Determinants of choice of male circumcision methods among men in South Africa in 2012

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Abstract

*Background:*South Africa practises traditional and medical male circumcision, medical male circumcision was introduced as a health intervention strategy against HIV/AIDS; and traditional male circumcisionis a ritual that marks a passage to manhood.

Male circumcision has been identified as a public health hazard associated with high complications and even deaths in South Africa, however traditional male circumcision has higher documented adverse events as compared to medical male circumcision. The South African government has adopted the voluntary medical male circumcision campaign to promote medical male circumcision that aims to reach coverage of 80% by 2016. However traditional male circumcision remains a popular practise; in 2009 the National HIV Community Survey reported that 67% of men were traditionally circumcised; and 33% medically circumcised.

Objective: The aim of this study is to investigate levels of traditional and medical male circumcision method and examine the relationship between personal, socio-economic and demographic factors and choice of male circumcision method in South Africa.

Methodology: The data source that will be used is the Third National HIV Communication Survey that was conducted in 2012 in South Africa. The study population is 2096 circumcised men ages 15-55 years. Aprobitmultinomial logistic regression will be employed to establish the relationship between identified factors and choice of male circumcision method.

The study will inform country-level decision-makers about determinants associated with traditional and medical male circumcision. This will better inform efforts to scale up male circumcision rates and integrate the two practises to achieve safe and health male circumcision in South Africa.

1.1Background

Male circumcision is one of the cultural and religious practises that lie at the centre of African beliefs and way of living (Gwandure, 2011).In 2007 the World Health Organisation reported that 30% of men were circumcised globally of which most of them from developing countries; and for cultural and religious reasons (WHO, 2007).The prevalence of male circumcision varies greatly between Eastern and Southern Africaranging from 15% in Burundi and Rwanda; to 84% in Kenya, and to less than 15% inBotswana, Zambia, and Zimbabwe (WHO, 2007).

Male circumcision in South Africa is mostly practised for cultural reasons symbolising a transition from boyhood to manhood.In 2009 42% of males were circumcised of which 67% were traditionally circumcised and 33% medically circumcised (Johnson et al, 2010). Practise ofmale circumcision in South Africa is ethnicallyaffiliated highly prevalent among the Xhosa, Pedi, and Venda ethnic groups, with the second group including Tsonga Sotho, Ndebele, and less common among Zulu, Tswana, and Swati (Garenne, 2008).

Medical male circumcision gained its popularity globally by being introduced as a preventive strategy against HIV. Three randomised trials that were conducted in Uganda; South Africa and Kenya; found that medical male circumcision reduces HIV risk acquisition by 51% to 60% (Auvert et al., 2005; Bailey et al., 2007 and Gray et al., 2007). The findings led to the WHO and UNAIDS to officially recognise and recommend medical male circumcision as a preventive strategy against HIV in countries with high rates of HIV and low level of male circumcision (Auvert et al, 2009).

1.2Problem Statement

Traditional male circumcision has been faced with numbers challenges that include inexperienced surgeons performing circumcisionsand complications such as genital mutilations, penile amputations, gangrene and even deaths (Meissner and Buso, 2007 Behrens, 2014).Since 1995 over 853 initiates have died in the Eastern Cape because of traditional circumcision complications(Govender et al., 2014).Between 2001 and 2006 the Eastern Cape provincial Department of Health recorded 2262 hospital admissions, 115 deaths and 208 genital amputations for circumcisions (Meissner and Buso, 2010).In December 2010 in the Eastern Cape 98 initiates were hospitalised due to complications from traditional circumcisions and 13 initiates died (The Commission for the Promotion and Protection of the Rights of Cultural, Religious andLinguistic Communities, 2010).Local newspapers continue to report of adverse events that occur at traditional schools, in 2013 between May and July 60

initiates died at traditional schools in Mpumalanga, Limpopo and Eastern Cape (Skhosana, 2013). In 2013 in the Eastern Cape 293 boys were hospitalised and recovering from dehydration, gangrene, sceptic wound (Mail & Guardian SAPA, 2013).

The South Africa government introduced voluntary medical male circumcision (VMMC) in 2010 as an HIV intervention; the government aims to circumcise 80% of males by 2016; and the current prevalence is 18.6% (SANDoH, 2013). In provinces with high HIV rates like KwaZulu-Natal (16.9%) the government still fall short in meeting the VMMC targets (Shisana et al., 2014, George et al., 2014).

Southern Africa houses countries with the lowest circumcision rates with high HIV rates ranging from the national prevalence in Malawi 42% of men were HIV and 21% were circumcised; in Lesotho 48% of men were circumcised and 39% were HIV and in South Africa 35% of men were circumcised and the HIV rate for men was 43% (WHO, 2007, UNAIDS, 2012, Jimmyns et al., 2013). As a result 14 Southern and Eastern African countries including Zimbabwe; South Africa; Kenya are scaling up voluntary male circumcision campaign to increase circumcision rates among men (Muvha et al, 2014). However countries with high HIV rates in Eastern and Southern Africa that are rolling out medical male circumcision campaigns are faced with a challenge of lack of human resources (Ford et al, 2011). South Africa even though it's one of the most developing nations in Africa it is faced with a scarce number of nurses and physicians (Garenne, 2008).

Challenges in implementing circumcision programmes include acceptability and lack of financial and human resources (Ford et al., 2011). South Africa even though it's one of the most developing nations in Africa it is faced with a scarce number of nurses and physicians (Garenne, 2008).

Medical male circumcision is also associated with common adverse events such as pain, bleeding and infection (Auvert et al., 2008). There is a lack of data on reports of adverse events in medical setting; during the randomised trials South Africa reported 3.6% of adverse events versus 1.5% in Kenya (Bailey et al, 2008, Auvert et al., 2005, Bailey et al., 2007).In the Kenya random trial the reported complications were twoinfections and bleeding and in South Africa number of complications were higher including excessive bleeding, damage to penis, excessive and insufficient skin removal (Muula et al., 2010). The results show that even under well-funded projects adverse events are occurring.

1.3 Justification

The study aims to identify factors that are associated with choice of circumcision in order to scale up male circumcision rates, current rates are moderately high in 2002 38.2% males were

circumcised, in 2008 40.6% and in 2012 46.5%. Increasing male circumcision coverage in South Africa is important as it is anticipated to reduce new HIV infections by 174000 per annum (Williams et al, 2006). This research will identify factors associated with choosing medical and traditional male circumcision, in order to identify factors that can increase uptake of both methods in non-circumcising communities.

Existing literature on male circumcision has focused on studying the acceptability and determinants of male circumcision among uncircumcised males (Auvert et al., 2007, Lagarde et al., 2003; Connolly et al., 2008; Scott et al., 2005; Peltzer et al, 2012, Majaja et al.; 2010). However not much attention has been paid on researching on determinants of choice of male circumcision method in South Africa; and this will study will fill that literature gap.

Most research on male circumcision has taken a qualitative approach; focusing on understanding perceptions, attitudes, and acceptability of male circumcision (Bottoman et al 2009; Buso and Meissner 2007; Vincent 2008). Furthermore most studies have been limited to provincial level analysis and have disproportionately focused on the Eastern Cape Province (Vincent: 2008; Buso; Meissner 2007; Peltzer et al; 2008). This research is quantitative; it will use the 2012 NCS and study the whole of South Africa thus findings can be generalised to the whole of country.

It is expected that the findings of this study will guide policy–makers in the formulation of policies, programmes and interventions aimed at increasing male circumcision rates, with the overall aim of promoting safe circumcision.

1.4 Research Question

- What are the determinants of choice of male circumcision method among males 16-55 years in South Africa?

General Objective

1. Identify factors associated with choice of male circumcision methods in South Africa

Specific Research Objectives

1. To investigate levels of male circumcision method
2. To examine the relationship between personal, socio-economic and demographic factors associated with medical and traditional male circumcision in South Africa

1.5 Definition of terms

- Male circumcision refers to the surgical removal of the foreskin of the penis for social, cultural, medical and religious reasons (Peltzer and Kanter 2009).

- Traditional male circumcision is a cultural ritual that marks a passage to manhood, through the removal of the foreskin without anaesthetic by a traditional circumciser using an assegai in the mountainside or bush (Meissner and Buso, 2007).
- Medical male circumcision refers to circumcision done by a medical doctor, in a medical setup, that fully complies with medical ethics and a professionally trained nurse will look after the boys after circumcision (Wambura et al., 2011).

Chapter 2 Literature Review, Theoretical framework

Preference of medical male circumcision

A review study found that in SSA there is preference of medical male circumcision servicesto be made accessiblein public hospitals and clinics(Westercamp and Bailey 2007).Astudy that was done in a non-circumcising community found that 77% of Zulu men preferred male circumcision by a medical surgeon, and 11% by a traditional circumciser (Scott et al., 2005). Men fear death and infection in the hands of traditional surgeons (Lagarde et al., 2003, Westercamp and Bailey, 2007). A study that was done in traditional circumcising community found that 70% of males feared being stigmatised for choosing medical male circumcision (Peltzer and Kanta, 2009).

Preference of Traditional male circumcision

Across all ethnic groups in South Africa male circumcision at a traditional setting is most preferred than circumcision at hospital and this is because the most concern is to preserve culture than issues of complications, hygiene and safety(Majaja et al., 2010). A study that was done in Transkei Eastern Cape, found that 63% of the interviewed males preferred traditional circumcision because of its cultural value (Meel 2005). However there is no clear evidence if there is a large shift to medical circumcision because of the introduction of VMMC.

Benefits of male circumcision

Medical male circumcision was introduced as a health packageservice for HIV prevention. In one study 96.1% of males had knowledge about benefits of male circumcision and 84.1% of them were willing to get circumcised (Peltzer and Mlambo, 2012). However regardless of extensive knowledge of benefits of circumcision studies are reporting of risky sexual behaviour post circumcision.Circumcision can be accompanied by a false sense of security; available research shows that most circumcised men report on having a high number of

sexual partners and inconsistent condom use (Lagarde et al, 2003). At traditional initiation schools initiates are thought cultural values about marriage and family, health issues such as hygienic care of genitals, and responsible sexual behaviour(Buso and Meissner, 2007).However traditional male circumcision has lost its cultural value and has become a gateway to sex (Vincent, 2008). Therefore this study will show if it's the choice of circumcision method that is positively associated with sexual behaviour post circumcision, by focusing on knowledge of circumcision benefits, knowledge of condom use post circumcision, and use of condom on last sex.

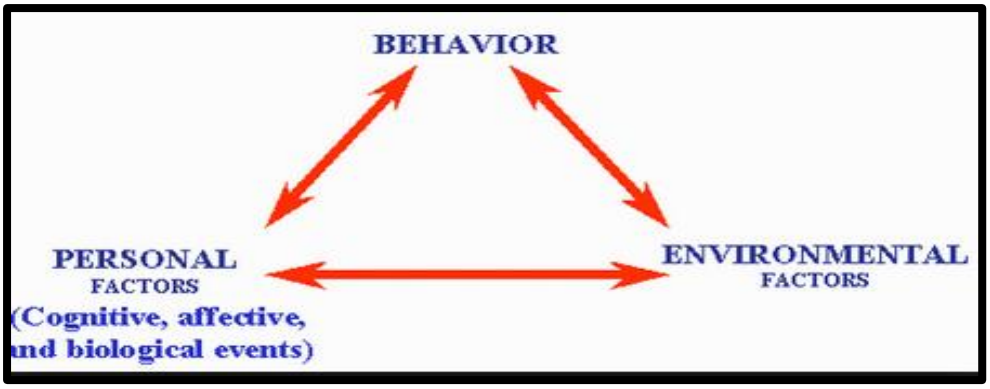
Age at circumcision and choice of circumcision method

Age at circumcision varies across and within countries. In Western Africa neonatal circumcision is most common; in Southern and Eastern Africa the median age of circumcision ranges from 8-21 years and this finding has been consistent in literature (WHO, 2007, Westercamp and Bailey, 2007). The median age for circumcision varies across race and ethnicity; most whites and coloureds are circumcised between the ages 2 to 10 years; and for blacks the median age is 18 years (Connolly et al, 2008). In terms of ethnicity most Xhosa's are circumcised after 17 years and most Tshivenda's circumcise before 17years (Connolly et al, 2008).

Marital status and choice of circumcision method

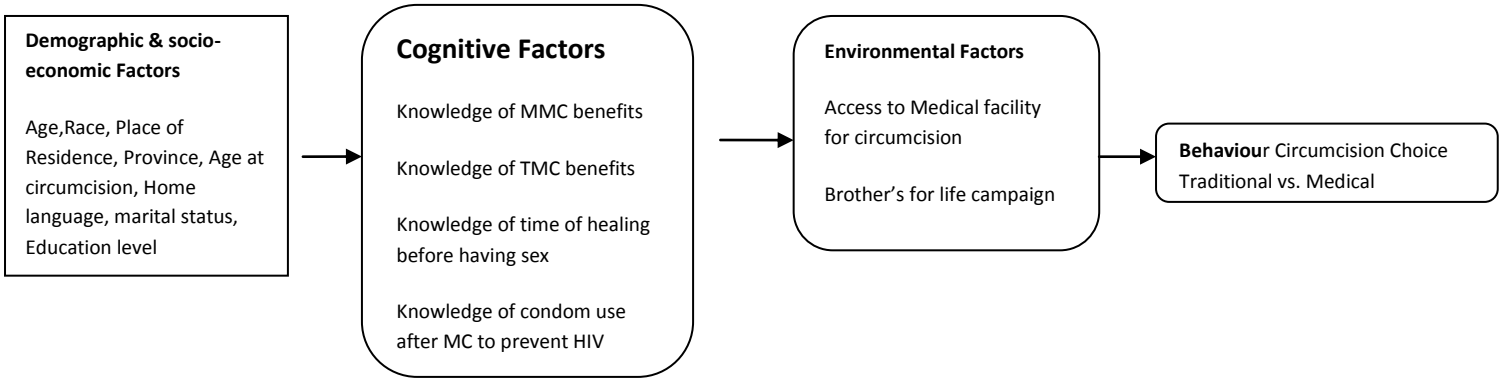
Initially in Southern Arica men were supposed to be circumcised before getting married as circumcision conferred adult status and marriageability (Messner and Buso, 2007). A number of studies have included the voice of women with regards to choice of circumcision methods and acceptance of male circumcision in South Africa (Lagarde et al., 2003, Rain-Taljaard et al., 2003, Majaja et al., 2003). Uncircumcised men residing among ethnic groups practising male circumcision are more likely to be rejected by women and this could serve as a barrier to marriage (Bailey et al. 2002). Studies have found that women prefer medical male circumcision; 69% of women in SSA and 75% of women in rural KwaZulu-Natal preferred medical male circumcision for their spouses (Westercamp and Bailey, 2007, Scott et al., 2005).In contradiction in traditional circumcising communities women fear being stigmatised against and laughed by their peers and communities if their partner is not traditionally circumcised (Majaja et al. 2010).

2.1 Theoretical Framework



Social cognitive theory presents a conceptual framework based on human agency analysed through psychological and social factors that can influence human thought and behaviour in a bidirectional manner (Bandura, 2001). The theory is significant for health communication. According to the theory personal factors are beliefs and capabilities that an individual have to control their thoughts and actions in order to achieve certain behaviour. Environmental factors are a form of collective agency includes social networks such as family and friends and physical environments such as access to facilities and services that can assist to achieve a desired behaviour. One of the studies that made use of this model analysed the interrelationship between socio-economic status and coronary heart disease (CDH), and found that there is a relationship between socio-economic status and risk of CDH(Philips et al, 2010). In this study the interrelationship will be analysed through socio-demographic and economic factors, cognitive factors to environmental factors directly influencing choice of circumcision method.

2.2Conceptual Framework adapted from Bandura (1986)



Methodology

Data source

Data for this study will be drawn from the Third National HIV Community Survey (NCS) conducted in 2012 in South Africa. A national survey conducted in all 9 provinces in South Africa. The study was collaboration by the Johns Hopkins Health and Education in South Africa, Lovelife and Soul City.

Study Area

South Africa is the region of study for this research and it is comprised of nine provinces of which the NCS was conducted. The country has one of the highest prevalence of HIV on the continent, 42% among men and the lowest prevalence of circumcision of 35% (Jimmyns et al., 2013).

Study Population and Sample size

The study population size is 4065 males 15-55 years, however for the purpose of this study the study sample size is 2096 circumcised men, medically or traditionally circumcised.

Variables

Dependent variable choice of circumcision

Variable outcome	Coded
Medical male circumcision	0
Traditional male circumcision	1
Uncircumcised men	2

INDEPENDENT VARIABLE	**DEFINITION**
Personal	
Knowledge of benefits of medical male circumcision	Refers to benefits that men get from being medically circumcised
Knowledge of benefits of traditional male circumcision	Refers to benefits that men get from being traditionally circumcised
Knowledge of Condom Use post circumcision	Refers to if circumcised man still needs to use condoms every time he has sex to prevent getting HIV categorised as Yes or No
Age of circumcision	Refers Age of circumcision in single years
Knowledge of having sex post-circumcision	Refers Period men should wait to have sex after they are circumcised ranged from one to six weeks
Demographic and Socio-economic	

Race	Racial groups, Blacks, Whites, Coloureds, Indians
Province	Refers to all nine province
Home Language	Language mostly spoken at home
Place of residence	Locale or settlement type
Marital status	Refers to marital status, formerly married, married and never married
Employment status	Refers to currently working or not working
Education level	Highest level of education completed
Environmental	
Awareness of Brothers for life Campaign	Seen logo of brother's for life in the past 12 months
Access to medical male circumcision facility	Availability of facility/service of medical male circumcision in your community

Analysis Plan

In order to meet objective one descriptive statistics will be conducted, to show frequency distribution of circumcision methods and explanatory variables using graphs and tables.

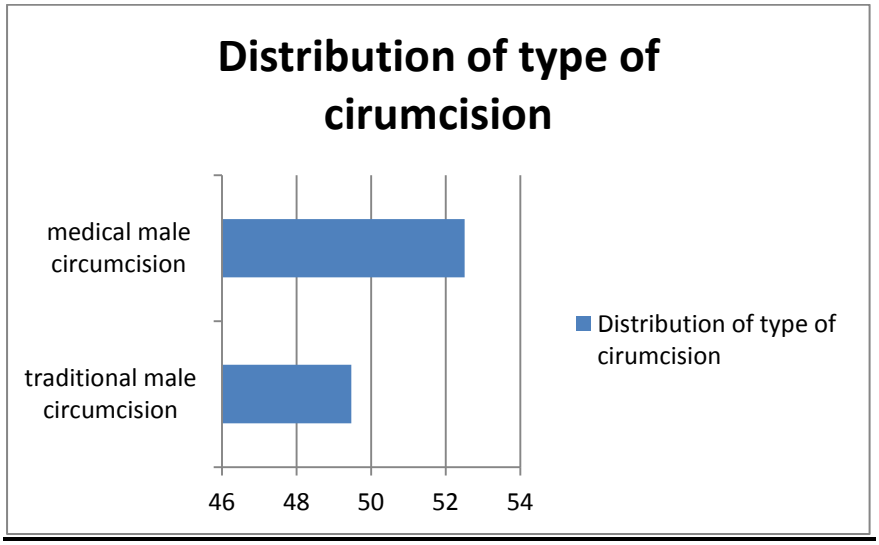
In order to meet objective two, a probitmultinomial logistic regression will be conducted because it will allows the modelling of the indirect relationship from the theoretical framework to a linear combination of the predictorsas adapted in the conceptual framework.Theoutcome variable has three categories, for the purpose of this research the reference category will be medical male circumcision, allowing a comparison to traditionally circumcised males. The first analysis will be bivariate and inorder to avoid spuriousrelationship amultivariate analysis will be conducted including all independent variables.

Limitations

Data for this research was secondary and the researcher had no control over the data collection process therefore validity and reliability of data was dependent upon the data collectors.The data for this study is cross-sectional and because of this, the analysis is limited to measuring association and not causal effect.

Chapter4 Preliminary Results

Figure 4.1



The graph illustrate that 49.47% of males were traditionally circumcised, 52.59% were medically circumcised.

Table 4.1 Profile of respondents

Percentage of distribution of respondents by selected characteristics		
Characteristic	**Frequency**	**Percentage**
Race of respondent		
Black	10, 29437	77.61
Coloured	1,247,773	9.41
White	1,371,393	10.34
Indian	337,822	2.55
Other	12,259	0.09
Marital Status		
never married	9,657,258	72.81
Married	2,912,429	21.96
formerly married	693,797	5.23
Province		
Western Cape	1,577,145	11.89
Eastern Cape	1,566,251	11.81
Free State	742,308	5.6
Gauteng	3,219,068	24.27
KwaZulu-Natal	2,664,854	20.09

Limpopo	1,252,644	9.44
Mpumalanga	973,278	7.34
North West	966,071	7.28
Northern Cape	301,865	2.28
Home Language		
isiZulu	3,184,001	24.01
isiXhosa	1,756,857	13.25
isiNdebele	104,812	0.79
siSwati	308,037	2.32
English	1,600,248	12.07
Afrikaans	1,716,870	12.94
Sesotho	1,185,179	8.94
Sepedi	1,303,937	9.83
Setswana	1,250,996	9.43
Tshivenda	352,726	2.66
Xitsonga	499,821	3.77
Employment Status		
Not working	7,351,726	55.43
Working	5,911,758	44.57
Access to medical facility for medical male circumcision		
Yes	6,805,883	51.31
No	4,603,756	34.71
Don't know	1,853,845	13.98
Awareness of brothers for life campaign		
Yes	6,006,939	45.29
No	7,256,545	54.71

In terms of type of circumcision 52.51% were medically circumcised, and 47.49% were traditionally circumcised. The study population made up of males ages 16-55 years, and the median age was 29 years. Most of the males were circumcised at the age of 20 years about 7.90%, the median age of circumcision was 16 years. The study population made up of 77.61% Blacks, and the smallest population were Indians by 2.44%. In terms of marital status 72.81% were never married, 21.96% were married and 5.23% were the divorced and the widowed. Gauteng had the highest number of participants of 24.27%, followed by KwaZulu-Natal 20.09%, Northern Cape had the smallest population of 2.28%. The frequently spoken home language was IsiZulu by 24.01% of the population, followed by IsiXhosa by 13.25%; IsiNdebele was the least spoken home language by only 0.79% of the population. In terms of employment status 55.43% of males were not working, and 44.57% were working.

Table4.2 Pattern of type of circumcision method by selected Characteristic

Independent Variables	Type of circumcision method (Dependent variable)		
Current age	**Medical circumcision**	**Traditional circumcision**	**Uncircumcised men**
16-19	471,755	226,395	1,009,552
	13.79	6.79	18.24
20-24	639,432	588,581	1,064,640
	18.7	17.66	19.24
25-29	737,333	660,635	1,003,394
	21.56	19.82	18.13
30-34	535,703	557,198	576,105
	15.66	16.72	10.41
35-39	271,194	448,851	606,975
	7.93	13.47	10.97
40-44	311,827	265,465	544,895
	9.12	7.97	9.85
45-49	250,484	261,226	319,939
	7.32	7.84	5.78
50-55	202,571	324,386	408,674
	5.92	9.73	7.38
Race of respondent			
Black	2,643,767	3,187,823	3,809,852
	77.3	95.65	68.84
Coloured	351,685	67,264	746,771
	10.28	2.02	13.49
White	392,771	50,101	708,128
	11.48	1.5	12.8
Indian	29,251	21,135	266,403
	0.86	0.63	4.81
Other	2,825	6,414	3,020
	0.08	0.19	0.05
province			
Western Cape	275,232	636,160	592,554
	8.05	19.09	10.71
Eastern cape	303,460	580,102	495,825
	8.87	17.41	8.96
Free State	257,661	162,435	283,247
	7.53	4.87	5.12
Gauteng	945,605	782,462	1,150,345
	27.65	23.48	20.79
KwaZulu-Natal	525,351	221,878	1,861,784

	15.36	6.66	33.64
Limpopo	375,641	611,564	238,908
	10.98	18.35	4.32
Mpumalanga	424,808	164,201	340,347
	12.42	4.93	6.15
North West	254,677	154,217	366,470
	7.45	4.63	6.62
Northern Cape	57,864	19,718	204,694
	1.69	0.59	3.7
Home Language			
isiZulu	818,985	274,660	1,987,156
	23.94	8.24	35.91
isiXhosa	96,512	1,269,308	283,077
	2.82	38.09	5.12
isiNdebele	30,646	40,401	33,765
	0.9	1.21	0.61
siSwati	163,167	47,529	80,020
	4.77	1.43	1.45
English	476,358	109,711	782,802
	13.93	3.29	14.14
Afrikaans	413,984	81,918	1,057,340
	12.1	2.46	19.11
Sesotho	382,534	298,495	414,552
	11.18	8.96	7.49
Sepedi	400,540	605,902	230,641
	11.71	18.18	4.17
Setswana	397,423	213,489	496,103
	11.62	6.41	8.96
Tshivenda	90,379	168,458	64,672
	2.64	5.05	1.17
Xitsonga	149,771	222,866	104,046
	4.38	6.69	1.88
Place of resident			
Rural	521,723	692,420	1,181,459
	15.25	20.78	21.35
Urban	2,898,576	2,640,317	4,352,715
	84.75	79.22	78.65
Marital Status			
Never married	2,517,617	2,379,157	4,240,912
	73.61	71.39	76.63
Married	778,159	762,989	1,020,600
	22.75	22.89	18.44
Formerly married	124,523	190,591	272,662
	3.64	5.72	4.93
Level of Education			

Primary	142,957	416,089	638,769
	4.18	12.48	11.54
Secondary	2,409,081	2,452,890	4,174,204
	70.43	73.6	75.43
Tertiary	855,402	413,279	622,128
	25.01	12.4	11.24
No education	2,870	2,870	9,868
	0.08	0.09	0.18
Other	9,989	47,609	89,205
	0.29	1.43	1.61
Knowledge of condom use post circumcision			
Yes	2,441,984	1,608,600	2,421,393
	71.4	48.27	43.75
No	827,695	1,366,954	2,136,713
	24.2	41.02	38.61
Don't know	150,620	357,183	976,068
	4.4	10.72	17.64
Awareness of Brother's for life Campaign			
Yes	1,884,944	1,588,510	2,151,273
	55.11	47.66	38.87
No	1,535,355	1,744,227	3,382,901
	44.89	52.34	61.13
Knowledge of waiting period before having sex post-circumcision			
Should not wait	2,870	48,924	10,927
	0.08	1.47	0.2
1-5 weeks	510,828	799,298	1,044,143
	14.94	23.98	18.87
6 weeks	2,374,252	1,852,911	1,868,772
	69.42	55.6	33.77
Other	171,188	313,767	200,467
	5.01	9.41	3.62
Access to medical facility for medical male circumcision			
Do not know	361,161	317,837	2,409,865
	10.56	9.54	43.55
Yes	3,311,298	2,951,846	4,582,582
	96.81	88.57	82.81
No	96,765	322,324	539,280
	2.83	9.67	9.74
Don't know	12,236	58,567	412,312
	0.36%	1.76	7.45
Knowledge of benefits of traditional male circumcision			
No	621,040	844,104	2,092,491
	18.16%	25.33%	37.81%
Yes	2,799,259	2,488,633	3,441,683
	81.84%	74.67%	62.19%

	1,279,850	742,406	2,620,759
	37.42%	22.28%	47.36%
Knowledge of medical circumcision benefit			
No	621, 040	884, 104	2, 092 491
	18.16%	25.33%	37.81%
Yes	2799, 259	2, 488, 633	3, 441, 638
	81.84%	74.67%	62.19%

Traditional male circumcision was highest among the ages 25-29 by 19%, and it was less prevalent among those ages 16-19 years, medical male circumcision was also high among those ages 25-29 years by 21%, and less popular among those 50-55 years by 5%. Most of the Xhosa were traditionally circumcised 38%, and 23.9% of Zulus were medically circumcised. In term of Province Gauteng had the highest rate of medical male circumcision (27.45%) and traditional male circumcision (23.48%). Knowledge of condom use post circumcision was high among the medical circumcised by 71.2%. Those who were medically circumcised 69.2% knew that they had to wait for six weeks before having sex after circumcision, and only 55.6% of those traditionally circumcised knew that they had to wait for six weeks. 88.75% of those who did traditional male circumcision had access to a medical facility conducting medical male circumcision.

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