Author's response to reviews

Title: Association between Wanting Circumcision and Risky Sexual Behaviour in Zimbabwe: Evidence from the 2010-11 Zimbabwe Demographic and Health Survey

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AUTHOR'S RESPONSE TO REVIEWS

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Author's response to reviews: see over Author's response to reviews
The Reproductive Health Editorial Team

We have revised our manuscript in line with reviewers’ comments as follows:

Reviewer # 1: Gerald N. Shambira

1. Abstract
The abstract does not clearly introduce the relevance or problem at hand and needs revision. The findings section does not include any data (measures of association etc) on the analysis to justify the conclusions and recommendations.

Response

Background and results sections of the abstract were revised as follows (changes shown in colour):

**Background:** Zimbabwe adopted voluntary medical male circumcision (VMMC) as an additional HIV prevention strategy in 2009. A number of studies have been conducted to understand the determinants of VMMC uptake but few studies have examined the characteristics of men who are willing to get circumcised or the link between wanting circumcision and risky sexual behaviour. This study investigated the relationship between wanting male circumcision and engaging in risky sex behaviours. This was based on the assumption that those who are willing to undergo circumcision are already engaging in risky sexual behaviours.

**Findings:** Men in the highest wealth tercile were significantly more likely to want circumcision compared to men in lower wealth terciles (OR=1.36, p<0.01). Wanting circumcision was also significantly associated with age after adjusting for other variables. Men in the 25-34 age category reported wanting circumcision more (OR=1.21, p<0.05) while older men were significantly less likely to want circumcision (OR=0.63, p<0.01). Christian men and those residing in rural areas were also less likely to want circumcision (OR=0.74, p<0.05 and OR=0.75, p<0.001 respectively). The findings of this study indicate a strong association between wanting circumcision and having had risky sex (OR=1.36, p<0.01), having multiple partners (OR=1.35, p<0.01) and having paid for sex (OR=1.42, p<0.001). However, wanting circumcision was negatively associated with having used a condom at the last risky sex (OR=0.76, p<0.001)

2. Main Body
(a) Data analysis
The authors do not explain how data was analyzed. They make the statement that “Demographic and health surveys usually apply complex multi-stage sampling designs and calculate weights. These were taken into consideration during the analysis of data for this study”. However it is not clear how this was done. Major compulsory revisions required.
Response

We revised the methods section by adding the following clarification.

Data was analysed in STATA using bivariate and multiple regression techniques. The analysis tested the strength of the association firstly between wanting circumcision and background variables such as age, place of residence, education, religion and marital status on one hand, and secondly, the association between wanting circumcision and engaging in risky sexual behaviours on the other. We applied the ZDHS weight variable so that the outcome of this analysis can reflect the complex multi-stage sampling designs that are usually employed in Demographic and Health Surveys.

(b) Results section

There is need to include specific measures of association in the narrative of the results section.

Response

We revised the results section by adding specific measures of association as shown below.

Factors associated with wanting a circumcision

The ZDHS interviewed 7480 men and 9.2 percent of these reported to be circumcised while 90.8 percent were not circumcised. The 6795 men who are not circumcised were asked if they would consider getting circumcised if circumcision was made free and safe. Thirty six percent or 2552 men said they would consider getting circumcised. A further analysis of the factors associated with willingness to get a circumcision using logistic regression models showed that age was significantly associated with wanting circumcision. Compared to men in the 15-24 years age category, it appears that the odds of wanting circumcision are at their peak among men in the 25-34 years age group (OR=1.47, p<0.001). The odds of wanting circumcision decrease as age increases. After adjusting for other factors, men in the 25-34 years age group were significantly more likely to want circumcision compared to men in the reference category (OR=1.21, p<0.05) while those in the 45-54 years age category were significantly less likely to want a circumcision (OR=0.63, p<0.01). Also, men in Matabeleland/Midlands and Bulawayo were significantly more likely to want a circumcision than men in the other provinces (OR=1.41, p<0.01 and 1.73, p<0.01 respectively). Similarly, married or formerly married men were significantly more likely to want a circumcision than men who have never married (OR=1.34, p<0.01 and 1.57, p<0.01 respectively). Men in the highest wealth tercile were also significantly likely to report wanting circumcision compared to men in the first two terciles (OR=1.36, p<0.01). Level of education and residence were not significantly associated with wanting circumcision after adjusting for other factors. The unadjusted and adjusted odds ratios are presented in Table 2.

Wanting a circumcision and risky sexual behaviour

We also assessed a possible link between wanting a circumcision and engaging in risky sexual behaviour. Four measures of risky sexual behaviour were considered as outlined earlier. We used logistic regression models to compute unadjusted and adjusted odds ratios and the results are
shown in Tables 3 to 6. The results show that wanting a circumcision is significantly associated with all the four proxies of risky sexual behaviour even after adjusting for background variables. Wanting circumcision was significantly associated with having ever paid for sex (OR=1.42, p<0.001). The odds of having ever paid for sex increase with age and are also higher among married and formerly married men (p<0.001). Men in the middle wealth tercile had significantly higher odds of having ever paid for sex compared to men in other wealth categories. The odds of having ever paid for sex were significantly lower among Christian men (OR=0.54, p<0.001), among men living in rural areas (OR=0.55, p<0.001), among men in Matabeleland/Midlands (OR=0.74, p<0.05) and Bulawayo (OR=0.31, p<0.001).

Condom use in the last risky sexual encounter was negatively associated with wanting male circumcision (OR=0.76, p<0.05). Condom use in the last risky sex was significantly lower among men in the 25-34 years age group (OR=0.67, p<0.05), and among men in the highest wealth tercile (OR=0.61, p<0.05). However, condom use was significantly higher among men in Matabeleland/Midlands (OR=1.86, p<0.05).

Having multiple sex partners in the 12 months preceding the survey was found to be significantly associated with wanting a circumcision (OR=1.35, p<0.01). The findings suggest that the odds of having multiple sex partners decrease with age (OR=0.61, p<0.01 for age groups 35-44 and 45-54 years). The odds of having multiple sex partners are significantly lower among Christian men (OR=0.59, p<0.01), among men in Matabeleland/Midlands (OR=0.69, p<0.05) and in Bulawayo (OR=0.59, p<0.05). However, the odds were significantly higher among married men (OR=2.99, p<0.001) and formerly married men (OR=2.94, p<0.001).

Wanting a circumcision was also found to be significantly associated with having had risky sex (OR=1.36, p<0.01). The odds of having risky sex decrease with age and were significantly lower among Christian and Muslim men (OR=0.51, p<0.01 and 0.05, p<0.001 respectively), among men residing in rural areas (OR=0.66, p<0.01), and among married and formerly married men (p<0.001).
Reviewer # 2: Ian Askew

Major Compulsory Revisions

1. Conceptual framework
The manuscript lacks a clear conceptual framework or analysis plan that explains and justifies the selection of variables included in the analyses, beyond wanting a circumcision and types of risky sexual behaviour. Seven variables were included in the analysis as potential explanatory variables. Please provide a brief explanation for why each factor was included (for example, has an association been shown in the existing literature?) so that the reader can understand why the investigators felt that it might be associated with circumcision wantedness and/or with experience of risky sexual behaviours.

Response
We revised the manuscript by adding a new section with a conceptual framework on page 2.

2. n-values
Please include the n values for each category in the tables.

Response
We added a table which shows the n-values of the four indicators of risky sexual behavior.

<table>
<thead>
<tr>
<th>Table 1: Indicators of risky sexual behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator</td>
</tr>
<tr>
<td>------------------------------------</td>
</tr>
<tr>
<td>Multiple sexual partners</td>
</tr>
<tr>
<td>Risky sex</td>
</tr>
<tr>
<td>Paid sex</td>
</tr>
<tr>
<td>Did not use condom at last risky sex(^a)</td>
</tr>
</tbody>
</table>

\(^a\) In eight weighted cases, men who had risky sex in the past 12 months were excluded because their last 3 partners were spouses; condom use with non-spousal partner could not be determined.

3. Discussion
The discussion of the factors associated with wanting a circumcision does not adequately describe the findings in Table 1. All 7 factors showed some degree of association with wanting a circumcision, but only three of these are discussed in the narrative. Please expand this section to describe all seven factors, and include your thoughts on why the findings are the way they are. The discussion section needs to discuss all of the findings and to summarize and interpret what these mean together.

Response
Comment 2 and 4 were all related to the discussion section. We rewrote the discussion section accordingly.
Reviewer # 3: Z. Mike Chirenje

No corrections were suggested.