

Research



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Received: 18 Jun 2024 - **Accepted:** 10 Sep 2024 - **Published:** 15 Oct 2024

Keywords: Foreskin removal, male circumcision coverage, snip, voluntary medical male circumcision

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Cite this article: Rebekka Ndatolewe Shikesho et al. Male circumcision in Otjozondjupa Region, Namibia: insights into prevalence and social acceptance. PAMJ-One Health. 2024;15(9). 10.11604/pamj-oh.2024.15.9.44343

Available online at: <https://www.one-health.panafrican-med-journal.com/content/article/15/9/full>

Male circumcision in Otjozondjupa Region, Namibia: insights into prevalence and social acceptance

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Abstract

Introduction: Male circumcision (MC) has been practiced in numerous traditions for centuries mainly for hygiene, religious and initiation purposes. Research has found the ability of male circumcision to significantly reduce HIV transmission from women to men. This study sought to determine the acceptability and prevalence of male circumcision in Otjozondjupa Region. **Methods:** a cross-sectional study was conducted. A sample of 550 participants was chosen using convenience sampling. We ran linear and logistic regression to predict the prevalence of male circumcision. Logistic regression was used to determine the knowledge of the link between male

*circumcision and HIV transmission. **Results:** male circumcision prevalence was high but did not reach the set UNAIDS target. Being from the Herero/Himba tribes was strongly associated with circumcision. Acceptability was also high as 74.77% uncircumcised males were willing to get circumcised while 84.29% females with uncircumcised partners were supportive of their partners being circumcised. Majority of participants (91.44%) knew that male circumcision reduces HIV transmission. **Conclusion:** male circumcision is well accepted in Otjozondjupa although it did not meet the target. There is a need for more campaigns as well as continuous sensitization and education on the importance of male circumcision to boost prevalence. It is also essential to engage traditional circumcisers in HIV education as they perform a high proportion of circumcisions in the region.*

Introduction

Southern Africa has been severely affected by HIV/AIDS with Namibia having one of the highest HIV prevalence [1,2]. The primary infection route has been identified as heterosexual sex [3]. Prevention of HIV is a key priority for response against AIDS. Evidence suggests that the spread of HIV in Namibia is driven by multiple concurrent sexual partners, aided by age-incongruent sex partners, low condom use and lower MC amongst the population [4,5]. The main interventions used to reduce HIV/AIDS transmission are the promotion of a reduction in sexual partners, promotion of condom use, HIV counselling and testing with linkage to HIV care and treatment for those diagnosed with HIV and treatment programmes for other Sexually transmitted diseases (STDs) [6,7].

Male circumcision (MC) has been practiced in numerous traditions for centuries. In Africa, it is practiced as an initiation into adulthood and for hygiene purposes [8,9]. It is also practiced for religious purposes specifically in the Jews and Muslim societies [10]. Research has found the

ability of male circumcision to significantly reduce HIV transmission from women to men [11,12]. Several ecological studies undertaken in sub-Saharan Africa have found a geographical correlation between areas with higher prevalence of HIV and lower prevalence of male circumcision [13,14]. In addition, three randomized clinical trials showed that circumcised men are less likely to acquire HIV during sexual intercourse than uncircumcised ones [15,16]. The risk reduction was estimated between 51% and 60%, which is fairly considerable [17]. Due to these findings, the World Health Organization (WHO) in collaboration with The United Nations Programme on HIV/AIDS (UNAIDS) recommended countries scale up MC as an HIV prevention strategy, considering sexual intercourse is the primary channel for human-to-human infection [13,17]. In 2007, the initial 14 priority nations in eastern and southern Africa were designated to scale up Voluntary medical male circumcision (VMMC) services [18]. The priority countries were those with high HIV rates and low rates of male circumcision and included Botswana, Lesotho, Malawi, Mozambique, Namibia, Rwanda, South Africa, Swaziland, Tanzania, Uganda, Zambia, Zimbabwe, and Nyanza Province, in Kenya [19,20]. USAID emphasized the importance of assessing the project's acceptability, viability, and cost-effectiveness before it is fully scaled up [18,19]. It was estimated that circumcising 80% of the men globally and maintaining this rate till 2025, would avert about 3.36 million HIV infections over the period 2011-2025, 22% of those being expected new HIV infections [19].

Namibia generally has a low prevalence of MC [5] possibly attributed to a lack of traditional circumcision in most tribes in the country. Namibia responded to WHO & UNAIDS recommendations and initiated the (VMMC) program in 2009 which was launched in 2010 [21]. The program got off to a slow start as only 350 men sought Voluntary medical male circumcision (VMMC) services between September 2010 and June 2011 [22]. In Otjozondjupa, the VMMC program commenced

the same year the program was launched in the country, 2010 [23]. About 22 Health care workers (HCWs) were trained and the program rolled out to all four district hospitals in the region [23]. However, the region has much to do, in order to reach the set regional targets. On another note, the region is occupied by Herero people who practice traditional male circumcision. This may be a factor in achieving VMMC set targets. There is vague information on the prevalence and acceptability of MC in the region and Namibia as a whole, particularly amongst tribes that do not practice traditional male circumcision. This study will focus on determining the prevalence and acceptability of male circumcision in Otjozondjupa Region, Namibia.

Methods

Study design: a descriptive, cross-sectional study was undertaken in all four districts of the region between December 2017 and January 2018.

Study setting and population: the study was undertaken in Otjozondjupa Region. The region is located in central Namibia. It is dominated by the Herero people who practice traditional circumcision. Despite the Hereros being the dominating tribe, the region can be termed as one of the few with a great mixture of tribes and races in Namibia. The region contains four districts. The four districts were considered strata.

Variables: the independent variables included age, race, district of residence and level of education. Other variables collected were dependent variables such as circumcision status or partner circumcision status collected from female participants and support for compulsory circumcision.

Data resource and measurement

Data collection tool: an anonymous, self-administered, structured questionnaire containing close-ended questions was used to obtain data. The questionnaire consisted of two sections.

Section one concentrated on demographic characteristics such as age, sex, level of education, etc whilst section two focused on MC status and acceptability information.

Data collection: data was collected between December 2017 and January 2018 at various shopping centers in the strata. It was collected from participants who were readily available and were willing to fill out the questionnaires. Data was analyzed using epi info 7. Frequencies were calculated for demographic characteristics and acceptability of male circumcision. Bivariate and multivariate analysis was run to calculate odds ratios and Confidence intervals (CI) at 95%. Linear and logistic regression was run to predict the prevalence of male circumcision. Logistic regression was used to determine the knowledge of the link between male circumcision and HIV transmission. Statistical significance was set at 0.05.

Sample size: the sample size for this study was calculated using StatCalc in Epi Info 7. It was calculated using a population survey calculator at 50% expected frequency, 5% margin error and 4 clusters which equaled 384 participants. However, data was collected from more participants as a bigger sample is considered a better representation of the population and will hence provide more accurate results [24]. Five hundred and fifty participants were selected from the 4 strata using the convenience sampling method.

Ethical considerations: clearance to conduct the study was obtained from the Ministry of Health and Social Services (MoHSS) ethical clearance committee, ref #17/3/3 RS. Written informed consent was obtained from participants.

Results

Participants: a total of 164 females and 386 males were interviewed from four districts of the region. The questionnaires were self-administered, however, the researcher helped out with illiterate participants. The results are presented in tables,

graphs and charts while responding to the objectives of the study.

Demographic characteristics of the study participants

Majority of the participants (both sexes) were from Otjiwarongo district, this comes as no surprise as it is the biggest district. Most of the male participants were between 35 and 49 years old (37.6 %, n=145), while females were between 15-24 years (40.9%, n=67) and the least were females between 35-49 years (22.00%, n=4). Majority of the participants had received education between grades 8 to 12 (39.09%), followed by those who have received tertiary education (29.09%). Only 10.72% of participants had received no education. Table 1 elucidates more on demographic characteristics of the participants.

Prevalence of male circumcision (Table 2)

This was determined by the number of males whose response was yes to the question, "are you circumcised?". Those circumcised were further segregated into medical and traditional circumcision. Overall, 279 (72.27%) males reported to have been circumcised. Of those circumcised, more participants underwent traditional circumcision (66.66%). Most males traditionally circumcised were between 35-49 years. Black males were the most participants of the study, they were further broken down into Herero/Himba, Wambos, Damara>Nama, and Kavangos which are the tribes commonly found in the region with an inclusion of participants from other black tribes. Herero/Himba males reported the highest circumcision rate (55.56%) amongst the black race, most of whom underwent traditional circumcision. More males who were circumcised (45.51%) received the highest education level between grades 8-12 and the least amount were males who received no education (9.68%). Variables associated with high circumcision rate were: being from the Herero/Himba tribe, having highest education

level between grades 8 and 12 and having received tertiary education.

Acceptability of male circumcision (Table 3)

Four questions were posed to participants to determine the acceptability of male circumcision in the region. Of all uncircumcised males, 74.77% (n=80) indicated willingness to be circumcised. The largest group of uncircumcised males were between 25-34 years. The same group also had more males not willing to get circumcised (14.02%). About 84.29% females with uncircumcised partners would support that their partners get circumcised. When queried whether they would be in support that all males be circumcised, 90.36% of the participants, responded "yes" and a mere 9.64% opposed.

Knowledge of the link between male circumcision and HIV (Table 4)

This was assessed based on the responses to the question: "have you heard that male circumcision has recently been shown to partly reduce the chances of HIV infection among men?". The question was posed to both sexes. Several factors were associated with knowledge of the link between male circumcision and HIV namely: being between 35-49 years, being from the white and mixed races, having no formal education, as well as being a resident of Otjiwarongo and Okahandja districts.

Discussion

Prevalence of male circumcision

The prevalence of male circumcision is generally high in the Otjozondjupa Region. This study found that more than 70% of males were circumcised. Although high, this prevalence did not meet the set target of 85%. This study found that black males were most likely to be circumcised when compared to their white and mixed-race counterparts. This corresponds with studies done in South Africa where they found a high

prevalence of male circumcision among black males [24,25]. This could be attributed to descending from a tribe that practices traditional circumcision. This was also a finding in this study where Herero/Himba males had the highest circumcision rate amongst other blacks. Most were circumcised traditionally as Herero/Himba tribe practices traditional male circumcision on babies and small boys. This attribute was supported by other studies that found that males from tribes that practice male circumcision were more likely to be circumcised traditionally than medically [26,27]. Males who had received education from grade 8 to tertiary were likely to be circumcised rather than those with no education. This is in line with other findings, that revealed that males with higher levels of education were most likely to be circumcised [24,28]. This study did not find any association between male circumcision and age, this was similar in Australia, where they found that younger males are just as likely to be circumcised as older males [29].

Acceptability of male circumcision

Similar to numerous studies, the acceptability of male circumcision in the region is high [30,31]. This confers optimism that more males will seek VMMC services, further boosting VMMC rate. Of all uncircumcised males, 74.77% indicated willingness to be circumcised while 84.29% of females with uncircumcised partners were supportive of their partners getting circumcised. In addition, 90.36% of the participants were in favour of all men being circumcised. While this study did not further questioning the reasons for circumcision acceptance, other studies reported that reasons for circumcision included: hygiene, whereby it was deemed that uncircumcised men were unhygienic [32]; sexual pleasure, circumcised men were deemed better lovers and more accepted by a wide range of women [33]; the linkage between circumcision and HIV plus Sexual transmitted infections (STIs) [34] among many others. Culture and religion appeared on both sides of the coin with those participants from

circumcision accepting cultures for it [14,35] while those from cultures and religions not promoting circumcision against it [36,37]. Caution should be taken when sensitizing the latter because changing religious and cultural beliefs can be a rigid and sensitive process.

Knowledge of the link between male circumcision and HIV

The knowledge that circumcision can reduce HIV transmission was high among the participants, with 91.45% responding "yes". Although this study did not probe the degree of protection or condom use, a study in South Africa reported that some men perceive no need for circumcised men to use condoms during sexual encounters. Moreover, it also found that some participants believed circumcised males could safely have sex with numerous partners [26]. This highlights the need for further education to dive deeper into these misconceptions as they could be a driver for HIV transmission among the population. The study found a strong association between the following factors, being 35-49 years, being white or mixed-raced, residing in Otjiwarongo or Okavango districts, having received no education and being male. Older men are more likely to possess knowledge that MC reduces HIV transmission than younger ones. Contrary to our findings, some studies found no association between age and knowledge [38]. Residents of Okavango and Otjiwarongo were more knowledgeable than those from other districts. Although it remains unclear why, some studies have also found an association between knowledge and place of residence, whereby men from high HIV prevalent areas were more knowledgeable than others [39]. Surprisingly, in this study, males were less likely to know that male circumcision reduces HIV transmission compared to women. Seeing that a greater proportion was circumcised traditionally, the lack of knowledge could be linked to a lack of HIV education during traditional circumcision. In addition, male circumcised traditionally may not be motivated to attend VMMC education sessions as they will not be seeking the services. Therefore,

it is important to equip traditional circumcisers with such knowledge so that continuous education and sensitization are conducted during traditional MC sessions. In contrast, a study by Rain-Taljaard *et al.* found that males were more likely to be knowledgeable on the link between male circumcision and HIV than women [40].

Conclusion

Prevalence and acceptability for male circumcision are high in Otjozondjupa Region. The study recommends continuous education and targeted campaigns to boost the uptake of MC in the region. It is also crucial that circumcised men are given education on appropriate sexual behaviour. Given that many males seek traditional MC, there is a need to train traditional circumcisers on HIV education so that there is continued sensitization and education on the link between male circumcision and HIV during traditional circumcision sessions.

What is known about this topic

- *Male circumcision (MC) rates vary widely across the world due to cultural, religious and medical reasons;*
- *Acceptance is high in communities where MC is a religious or cultural norm;*
- *WHO and UNAIDS endorse MC as an HIV prevention strategy, particularly in high HIV prevalence areas.*

What this study adds

- *Provides specific data from the Otjozondjupa Region population, which may have unique cultural, social, or behavioral factors influencing the acceptability of male circumcision;*
- *Contributes data that can be used in global meta-analyses, enhancing the overall understanding of the circumcision prevalence and acceptability worldwide;*
- *Adds to the diversity of settings and populations studied, helping to generalize findings across different contexts.*

Competing interests

The author declares no competing interests.

Authors' contributions

Rebekka Ndatolewe Shikesho: conceptualization, data collection and analysis, manuscript writing. The author read and approved the final version of this manuscript.

Tables

Table 1: demographic characteristics of participants

Table 2: prevalence of male circumcision in Otjozondjupa Region, Namibia

Table 3: acceptability of male circumcision in Otjozondjupa Region, Namibia

Table 4: knowledge of the link between MC and HIV

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Table 1: demographic characteristics of participants

	Male (n=386)	Female (n=164)
Age groups		
15-24	109 (28.2%)	67 (40.9%)
25-34	132 (34.2%)	61 (37.1%)
35-49	145 (37.6%)	34 (22.0%)
Race		
Black		
Wambo	88 (22.8%)	51 (31.1%)
Herero/ Himba	159 (41.1%)	52 (31.7%)
Damara/ Nama	63 (16.3%)	32 (19.5%)
Kavango	20 (5.2%)	9 (5.5%)
Others	13 (3.4%)	5 (3.0%)
White	18 (4.7%)	11 (6.7%)
Mixed race	25 (6.5%)	4 (2.4%)
District		
Otjiwarongo	169 (43.8%)	64 (39.0%)
Okahandja	88 (22.8%)	40 (24.4%)
Okakarara	49 (12.7%)	29 (17.7%)
Grootfontein	80 (20.7%)	31 (18.9%)
Education		
None	46 (11.9%)	13 (7.9%)
< Gr 8	76 (19.7%)	38 (23.2%)
Gr 8-12	151 (39.1%)	66 (40.2%)
Tertiary	113 (29.3%)	(28.7%)

Table 2: prevalence of male circumcision in Otjozondjupa region, Namibia

	Medical n=98	Traditional n=181	Total	P Value (linear)	P Value (logistic)
Age groups					
15-24	28 (10.03%)	54 (19.35%)	82 (29.39%)		
25-34	43 (14.33%)	40 (15.41%)	83 (29.75%)	0.22	0.27
35-49	27 (8.96%)	87 (31.89%)	114 (40.86%)	0.84	0.87
Race					
Black					
Wambo	40 (14.34%)	10 (3.58%)	50 (17.92%)	0.66	0.64
Herero/ Himba	4 (1.43%)	151(54.12%)	155 (55.56%)	< 0.001*	< 0.001*
Damara/ Nama	24 (8.60%)	10 (3.58%)	34 (12.18%)		
Kavango	6 (2.15%)	2 (0.72%)	8 (2.87%)	0.17	0.31
Others	5 (1.79%)	2 (0.72%)	7 (2.52)	0.99	0.67
White	7 (2.52%)	3 (1.07%)	10 (3.58%)	0.88	0.94
Mixed race	12 (4.30%)	3 (1.07%)	15 (5.37%)	0.52	0.84
District					
Otjiwarongo	42 (15.05%)	97 (34.77%)	139 (49.82%)	0.70	0.17
Okahandja	27 (9.68%)	32 (11.47%)	59 (21.14%)	0.13	0.21
Okakarara	3 (1.07%)	38 (13.62%)	41 (14.70%)	0.66	0.54
Grootfontein	26 (9.32%)	14 (5.02%)	40 (14.34%)		
Education					
None	6 (2.15%)	21 (7.52%)	27 (9.68%)	0.51	0.22
< Gr 8	16 (5.73%)	27 (9.68%)	43 (15.41%)		
Gr 8-12	34 (12.18%)	93 (33.33%)	127 (45.51%)	0.004*	0.004*
Tertiary	42 (15.05%)	40 (14.34%)	82 (29.39%)	0.03*	0.04*

Table 3: acceptability of male circumcision in Otjozondjupa region, Namibia

Variables	15-24 years (%)	25-34 years (%)	35-49 years (%)	Total (%)
Would you consider being circumcised? (Uncircumcised male, n=107)				
Yes	25 (23.34%)	34 (31.78%)	21 (19.63%)	80 (74.77%)
No	2 (1.87%)	15 (14.02%)	10 (9.35%)	27 (25.23%)
Is your partner circumcised? (Females, n=164)				
Yes	39 (23.55%)	37 (22.56%)	18 (10.98%)	94 (57.32%)
No	28 (17.07%)	24 (14.63%)	18 (10.98%)	70 (42.68%)
If your partner is not circumcised, would you be supportive that he gets circumcised? (Females with uncircumcised partners, n=70)				
Yes	26 (37.14%)	16 (22.86%)	17 (24.29%)	59 (84.29%)
No	2 (2.85%)	8 (11.43%)	1 (1.43%)	11 (15.71%)
Would you be supportive that all men should be circumcised? (Both sexes, n=550)				
Support	157 (28.55%)	170 (30.91%)	170 (30.91%)	497 (90.36%)
Oppose	19 (3.45%)	23 (4.18%)	11 (2.00%)	53 (9.64%)

Table 4: knowledge of the link between MC and HIV

Have you heard that male circumcision has recently been shown to partly reduce the chances of HIV infection among men?	aOR	95% CI	P Value
Age groups			
15-24			
25-34	0.41	0.16 - 1.05	0.06
35-49	0.18	0.06 - 0.52	0.001*
Race			
Black			
Wambo	0.25	0.06 - 1.09	0.06
Herero/ Himba	0.66	0.21 - 2.04	0.47
Damara/ Nama			
Kavango	0.00	0.00 - >1.0	0.97
Others	0.00	0.00 - >1.0	0.98
White	8.35	2.47 - 28.25	< 0.001*
Mixed race	22.88	6.33 - 82.72	< 0.001*
District			
Otjiwarongo	4.69	1.25 - 17.62	0.02*
Okahandja	9.57	2.61 - 35.07	< 0.001*
Okakarara	4.15	0.70 - 24.45	0.11
Grootfontein			
Education			
None	6.30	1.94 - 20.45	0.002*
< Gr 8			
Gr 8-12	0.73	0.26 - 2.07	0.55
Tertiary	1.07	0.33 - 3.41	0.90
Sex			
Female			
Male	3.89	1.36 - 11.10	0.01*