in the context of alcohol intake with a view of measuring such behaviour and related exposition to risky sexual behaviour. The gist of the assumption is simply that people who engage in sex whilst drunk are more likely to practice unsafe sex and therefore get exposed more to HIV infection.

Table 5: **ALCOHOL INTAKE BEFORE SEX AND BACKGOUND CHARACTERISTICS**

n=14763					
Background Variables/	Odds Ratio	Logit	P>|t|	Confidence interval (95%)	
Circumcision status	0.846	-0.167	0.138	0.679	1.055
Age					
15-24	1.000				
25-34	2.748	1.011	0.000	2.005	3.766
35-44	3.170	1.154	0.000	2.168	4.634
45-54	2.914	1.070	0.000	1.942	4.373
55+	2.710	0.997	0.000	1.693	4.335
Education					
No Education	1.000				
Primary	1.234	0.210	0.320	0.815	1.868
Secondary+	1.130	0.122	0.564	0.745	1.714
Marital Status					
Never Married	1.000				
Married/LT*	1.248	0.221	0.203	0.887	1.755
Formerly Married	2.251	0.811	0.000	1.487	3.408
Province					
Central	1.000				
Copperbelt	1.334	0.288	0.048	1.003	1.775
Eastern	0.599	-0.513	0.002	0.436	0.822
Luapula	0.439	-0.823	0.000	0.310	0.621
Lusaka	1.058	0.056	0.730	0.768	1.457
Muchinga	1.132	0.124	0.418	0.838	1.528
Northern	0.804	-0.219	0.173	0.587	1.101
N/Western	0.728	-0.317	0.118	0.489	1.084
Southern	0.564	-0.572	0.000	0.423	0.753
Western	0.568	-0.565	0.002	0.401	0.805
Residence					
Urban	1.000				
Rural	0.552	-0.594	0.000	0.449	0.678
Wealth quintile					
Poor	1.000				
Middle	1.044	0.043	0.638	0.874	1.246
Rich	0.593	-0.522	0.000	0.453	0.777

Table 5 shows that, there is no significant relationship between being circumcised and having had taken alcohol before sex. However, the table shows quite strong associations between circumcision and taking alcohol before sex after other characteristics are introduced. All age categories seem to be highly associated with taking alcohol before sex. Similarly, there is a strong relationship between taking alcohol before sex and formerly married men and; those respondents residing in rural areas (OR=2.251, p<0.0001; OR=0.552, p<0.0001). Men in the rich wealth quintile were also likely to have taken alcohol before sex (OR=0.593, p<0.0001).

Condom use

Consistent and correct condom use is one of the emphatic messages propagated widely by both HIV/STI prevention campaigners and by those advocating for VMMC. This paper was also anchored on investigating whether or not men who

have been circumcised are "practicing" what they have been taught, especially correct and consistent condom use. Table 6 shows results of condom use at last sex with a non-marital/non-cohabiting sexual partner by men who reported to be circumcised. There is no significant relationship between circumcision and condom use at last sex (OR=1.251, p<0.176). In other words, circumcised men who are having sex with non-marital/non-cohabiting sexual partners are not using condoms. After adjusting for background variables in the regression model, it seems clear that there are moderately few instances where circumcision influences condom use. In terms of age, only the age group 45-54 has results suggesting condom use the last time they had sex (OR=0.520, p<0.04). Married men are also less likely to use condoms (OR=0.277, p<0.0001). Respondents in Luapula, Northern and North-Western provinces and those residing in rural areas were likely to use condoms during the last sexual encounter compared to the rest of the country (OR=0.336, p<0.002; OR=0.454, p<0.005; OR=0.563, p<0.053; OR=0.649, p<0.014).

Table 6: **CONDOM USED LAST TIME HAD SEXAND BACKGOUND CHARACTERISTICS**

	n=2280				
				Confidence interval	
Background Variables/	Odds Ratio	Logit	P>|t|	(95%)	
Circumcision status	1.251	0.224	0.176	0.904	1.731
Age					
15-24	1.000				
25-34	1.295	0.258	0.189	0.880	1.904
35-44	1.047	0.046	0.845	0.659	1.664
45-54	0.520	-0.655	0.040	0.278	0.971
55+	0.383	-0.960	0.069	0.136	1.078
Education					
No Education	1.000				
Primary	1.129	0.122	0.685	0.627	2.033
Secondary+	1.169	0.156	0.628	0.621	2.197
Mariral Status					
Never Married	1.000				
Married/LT*	0.278	-1.282	0.000	0.190	0.406
Formerly Married	0.703	-0.353	0.239	0.390	1.265
Province					
Central	1.000				
Copperbelt	0.596	-0.517	0.068	0.342	1.039
Eastern	1.094	0.090	0.691	0.702	1.707
Luapula	0.336	-1.090	0.002	0.170	0.666
Lusaka	1.009	0.009	0.974	0.608	1.674
Muchinga	0.694	-0.365	0.238	0.378	1.274
Northern	0.454	-0.789	0.005	0.261	0.791
N/Wester	0.564	-0.573	0.053	0.315	1.008
Southern	0.853	-0.159	0.491	0.542	1.342
Western	1.410	0.343	0.226	0.808	2.459
Residence					
Urban	1.000				
Rural	0.650	-0.431	0.014	0.461	0.915
Wealth quintile					
Poor	1.000				
Middle	0.820	-0.199	0.214	0.600	1.121

Rich	1.053	0.052	0.798	0.707	1.569

Discussion/Conclusion

VMMC has been well received. One of the main reasons for this acceptance is the evidence suggesting that it reduces the risk of men acquiring HIV through vaginal intercourse (fhi360 2014). However, while this fact is evident, the question begging answers has been "do men and women understand that circumcision has but partial protection?" and secondly, do they act on the messages to protect themselves from HIV and STI infection after circumcision? (L'Engle K.L et al 2012). In this paper, the question asked was whether or not circumcision (and messages around it) is influencing risky sexual behaviour among circumcised sexually active men in Zambia.

Messages on circumcision and how circumcision protects or provides partial protection have been misconstrued by many. For example, study results in different societies seem to suggest that men who are circumcised think they are protected or immune to HIV infection (Lawrence W.G et al 2008). On the contrary, FHI360 found that almost 100 per cent of all respondents in their 2014 study seemed to understand that circumcision only has but partial protection against HIV infection. The FHI360 study further suggested that there was little evidence about men engaging in riskier sexual behaviour after VMMC. However, while this may have been the case, results in this paper are different.

While there is no strong evidence from the ZDHS 2013-14 data on circumcision and risky sex, adjusting this relationship by socio-demographic characteristics, shows there is. In the same way, circumcision has also particular influence on men having two or more sexual partners. The data shows that the odds of being circumcised and having two or more non-marital/non-cohabiting sexual partners are about 1.19. Going by this finding, messages encouraging men in general and those who are circumcised in particular to "have one faithful sexual partner" emphasised also during circumcision counselling are not having any meaningful effect. This may mean that before men get circumcised, they could be more "faithful" to the counselling, however, after "graduating", common sense and rumour directs more their decisions on sex and sexuality thereby diluting altogether the safety associated with circumcision.

This study went on to exploit whether circumcised men were paying for sex and whether they were taking alcohol before indulging in sex. Results suggest that there is no direct relationship between circumcision and paying for sex. However, older circumcised men (45+), residents of rural areas and the rich by the wealth quintile are likely to pay for sex. On the other hand, there is a strong relationship between taking alcohol before sex and circumcision .The message here again is the same; that information on what circumcision is able or not able to do in the fight against HIV seems to be misplaced to give a "false sense of security" where

circumcision becomes a "shield" against HIV infection irrespective of the functional state of the person or individual practicing the risky behaviour.

This paper has also provided concrete evidence suggesting that circumcised men are not using condoms during sex with non-marital/non-cohabiting sexual partners. Even after adjusting for other background variables, very little evidence suggests otherwise.

In the context of VMMC objectives and purpose and also situating such with a view to fight HIV infections, results in this paper are not encouraging for any advocate or supporter of circumcision and the strong, well-intended messages around it. Frankly, positive sexual behaviour change takes long, unless it is painful. In this respect therefore, encouraging positive messaging on what VMMC does and doesn't do is critical to addressing challenges resulting from what has been misconstrued as reasons for VMMC. Although VMMC is well intended and seems to have strong partial protection against HIV and other STIs, findings in this paper show the need to structure messaging that takes into account a strong stance against general falsehood on how and what works for the circumcised. In a study in North-Western Province of Zamia on circumcision by Mapoma et all (2010), focus group discussion participants unearthed misleading "street" messages that go round on how circumcision gives protection against HIV infection. This situation is evidence of wrongly compounded information on what circumcision does or does not do. One participant said:

"*Circumcision provides 60% protection; when you include a condom, this goes up to 100% protection*"

Indeed, there is no such a thing as 100% protection; even where 100% abstaining is present, there is chance of infection. However, circumcision is totally being misconstrued to mean "total protection" and messages in communities seem to be highly "polluted" and volatile to the extent of making VMMC a "risky factor" by itself instead of playing the role of protection. This study therefore also highlights further the fact that men are circumcised for various reasons (Chikutsa et al, 2013). However, proponents and advocates of VMMC should reiterate that the procedure provides only partial protection against HIV infection and therefore specific additional ways to reduce the risk of HIV infection such as discouraging multiple sexual relationships, encouraging correct and consistent condom use and the like should instead be emphasised.

Based on these findings, messaging and counselling on VMMC should not only be conducted at the beginning (before circumcision), but there has to be a process of follow ups in communities (after circumcision) to help "safe guard" against "falsehood" which if not corrected would inadvertently expose men to a more heightened risk of getting infected with HIV contrary to intended objectives.

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