

The belief that male circumcision reduces HIV transmission is a key predictor in circumcision status: A survey of Namibian Health Science students

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ABSTRACT

The aim of this research was to establish the circumcision prevalence and the factors associated with the uptake of voluntary medical male circumcision (VMMC) among health science students. A cross-sectional study was carried out between July - August 2019. An anonymized questionnaire with 22 items was self-administered to health science students. Analysis of Variance (ANOVA) was performed on the demographic and beliefs information obtained. Logistic regression models were used to explain the associations, with the significance level set at $\alpha = 0.05$. Eighty-six (65.6%) males were circumcised out of the 131 participants. The majority of students were enrolled for Medicine (61%). The following factors were associated with circumcision: Kavango ethnic group, *OR* 2.70 [*CI* 0.84 – 6.60]; Holding the belief that circumcision reduces HIV transmission risk *OR* 3.96 [*CI* 0.42 – 2.39]; VMMC campaigns involving local celebrities *OR* 5.83 [*CI* 0.20 – 3.43]. This study highlights the need for upscaling VMMC among Health Science students via social mobilization and advocacy.

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1 Introduction

The global HIV incidence stood at 37.9 million [32.7 million – 44.0 million], with 1.7 million [1.4 million – 3.8 million] new infections in 2018. Eastern and Southern Africa accounted for more than 50% of these proportions (UNAIDS, 2019). In 2019, Namibia's HIV incidence estimate was 203 per 100 000, this represented an 8.1% prevalence of the total population. HIV is also the leading cause of death in the country (Centers for Disease Control and Prevention and Center for Global Health, 2017). To achieve the goal of ending AIDS as a Public Health threat by 2030, an annual reduction of 15.4% is required (WHO Africa., African Health Observatory, 2018). The HIV prevalence was lowest among the 15-24 age group and peaked in the 35-39 age group (MoHSS, 2017). Multiple and concurrent partnerships, transactional sex, low condom use and low coverage of male circumcision etc have been identified as possible drivers for the high prevalence (Stegman *et al.*, 2019). In general, the following rates were reportedly low among Namibian males: HIV testing rates, circumcision and condom use (MoHSS, 2017)

In the past decade, Namibia has made progress in reducing the spread of HIV (Stegman *et al.*, 2019). UNAIDS has set a 2020 target to end AIDS as a public health threat, through a 90-90-90 strategy. Namibia has positively responded to these targets, overall, across all ages - 86% of People Living with HIV (PLHIV) know their status; 96% were on Antiretroviral (ARV) Therapy and 91% were virally suppressed. These gains are attributable to the

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political commitments, interventions undertaken and policies developed to prevent new HIV infections (MoHSS, 2010, 2017).

Circumcision is an ancient practice, performed for religious and hygienic reasons (Totaro *et al.*, 2011). In recent years, it has been recognized as a strategy that synergistically with other interventions provides partial protection against HIV (Auvert *et al.*, 2017; Hallett *et al.*, 2008). It is estimated that the global prevalence of male circumcision is between 37-39%. The 25% prevalence in Namibia is thus below the global prevalence (Morris *et al.*, 2016). Namibia's VMMC policy aims to achieve an 80% ($n = 330218$) circumcision rate of the sexually active males (Shihepo, 2017).

It is also argued that Medical Circumcision (MC) could reduce the burden by averting 2 million new infections in 10 years in sub-Saharan Africa (Williams *et al.*, 2006). At face value, it appears there is an overwhelming body of scholars that argue both for and against (Andersson and Cockcroft, 2012; Myers and Myers, 2008) the efficacy of the practice for the reduction of HIV transmission. i.e. there is no consensus on the scientific evidence. Generally, circumcision as an intervention has been quantified to reduce HIV transmission from women to men by 60%. With differences in this number (i.e. 60%) between men at high risk and men in the general population (Weiss *et al.*, 2000). This indicates that it is important to profile men when reporting the benefits of circumcision as an intervention strategy. The benefits of circumcision are thus obscured in men that exhibit low-risk behaviour for HIV acquisition.

Although the acceptability of circumcision was found at 65% (Westercamp and Bailey, 2007), its uptake remains low (MoHSS, 2017). The greatest proportion of this low number in many settings can be credited to circumcision at infancy or childhood, and for traditional or religious reasons; and very few were done voluntarily (Ministry of Health and Social Services and Namibia Statistics Agency, 2013). These numbers overtime may be threatened by questions surrounding the legality and ethics of circumcision (Viens, 2004) as it reportedly infringes on the right to self-determination and violation of bodily integrity (Dekkers *et al.*, 2005; Ungar-Sargon, 2015), despite it being a safe procedure when performed within the ambits of a medical establishment (Perera *et al.*, 2010).

Lastly, it is critical that health science students, being the future frontline workers, need to be equipped with the requisite knowledge and be active participants (Wechsler *et al.*, 1996) if the circumcision targets are to be realized. Healthcare workers and civil society have been recognized as key players in driving societal change along with promoting public health (Anand and Bärnighausen, 2012; Gómez, 2018). Therefore, this research work was aimed at finding the circumcision prevalence and evaluating the beliefs of Health Science students regarding male circumcision. This work was important as it identified factors critical to the uptake of Voluntary Medical Male Circumcision (VMMC). Secondly, it also informs and guides policymakers on designing cost-effective, yet population tailored approaches.

2 Materials and Methods

2.1 Study design and population

A descriptive cross-sectional study design was used. The sampled students were drawn from the population of Health Science students pursuing various fields of study- Pharmacy, Medicine, Physiotherapy, Dentistry and Occupational therapy within the 2019 Academic year.

2.2 Sample size calculation and sampling

The calculated sample size was 128 male students. This sample size computation was achieved by assuming a 25% prevalence of circumcision, with 95% certainty that the estimated prevalence is within 20% of the true prevalence. The computation was achieved with the `epi.sssimplestb` function for binary outcomes. The function

is contained within the epiR v1.0-14 package (Tools for the Analysis of Epidemiological Data). In the absence of a registry of male students, convenience sampling (non-probabilistic sampling) was used to recruit students.

2.3 Data Collection Procedure: Questionnaire Administration

A qualitative method was used to ascertain the beliefs and opinions of male students on circumcision. An anonymized 22 items questionnaire was administered to participants to determine the factors associated with participation in male circumcision between July and August 2019. Demographic characteristics (Age, Course of Study, Year of study, Ethnicity, Religion) were captured. Furthermore, the questionnaire dealt with the following aspects: Reasons for being circumcised/uncircumcised; satisfaction of the procedure outcome; Age of participant when the procedure was performed; Likelihood of encouraging relatives and friends to get circumcised; Opinions on the strategies that will promote the upscale of VMMC.

2.4 Data Analysis

The data were analysed using Microsoft Excel® 2018 to generate proportions of tables and charts. The R software version 3.6.3 was used for the in-depth analysis. The base package along with "epiDisplay", "ggplot2", "dplyr", "caTools" were used for the odds ratio and 95% confidence interval estimations of the different characteristics.

Analysis of Variance (ANOVA) was computed for all demographic characteristics. This was achieved by calling the summary on the linear model (lm) fit. A univariate logistic regression model was run with the logit link function for the rest of the factors. The response variable was circumcision status. Characteristics that have attained statistical significance ($p < 0.05$) were used in a stepwise fashion to build the multivariate logistic regression model. The model sensitivity was reported by calculating the Area Under the Curve (AUC).

The predictor variables were tribe, religion, year of study, the course being studied, age, reasons for getting circumcised and reasons for being uncircumcised of participants.

2.5 Ethical Considerations

Ethical clearance for this research work was granted by the Research Ethics Committee of the University of Namibia and the Ministry of Health and Social Services. Participation was voluntary; consent was sought and all responses were also anonymized (i.e. no personal identification information was captured)

3 Results

3.1 Demographic characteristics – Age, Course of study, Year of study, Ethnicity, Religion

A total of 131 male students from the Hage Geingob campus participated in the study of which 86 students (65.6%) were circumcised and 45 students (34.4%) were uncircumcised.

The majority of the students (55.73%) by age categorization were in the 20-22 year old group (Table 1). The odds of being circumcised increases with an increase in age, these differences were however not significant (Table 2). Amongst the uncircumcised participants, the highest proportion (31.11%) was found in students in their 2nd Year of study, with a further decrease in the 3rd and 4th year.

The majority of participants by course categorization were enrolled for Medicine (61%). From the total number of uncircumcised participants ($N = 45$), medicine students also comprised the highest proportion (68.89%) of

this (Table 1). In table 2, it was found that Pharmacy students had higher odds of being circumcised (unadjusted $O.R = 4.14$, p -value:0.1).

Amongst the demographic characteristics, tribe/ethnicity had the best R -square value of 0.12, albeit it being low. This response variable was particularly significant for the Kavango tribe (p -value 0.05). All Herero's were circumcised and thus had the highest odds (4.70E07) of being circumcised, this was however not statistically significant.

Marital status and Religion were not important predictors. Hence the proportions are shown and will not be reported in detail here.

Table 1: Demographic characteristics of circumcised and uncircumcised students at UNAM-Hage Geingob campus

Characteristic (Categorical)	All (N = 131) n, (%)	Circumcised (N = 86) n, (%)	Uncircumcised (N = 45) n, (%)	R ²	p-value
Age					
16-19	19 (14.5)	12 (13.95)	7 (15.56)	0.019	0.642
20-22	73 (55.73)	47 (54.65)	26 (57.78)		
23-25	32 (24.3)	23 (26.74)	9 (20)		
26-30	6 (4.58)	4 (4.65)	2 (4.44)		
31+	1 (0.76)	0 (0)	1 (2.22)		
Marital status					
Single	130 (99.24)	86 (100)	44 (97.78)	0.015	0.168
Married	1 (0.76)	0 (0)	1 (2.22)		
Ethnicity					
Afrikaans	4 (3.05)	1(1.16)	3(6.67)	0.12	0.045
Baster/Colored	8 (6.11)	3(3.49)	5(11.11)		
Caprivian	8 (6.11)	5(5.81)	3(6.67)		
Damara>Nama	10 (7.63)	5(5.81)	5(11.11)		
Herero	4(3.05)	4(4.65)	0 (0)		
Himba	1(0.76)	1(1.16)	0 (0)		
Kavango	20(15.27)	18(20.93)	2(4.44)		
Other	16(12.21)	9(10.47)	7(15.56)		
Wambo	59(45.04)	40(46.51)	19(42.22)		
NA ¹	1(0.76)	0 (0)	1(2.22)		
Religion					
Adventist	3(2.29)	2(2.33)	1(2.22)	0.044	0.702
Agnostic	3(2.29)	1(1.16)	2(4.44)		
Anglican	16(12.21)	10(11.63)	6(13.33)		
Atheist	4(3.05)	3(3.49)	1(2.22)		
Catholic	20(15.27)	13(15.12)	7(15.56)		
Charismatic Christian	9(6.87)	5(5.81)	4(8.89)		
Christian	17(12.98)	12(13.95)	5(11.11)		

Lutheran	47(35.88)	35(40.7)	12(26.67)		
Protestant	9(6.87)	4(4.65)	5(11.11)		
NA ¹	3(2.29)	1(1.16)	2(4.44)		
Course					
Dentistry	10 (7.63)	5 (5.81)	5 (11.11)	0.048	0.182
Medicine	80 (61.07)	49 (56.98)	31 (68.89)		
Occupational Therapy	1 (0.76)	1 (1.16)	0 (0)		
Pharmacy	36 (27.48)	29 (33.72)	7 (15.56)		
Physiotherapy	4 (3.05)	2 (2.33)	2 (4.44)		
Year of Study					
First	24(18.32)	17(19.77)	7(15.56)	0.0056	0.397
Second	36(27.48)	22(25.58)	14(31.11)		
Third	41(31.3)	29(33.72)	12(26.67)		
Fourth	13(9.92)	10(11.63)	3(6.67)		
Fifth	10(7.63)	4(4.65)	6(13.33)		
Sixth	7(5.34)	4(4.65)	3(6.67)		

¹NA – Not available (data)

3.2 Circumcision Procedure: Reasons for Circumcision, Pain and Satisfaction

The circumcision procedure for 59.4% of the circumcised participants was done at age 15 or earlier (Figure 1). The participants have cited (Figure 2) that they underwent circumcision due to the associated health benefits (63%), influence from friends and family (17%), and traditional reasons (15%). On the contrary, uncircumcised participants reported: being too busy (36%) and the fear for potential complications (25%) as reasons for being uncircumcised (Figure 3).

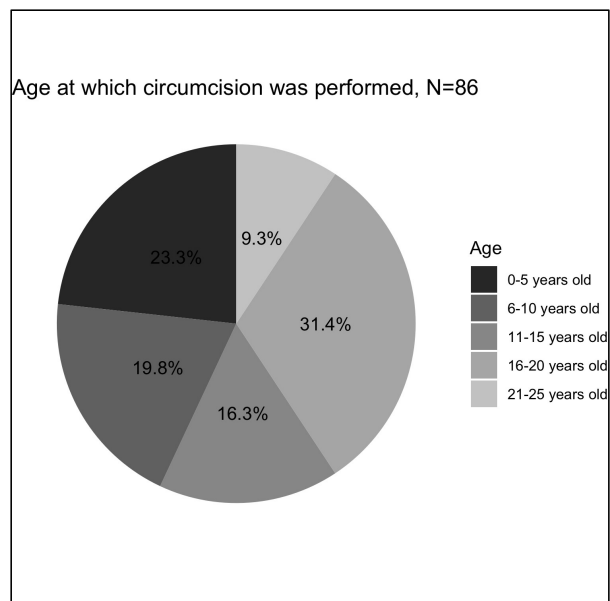


Figure 1: Age at which circumcision was performed, $N = 86$

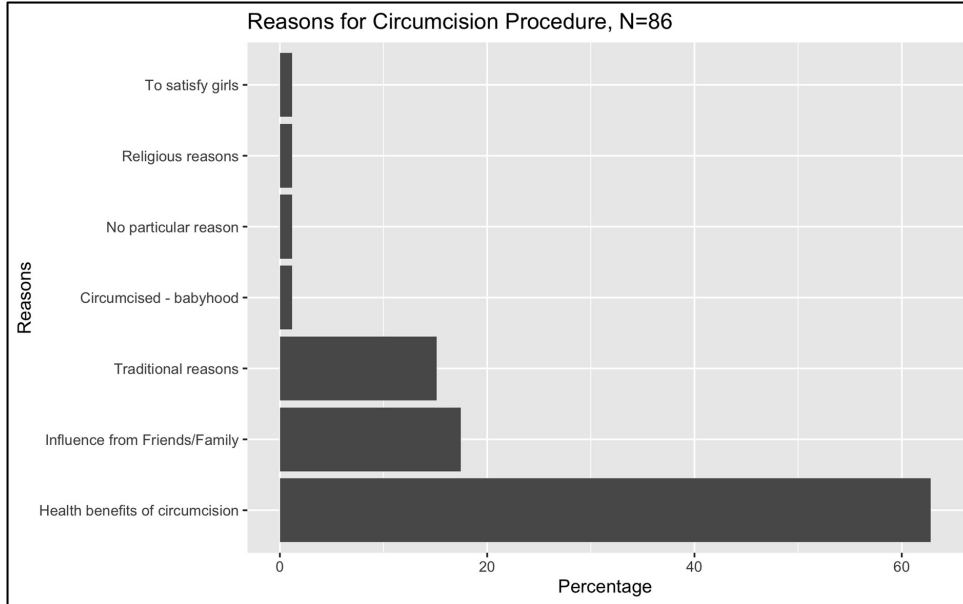


Figure 2: Reasons for the circumcision procedure, $N = 86$

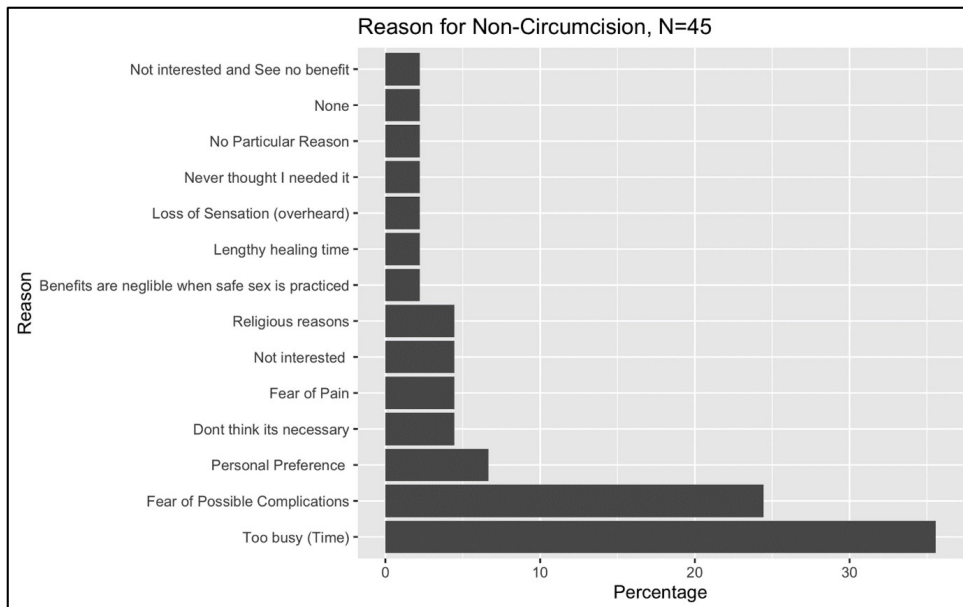


Figure 3: Reasons for Non-circumcision ($N = 45$)

Although 53% have reported experiencing varying degrees of pain (Figure 4), the satisfaction levels with the outcome of the procedure was as high as 60% (Figure 5). Twenty percent were indifferent about the degree of the perceived pain.

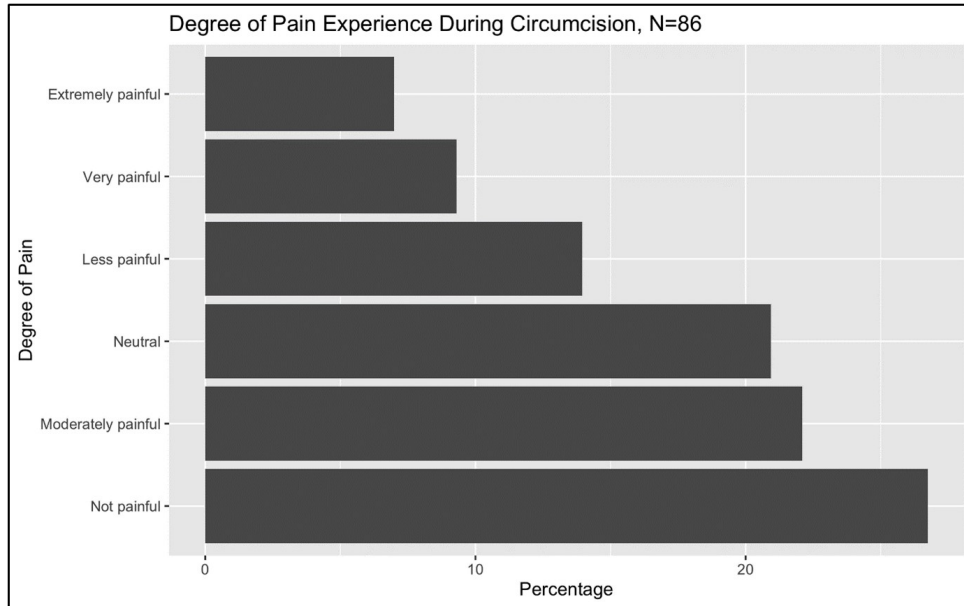


Figure 4: Degree of Pain Experienced during circumcision, $N = 86$

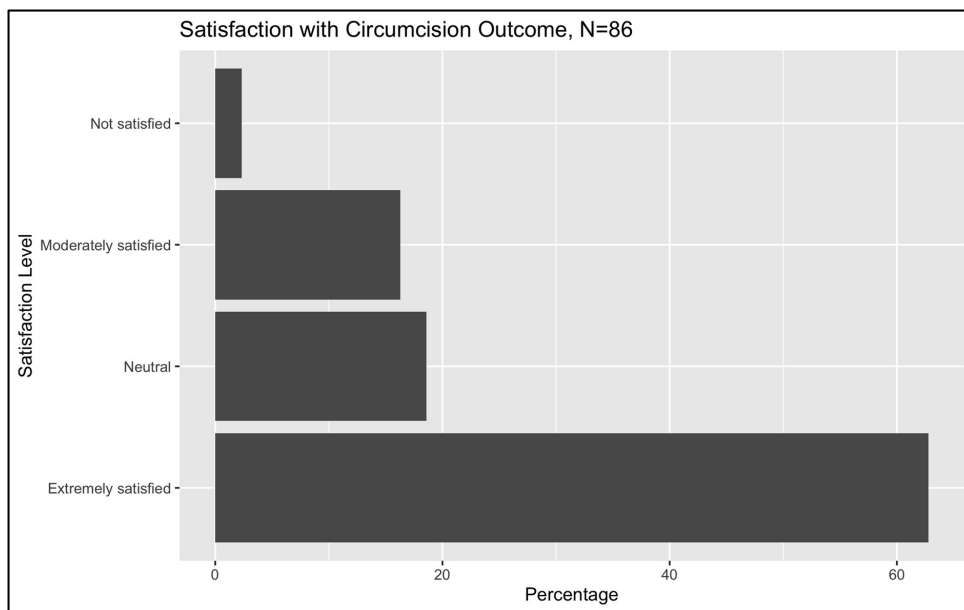


Figure 5: Satisfaction with Circumcision outcome

3.3 Factors (predictors) associated with Circumcision

The odds of being circumcised was high by a factor of 3.96 (p -value:0.001) amongst those that hold the belief that circumcision reduces the chance of getting HIV.

Being a pharmacy student was associated with a higher adjusted odds of circumcision when compared to other

courses. Other associative factors that are statistically significant includes Circumcision campaigns involving local artists (*O.R* 5.83 *CI* 0.20 – 3.43), and participants were twice likely to encourage friends and family to get circumcised (*O.R* 2.26 *CI* 0.047 – 1.59). The Information, Education and Communication (IEC) as a strategy is associated with a high likely odds of (*OR* 7.71 *CI* 0.073 – 5.08) increasing VMMC uptake.

The multivariate model AUC was found to be 0.86. The factors listed in the title of Figure 6 can predict the circumcision status with 86% accuracy (i.e. sensitivity and specificity). At a specificity of 80% (i.e. 1 – 0.2) the sensitivity of the model is 86%.

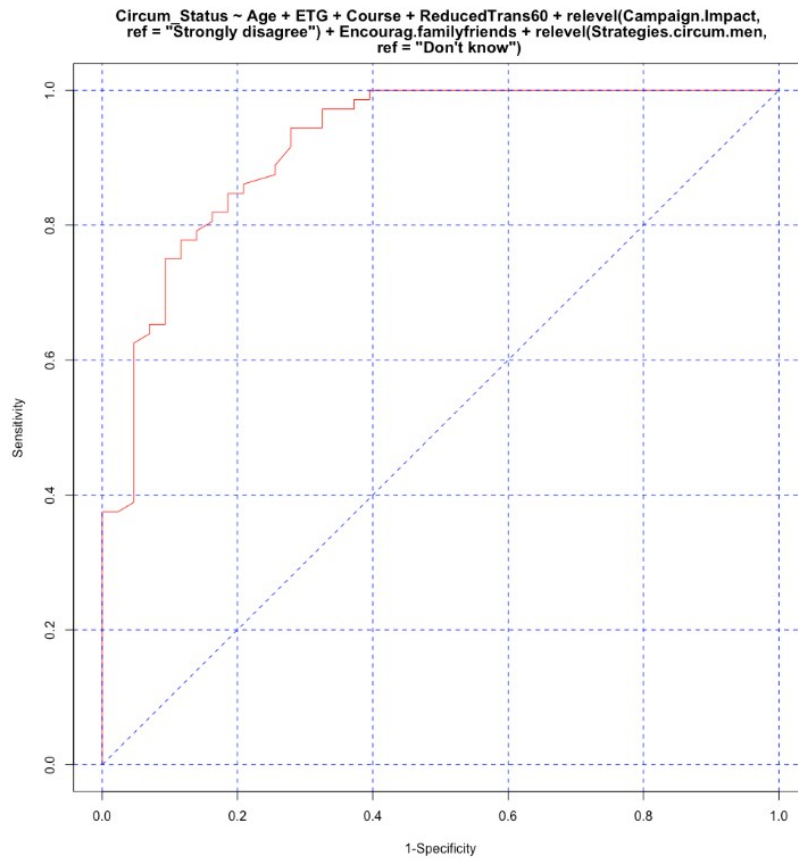


Figure 6: Area Under the Curve (AUC) for the multivariate logistic regression model, ETG: Ethnicity (Tribal) Group

Table 2: Univariate and multivariate logistic regression model outputs of the various factors associated with circumcision status

Variable	Univariate model		Adjusted model	
	O.R	95% C.I	O.R	95% C.I
Age Category				
16-20	Ref			
20-22	1.05	(-1.04 – 1.09)	-	-
23-25	1.49	(-0.83 – 1.62)	-	-
26-30	1.17	(-1.74 – 2.30)	-	-
31+	2.75E – 07	(NA – 164.66)	-	-
Tribe (ethnic) Grouping				
Afrikaans	Ref			
Baster/Colored	1.8	(-1.97 – 3.83)	1.84E – 01	(-2.09 – 4.18)
Caprivian	5.00	(-0.89 – 4.88)	1.08E + 00	(-0.86 – 5.34)
Damara>Nama	3.00	(-1.32 – 4.3)	4.99E – 01	(-1.77 – 4.42)
Herero	4.70E + 07	(-34.30 – 409.12)	2.39E + 09	(-45.10 – 518.13)
Himba	4.70E + 07	(-469.43 – NA)	4.06E + 00	(-782.53 – NA)
Kavango	2.70	(0.84 – 6.60)**	8.65E + 00	(0.81 – 6.96)**
Wambo	6.32	(-0.28 – 4.89)	2.77E + 00	(-0.26 – 5.17)
Other	3.86	(-0.93 – 4.48)	1.48E + 00	(-0.91 – 4.9)
Marital Status				
Single	Ref		-	-
Married	4.14E + 06	(-164.65 – NA)	-	-
Religion/Denomination				
Adventist	Ref		-	-
Agnostic	0.25	(-5.34 – 1.88)	-	-
Anglican	0.83	(-3.37 – 2.37)	-	-
Atheist	1.50	(-3.19 – 4.04)	-	-
Catholic	0.93	(-3.24 – 2.44)	-	-
Charismatic Christian	0.63	(-3.75 – 2.21)	-	-
Christian	1.20	(-3.01 – 2.75)	-	-
Lutheran	1.46	(-2.74 – 2.81)	-	-
Protestant	0.40	(-4.20 – 1.75)	-	-

	Univariate model		Adjusted model	
Year of Study				
First (1)	Ref			
Second (2)	0.65	(-1.58 – 0.65)	-	-
Third (3)	0.1	(-1.15 – 1.09)	-	-
Fourth (4)	1.37	(-1.19 – 2.01)	-	-
Fifth (5)	0.27	(-2.92 – 0.22)	-	-
Sixth (6)	0.55	(-2.35 – 1.22)	-	-
Course of Study				
Dentistry	Ref			
Medicine	1.58	(-0.89 – 1.81)	2.69E+00	(-0.89 – 2.78)
Occupational therapy	5.75E+06	(-280.59 – NA)	9.21E+07	(-785.54 – NA)
Pharmacy	4.14	(-0.075 – 2.96)*	1.73E+01	(0.56 – 4.72)**
Physiotherapy	1	(-2.43 – 2.43)	3.25E+00	(-1.88 – 3.99)

	Univariate model		Adjusted model	
Variable	O.R	95% C.I	O.R	95% C.I
Believe that circumcision reduces the chance of getting HIV				
No	Ref			
Yes	3.96	(0.42 – 2.39)***	2.06E+01	(0.56 – 3.29)***
VMMC campaigns involving local celebrities encourage men to get circumcised				
Strongly disagree	Ref			
Disagree	2.17	(NA – 280.74)	6.24E+02	(NA – 783.15)
Neutral	1.18	(-1.30 – 1.70)	3.96E+00	(-0.85 – 3.20)
Agree	3.21	(-0.29 – 2.69)	7.08E+00	(-0.055 – 4.03)
Strongly agree	5.83	(0.20 – 3.43)**	3.80E+01	(1.05 – 5.57)***

Variable	Univariate model		Adjusted model	
	O.R	95% C.I	O.R	95% C.I
Respondents awareness on the health benefits of circumcision				
No	Ref			
Yes	0.75	(−2.26 – 1.30)	-	-
Participates in encouraging friends and family to get circumcised				
No	Ref			
Yes	2.26	(0.047 – 1.59)**	7.85E – 01	(−1.00 – 1.18)
Strategies to increase the uptake of VMMC				
Don't know	Ref			
Circumcise (Baby/child-hood)	2	(−2.14 – 4.07)	NA	NA
IEC	7.71	(−0.073 – 5.08)*	NA	NA
IEC involving women/partner	1.5	(−2.13 – 3.63)	NA	NA
Financial Incentive	3	(−2.66 – 5.14)	NA	NA
Health Facility Level Promotion	1.96E – 07	(−511.19 – 68.60)	NA	NA
Life-threatening conditions	1.96E – 07	(NA – 398.75)	NA	NA
Mandatory Practice	4.70E + 07	(−245.09 – NA)	NA	NA
Mass Campaigns	4.8	(−0.77 – 4.73)	NA	NA
Nothing	3	(−2.66 – 5.14)	NA	NA
Nothing, Circumcision Un-necessary	1.92E – 07	(NA – 396.67)	NA	NA

IEC Information, Education and Communication

* 0.1

** 0.05

*** 0.001

NA - Not Applicable

4 Discussion

In this first paper to report on aspects of circumcision amongst Health Science students, we found the overall self-reported circumcision prevalence to be halfway above (~ 65%) the 80% coverage target. Recent data on the circumcision prevalence is unreported in public domains, however, studies from 2008 in different Namibian settings reported a 28% prevalence among the 15-29 years age group (Andersson and Cockcroft, 2012); and a 55.6% prevalence in the 15-49 year olds (UNHCR, 2008). The Namibia Demographic Health Survey of 2013

found a 21% and 22.8% prevalence for the age groups 15-19 and 20-24 respectively (Ministry of Health and Social Services and Namibia Statistics Agency, 2013). We thus note heteroscedastic prevalence across different settings and populations. Firstly, this indicates the need to account for settings when reporting prevalence and that true estimates can only be obtained from nationwide studies. Secondly, this indicates that circumcision campaigns need to be better targeted to populations that are less likely to practice circumcision traditionally.

A possible increase in the uptake of circumcision in the last 10 years is thus likely as the 2008 study found that 34.9% of the uncircumcised males in Namibia were planning to undergo a circumcision procedure (Andersson and Cockcroft, 2012). These increases can also be attributed to initiatives such as the governments countrywide "Smart Cut" VMMC campaign that involved social mobilizations by a local celebrity at tertiary institutions and many other centres (The Namibian, 2016); in continuing the efforts of circumcising more young man, the government in 2019 also launched the "SAFE VMMC ACTIVITY" with funding support from the United States government (US Agency for International Development, 2019).

Disaggregating by year of study, the mean of uncircumcised students was 37% [IQR:29 – 41.25] in 2019. We report a positive trend between circumcision and study year, we however cannot infer from this finding that VMMC increases by study year due to study design limitations. This assertion can only be made with a longitudinal population-based cohort study that maintains the same participants over the years (Friis and Sellers, 2014). Information on whether the circumcision was performed post joining the health science course was not obtained. This information would be a useful measure of the association on the influence of pursuing health-related course(s) and the likelihood of circumcision. An attempt to deductively obtain this information can be inferred from these 3 parameters - age of the participant, the year of study and the age at which circumcision was done. However, the shortcoming was that the ages were captured as ranges and not discrete numerals. Therefore, conclusions to this effect will be highly speculative.

About 6 out of 10 males were circumcised before age 15. The median age at which circumcision is performed is highly varied (i.e. happening between boyhood and into late teens or twenties) (WHO and UNAIDS, 2006). Within a Namibian farm setting, the median age at which circumcision was performed was 7 years (UNHCR, 2008). Furthermore, this study reports circumcision for mainly the associated health benefits, whilst other settings have recorded religious (Shah *et al.*, 1999; Stafford, 2012; Viens, 2004) and traditional rituals (Peltzer *et al.*, 2008; Vincent, 2008) as reasons. A higher odds of circumcision, but yet, non-significant was observed in the Otjiherero-speaking people. This finding agrees with a 93.6% circumcision prevalence among this ethnic group has been reported elsewhere (Andersson and Cockcroft, 2012). This study found a statistically significant odds of being circumcised amongst the Kavango people. Both the Herero and Kavango ethnic groups have been reported to circumcise boys between ages 2 – 12 years for traditional reasons (Wilcken *et al.*, 2010). The high circumcision rates among these two tribes are spatially corroborated by the high prevalence seen in the regions which they predominantly inhabit, namely, Omaheke, Otjozondjupa, Kunene and Okavango region (Ministry of Health and Social Services and Namibia Statistics Agency, 2013).

In this study, we did not investigate the age of sexual debut and number of sexual partners as a measure of sexual risk behaviour. Many reportedly have had their first sexual encounters by age 18 (UNHCR, 2008). The finding that circumcision for the associated health benefits takes precedence over other reasons, is critical to the HIV prevention toolbox. We, therefore, argue that strengthening the voluntary uptake of circumcision for the associated health benefits before reaching sexual maturity/activity is particularly important for Namibia where heterosexual transmission is the main route of HIV transmission (Ministry of Health and Social Services and Namibia Statistics Agency, 2013). It is important to leverage the benefits that come with circumcision (Kurth *et al.*, 2011; World Health Organization and Joint United Nations Programme on HIV/AIDS, 2008), whilst cautioning against risk compensation (Grund and Hennink, 2012; Kalichman *et al.*, 2007; Mattson *et al.*, 2008; Riess *et al.*, 2010; Westercamp *et al.*, 2014).

Based on thematic analysis (i.e. from the logistic regression model), the suggestions on how to increase

VMMC adoption tend to centre on strengthening the information, education, and communication (IEC) programs. Strategies should involve female partners (Lanham *et al.*, 2012); placing emphasis on the benefits (Riess *et al.*, 2010; Westercamp and Bailey, 2007); dispelling the perceived risk of unknown complications (Krill *et al.*, 2011), get males interested in the procedure; mass campaigns (Garenne, 2010) and use of HIV status as a motivation for circumcision.

The weakness of the logistic regression model (shown by wide confidence intervals) was due to the limited sample size of 131 participants. However, for a young medical school this coverage was substantial and the model can be improved by including students from the wider university or conducting community level studies. The model therefore provides some preliminary data for further exploration. The model indicates that the circumcision is associated with the belief that circumcision reduces the chance of HIV infections, the involvement of celebrities in the VMMC campaigns; persuasion or advise of family members/partners along with Information, Education and Communication (IEC) on VMMC. These findings have been corroborated by studies of in Africa by Krieger (2012), Cork *et al.* (2020) (Garenne, 2010), and Ashengo *et al.* (2014).

5 Conclusion

The 65% circumcision prevalence (not nationally representative) among students falls short of the national 80% target coverage. Overall, circumcision clustered by tribe and holding the belief that circumcision reduces HIV transmission. This study highlights an important gap in coverage within a population group that is crucial to the promotion and acceptability of future VMMC procedures and campaigns in the general population. Integrating VMMC and its benefits in the teaching curriculum may be necessary to increase this prevalence.

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Conflict of Interest

None.

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None.

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