

Perceived Risk and Severity of the Uptake of Safe Male Circumcision Services among Young Men Aged 15-24 Years in Rhino Camp Refugees Settlement, Arua District- Uganda

Blate M. David

Cavendish University, Uganda

Juliet M. Bandaru

Cavendish University, Uganda

Khawa E. Namajja

Cavendish University, Uganda

David Kajoba

Cavendish University, Uganda

Shallon Atuhaire (✉ shallonatuhaireremwa@gmail.com)

Cavendish University, Uganda <https://orcid.org/0000-0001-5465-9773>

Research Article

Keywords: Circumcision, Male Circumcision, Refugees, Refugees Settlement Camps, Rhino Camp Refugees Settlement, Safe Male Circumcision, HIV/AIDS

Posted Date: March 28th, 2022

DOI: <https://doi.org/10.21203/rs.3.rs-449707/v2>

License:   This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Abstract

Background: Safe male circumcision is a proven cost-effective intervention in reducing the risk of sexual transmission of Human Immunodeficiency Virus /Acquired Immune Deficiency Syndrome among heterosexual individuals by 60%. This study aimed at exploring the perceived risk and severity to the uptake of safe male circumcision among young men aged 15-24 years in Rhino Camp Refugees Settlement, Arua District, Uganda.

Methods: This was a cross-sectional study among 378 respondents, which utilized both quantitative and qualitative approaches with a semi-structured and three focus group discussions conducted among young men aged 15-24 years. Univariate analysis was used to determine the uptake of safe male circumcision. Chi-square test and binary regression model were used to determine the odds ratio at 95% confidence levels of safe male circumcision uptake and other exposure variables. Results from the focus group discussions were analysed thematically.

Results: The prevalence of safe male circumcision uptake was 42.1%. The major factor associated with increased likelihood of safe male circumcision uptake was the perceived benefit of cervical cancer prevention in my partner (AOR=2.455, 95% CI= 1.278- 3.627). Factors associated with reduced likelihood of safe male circumcision uptake included: fear of perceived increased risk of meatitis (AOR=0.726, 95% CI=0.338- .959), fear that undergoing safe male circumcision is very painful and uncomfortable (AOR= 0.742, 95%, CI= 0.279- 1.973). Also, the perception that safe male circumcision is not affordable at most private health facilities (AOR=0.167, 95%, CI=0.058- 0.478).

Conclusions: Safe male circumcision uptake in Rhino Refugees Settlement is lower than Uganda's national target of 80%. This is attributed to the perceived risks such as risk of infection, pain, irritability, and costs involved. Awareness creation on myths and misconceptions is key to increasing uptake of safe male circumcision.

Plain Language Summary

Safe Male Circumcision is recommended as a Human Immunodeficiency Virus (HIV)/Acquired Immune Deficiency Syndrome (AIDS) prevention procedure by World Health Organisation (WHO) and The Joint United Nations Programme on HIV/AIDS in 2007 (WHO/UNAIDS 2010). This followed research findings of a study in Kenya, Uganda and South Africa in 2004 that indicated that circumcised heterosexual men were approximately 60% less likely to sexually acquire HIV compared to uncircumcised heterosexual men.

The uptake of safe male circumcision has been low over the decades due to perceived risks including adhesions, excessive skin removal, cysts, and penile amputation. Others perceive safe male circumcision to be associated with severe bleeding, infections, irritation of the glans and injury to the penis. These are myths and misconceptions that need to be addressed if the prevalence of HIV/AIDS is to be cabbed down.

Background

Safe Male Circumcision (SMC) is the surgical removal of the penile foreskin or tissue, which covers the head of the penis performed by a trained health professional such as a doctor or nurse under safe condition [1]. SMC was recommended as a Human Immunodeficiency Virus (HIV)/Acquired Immune Deficiency Syndrome (AIDS) prevention procedure by World Health Organisation (WHO) and The Joint United Nations Programme on HIV/AIDS in 2007 [2]. This followed research findings of a study in Kenya, Uganda and South Africa in 2004 that indicated that circumcised heterosexual men were approximately 60% less likely to sexually acquire HIV compared to uncircumcised heterosexual men [3]. The second Random Controlled Trials (RCT) in Uganda's Rakai District studied four thousand nine hundred and ninety-six men aged between 15 and 49. Here, circumcision managed to reduce risk of infection by approximately 51 percent [4]. Reasons for low-risk infections is attributed to the fact that HIV target cells in the prepuce, which tremendously reduced as a result of circumcision. The prepuce may suffer mild trauma during intercourse prompting infection. At the same time, the prepuce harbors organisms that such as *Escherichia coli*, and *Enterococcus avium* and provides a conducive environment for prolonged viral survival [3].

Globally, Male Circumcision (MC) was historically associated with religious and cultural practices. However, SMC has been increasingly adopted in many parts of the world. It is estimated that 38% of the world's males aged 15 years or older are circumcised of which about 62% are Muslims residing mainly in Asia, the Middle East and North Africa, 0.8% are Jewish and 13% are non-Muslim and non-Jewish men living in the USA [5].

In Africa, especially in Northern and Western regions, MC is almost universal. However, its' uptake in other parts varies considerably with low uptake reported in the African countries of Botswana, Namibia, Swaziland, Zambia and Zimbabwe [6]. According to WHO's report in 2018 [6], the prevalence of SMC is reported to be 21% in Malawi, 35% in South Africa, 48% in Lesotho, 20% in Mozambique and more than 80% in Angola and Madagascar. In East and Central Africa, the prevalence varies from almost 15% in Burundi and Rwanda to 70% in Tanzania and 93% in Ethiopia. In Uganda, SMC prevalence among men aged between 15 to 49 years was 27% in 2018, but with high levels of willingness to be circumcised among uncircumcised men. Those who expressed willingness at the time also seemed to be the ones with the largest need for protective measures [7].

A qualitative study in Iringa, Tanzania found that women had strong preferences for circumcised men because of the perception of low risk of infection of HIV from circumcised men, social norms favouring circumcised men, and perceived increased sexual desirability of circumcised men. The health benefits of male circumcision were generally overstated. Several respondents falsely believed that women were directly protected against HIV infection and that the risk of all STIs was profoundly reduced or eliminated in circumcised men [8].

A population-based survey was conducted among purposively selected respondents aged 15–49 to explore barriers and motivating factors to SMC for HIV prevention, and to assess utilization of existing

SMC communication channels in Zimbabwe. The survey reported that 68% and 53% of female and male respondents respectively had heard about SMC for HIV prevention. (Hatzold, et al., 2014). Public programs for SMC are available, but they are limited, which make the uptake sometimes little despite the level of awareness. Also, perceived severity such as bleeding and infection, irritation of the glans, injury to the penis and increased Meatitis made uptake of safe male circumcision services low [9].

Uganda's scenario of uptake of safe male circumcision is not far different from other countries in the region, up take is still low despite being free [10]. The country's target by 2015 was to circumcise 4.2 million adults, however, required an effective model to achieve [3]. A study done in Northern Uganda in 2018 indicated that, 42% of their study participants owned a misconception that Voluntary Male Medical Circumcision (VMMC) had an impact on their sexual performance. Similarly, 35% of the same study participants believed that VMMC. contributes to promiscuity [10].

Given the above-ground, the authors purposed to carry out a study on the perceived risk and severity of the uptake of safe male circumcision services among young men aged 15-24 years in Rhino Camp Refugees settlement, Arua district in Uganda. Rhino Camp Refugee Settlement is a [Refugee Camp in Arua District](#) in north-western [Uganda](#) and has seven zones, which includes Ofua, Omugo, Ocea, Odoibu, Siripi, Tika and Eden. The settlement has about 56,865 people of which 6,824 are young male aged 15-24 years [11]. The health services provided in Rhino Camp Refugee Settlement are VCT services, family planning, protection which encompasses prevention of sexual exploitation and abuse; maternal and child health services. The village health teams and home health promoters are the gateway to dissemination of key information on health services.

Therefore, the study answered the following questions; what perceived risks are associated with the uptake of safe male circumcision among young refugee men aged 15-24 years in Rhino Camp Refugees' Settlement? And, how do these young men aged 15-24 years perceive the severity of uptake of SMC services? The study was carried out from January 2020 to November 2020. It intended to provide scientific evidence that would aid in scaling up safe male circumcision campaign based through advocating for the involvement of community leaders during community sensitization meetings in the various communities on the health benefits of safe male circumcision.

Methods

Study design and settings

The study adopted a cross-sectional survey design employing both qualitative and quantitative data collection methods that helped determine perceived risk, and severity associated with the uptake of safe medical circumcision services among young men aged 15-24 years in Rhino Camp Refugee Settlement, in Arua District, Uganda.

A total of 378 participants took part in the study. These were sampled using probability and non-probability sampling procedures. Participants were assigned unique numbers used for sampling. First, a

systematic random sampling was used to establish the sampling interval by dividing the required number of participants present by the number of participants to be interviewed. The sampling interval was determined by dividing the population (N) and sample size (n). Sample size (n) where; study population is the total number of young male refugees in Rhino camp refugees' settlement which was 6,824, and the sample size calculated was 378. Therefore, sampling interval was equal to $6824/378$, which yielded 18.

A researcher-administered semi-structured questionnaire was the primary instrument used to collect quantitative data from the participants. Purposive sampling technique was used in selecting participants for the Focus Group Discussion (FGD). Three FDG sessions were conducted and were guided by open-ended questions designed in accordance with the specific objectives of the study. Willingness to undergo SMC services was a dependant variable with a two-scale option; yes or no, coded as "1" or "0" whereas the perceived risks, and perceived severity, were independent variables, measured using a 4-point Likert scale of responses of "strongly agree", "agree", "and disagree" and "strongly disagree" respectively.

The data in Microsoft Excel was then exported into Statistical Package of Social Sciences (SPSS) version 21 for analysis. Descriptive statistics were used to summarize data on respondents' characteristics and presented as; graphs, charts, and frequency distribution tables are appropriately used.

Numerical data were summarized into descriptive statistics of mean, median, and standard deviation and categorical data into frequencies and percentages. At bivariate level, to determine whether there are differences in participant perceived risk, and severity, with SMC uptake, the Chi-squared Fishers exact test was used for categorical variables at 0.05 level of statistical significance. At multivariate analysis, all statistically significant variables at bivariate level of analysis were subjected to binary logistic regression analysis and the results were reported as crude odds ratio with corresponding 95% confidence intervals and p-values. Second, a multi-nominal logistic regression analysis was considered for all variables at unadjusted analysis to establish those that were independently associated with the outcome.

Analysis of qualitative data followed a framework approach (Ritchie and Spencer 2002), which provided a systematic structure, allowing for a priority and emergent codes. The transcripts were read and reread for the researcher to familiarize themselves with the data. Open coding was used to avoid biases in the development of codes based on the researchers' prior knowledge, beliefs and perceptions about SMC. Descriptive codes were also used to identify basic expressions found in FGD transcripts and categorized into sub-themes and themes.

Results

Socio-demographic characteristics.

Table 1: Socio-demographic characteristics of the participants

Variable	Category	Frequency n=378	Percentage %
Age	15-16 years	102	27.0
	17-18 years	148	39.2
	19-20 years	61	16.1
	21-22 years	33	8.7
	23-24 years	34	9.0
Level of Education	Primary	184	48.7
	Secondary	182	48.1
	Tertiary	12	3.2
Years spent in this camp	<2 years	44	11.6
	2-5 years	273	72.2
	>5 years	61	16.1
Marital status	Single or never married	349	92.3
	Married	29	7.7
Religious affiliation	Catholic	77	20.4
	Pentecostal/Anglican	280	74.1
	Moslem	21	5.6

In reference to Table 1, majority (39.2%) of the participants were in the age group of 17-18 years, while the least were in the age group of 21- 22. Most of the respondents (48.7%) had primary education while the least (3.2%) had attained tertiary level of education. On the duration spent in the Rhino camp Refugee Settlement, majority, 72.2% of the participants had spent 2-5 years in the camp, majority (92.3%) of the participants were single or never married. Almost 3 out of 4 (74.1%) of the participants were affiliated to Pentecostal or Anglican by religion.

Uptake of safe male circumcision

Figure 1 shows that 159/378 (42.1%) of the participants had undergone safe male circumcision while the majority 219/378 (57.9%) had not undergone safe male circumcision.

Perceived risks and uptake of safe male circumcision services

Table 2: perceived risks associated with uptake of safe male circumcision services

Variable	Category	Frequency n=378	Percentage %
I fear that SMC may cause my penis to be amputated accidentally.	Strongly disagree	66	17.5
	Disagree	110	29.1
	Neutral	26	6.9
	Agree	130	34.4
	Strongly agree	46	12.2
I fear excessive removal of foreskin	Strongly disagree	56	14.8
	Disagree	92	24.3
	Neutral	22	5.8
	Agree	133	35.2
	Strongly agree	75	19.8
There is a possibility that I may develop adhesions when circumcised.	Strongly disagree	71	18.8
	Disagree	115	30.4
	Neutral	53	14.0
	Agree	100	26.5
	Strongly agree	39	10.3
I worry a lot about developing cysts after SMC.	Strongly disagree	71	18.8
	Disagree	108	28.6
	Neutral	39	10.3
	Agree	117	31.0
	Strongly agree	43	11.4

Majority (34.4%) of the participants agreed that they feared that SMC might cause their penis to be amputated, (35.2%) of the participants agreed that they feared excessive removal of foreskin. Three in every ten (30.4%) of the participants disagreed that there is possibility that they may develop adhesions when circumcised and 117/378 (31.0%) agreed that they worried a lot about developing cysts after SMC as indicated in Table 2.

Table 3: Perceived risk factors associated with uptake of safe male circumcision services at bivariate analysis.

Variable	Category	SMC uptake		COR (95% CI)	p-value
		Yes (%)	No (%)		
I fear SMC that my penis will be amputated.	Strongly disagree	18(11.3%)	48(21.9%)	1.0	.003*
	Disagree	55(34.6%)	55(25.1%)	.375(.194-.724)	
	Neutral	6(3.8%)	20(9.1%)	1.250(.433-3.612)	
	Agree	58(36.5%)	72(32.9%)	.466(.245-.885)	
	Strongly agree	22(13.8%)	24(11.0%)	.409(.185-.904)	
I fear excessive removal of foreskin	Strongly disagree	18(11.3%)	38(17.4%)	1.0	.136
	Disagree	41(25.8%)	51(23.3%)	.589(.294-1.181)	
	Neutral	4(2.5%)	18(8.2%)	2.132(.629-7.220)	
	Agree	58(36.5%)	75(34.2%)	.613(.317-1.182)	
	Strongly agree	38(23.9%)	37(16.9%)	.461(.224-.948)	
There is a possibility that I may develop adhesions when circumcised.	Strongly disagree	26(16.4%)	45(20.5%)	1.0	.249
	Disagree	52(32.7%)	63(28.8%)	.700(.382-1.284)	
	Neutral	18(11.3%)	35(16.0%)	1.123(.533-2.368)	
	Agree	47(29.6%)	53(24.2%)	.652(.350-1.214)	
	Strongly agree	16(10.1%)	23(10.5%)	.831(.373-1.849)	
I worry a lot about developing cysts after SMC.	Strongly disagree	26(16.4%)	45(20.5%)	1.0	.359
	Disagree	47(29.6%)	61(27.9%)	.750(.406-1.387)	
	Neutral	19(11.9%)	20(9.1%)	.608(.275-1.343)	
	Agree	50(31.4%)	67(30.6%)	.774(.422-1.419)	
	Strongly agree	17(10.7%)	26(11.9%)	.884(.405-1.926)	

Participants who disagreed to the fear of SMC causing amputation of the penis were 62.5% likely to have SMC (Crude OR = 0.375, 95%, CI 0.194 - 0.724) and this was statistically significant with a p-value of 0.003. Those who strongly feared (strongly agreed) that it would result in amputation of the penis were 43.4% likely to have SMC (Crude OR = 0.566, 95% CI 0.245 - 0.885). Concerning fear of excessive removal of foreskin, those who strongly disagreed were 41.1% likely to have SMC (Crude OR = 0.589, 95% CI 0.294-1.181). However, the participants who agreed to fear of excessive removal of foreskin were 38.7% likely to have SMC (Crude OR = 0.613, 95% CI 0.317-1.182). Participants who strongly believed that there was a possibility of developing adhesions when circumcised were 16.9% likely to have SMC (Crude OR = 0.831, 95% CI 0.373-1.849). Participants who worried a lot (strongly agreed) about developing cysts after

SMC were 11.6% likely to have SMC (Crude OR = 0.884, 95% CI 0.405-1.926). The rest of the variables were not statistically significant as indicated in Table 3.

Perceived severity and uptake of safe male circumcision services

Table 4: Perceived severity and its influence on the utilization of safe male circumcision services at Univariate Analysis

Variable	Category	Frequency n=378	Percentage %
I fear bleeding and infection after SMC.	Strongly disagree	93	24.6
	Disagree	110	29.1
	Neutral	20	5.3
	Agree	89	23.5
	Strongly agree	66	17.5
SMC may result to irritation of the glands.	Strongly disagree	68	18.0
	Disagree	131	34.7
	Neutral	41	10.8
	Agree	88	23.3
	Strongly agree	50	13.2
I fear injury to the penis during the procedure.	Strongly disagree	76	20.1
	Disagree	143	37.8
	Neutral	32	8.5
	Agree	69	18.3
	Strongly agree	58	15.3
I fear increased risk of meatitis (inflammation of the glans penis)	Strongly disagree	90	23.8
	Disagree	112	29.6
	Neutral	33	8.7
	Agree	99	26.2
	Strongly agree	44	11.6

Majority 143/378 (37.8%) disagreed that they feared injury to the penis during the procedure while 131/378 (34.7%) disagreed that SMC may result into irritation of the penis. A good number 112/378

(29.6%) disagreed that they feared the risk of meatitis while 110/378 (29.1%) disagreed that they feared bleeding and infection after SMC as indicated in Table 4.

Table 5: Perceived severity factors associated with uptake of safe male circumcision services at bivariate analysis.

Variable	Category	SMC uptake		COR (95% CI)	p-value
		Yes (%)	Yes (%)		
I fear bleeding and infection after SMC.	Strongly disagree	33(20.8%)	60(27.4%)	1.0	.091 .188 .058 .615
	Disagree	52(32.7%)	58(26.5%)	.613(.348-1.081)	
	Neutral	4(2.5%)	16(7.3%)	2.200(.679-7.125)	
	Agree	44(27.7%)	45(20.5%)	.563(.310-1.019)	
	Strongly agree	26(16.4%)	40(18.3%)	.846(.411-1.623)	
SMC may result in irritation of the glans.	Strongly disagree	30(18.9%)	38(17.4%)	1.0	.983 .305 .585 .990
	Disagree	58(36.5%)	73(33.3%)	.9940(.551-1.792)	
	Neutral	14(8.8%)	27(12.3%)	1.523(.681-3.401)	
	Agree	35(22.0%)	53(24.2%)	1.195(.629-2.270)	
	Strongly agree	22(13.8%)	28(12.8%)	1.005(.482-2.096)	
I fear injury to the penis during the procedure.	Strongly disagree	30(18.9%)	46(21.0%)	1.0	.798 .911 .688 .072
	Disagree	59(37.1%)	84(38.4%)	.929(.526-1.638)	
	Neutral	13(8.2%)	19(8.7%)	.953(.411-2.213)	
	Agree	25(15.7%)	44(20.1%)	1.148.586-2.249	
	Strongly agree	32(20.1%)	26(11.9%)	.530(.265-1.059)	
I fear increased risk of meatitis (inflammation of the glans penis)	Strongly disagree	28(17.6%)	62(28.3%)	1.0	.020* .142 .082 .106
	Disagree	53(33.3%)	59(26.9%)	.503(.281-.898)	
	Neutral	15(9.4%)	189(8.2%)	.542(.239-1.228)	
	Agree	43(27.0%)	56(25.6%)	.588(.324-1.069)	
	Strongly agree	20(12.6%)	24(11.0%)	.542(.258-1.139)	

As far as perception of fear of bleeding and infection after SMC was concerned, 38.7% of the participants were likely to have SMC (Crude OR = 0.613, 95% CI 0.348-1.081). Participants who strongly perceived that SMC would result in irritation of the glans were 0.6% likely to have SMC (Crude OR =0 .9940, 95% CI 0.551-1.792). Increased fear of Meatitis (Crude OR = 0.503, 95% CI .281-.898) was significantly associated with uptake of safe male circumcision at bivariate analysis as indicated in Table 5.

Table 6: Perceived risk, severity, and uptake of safe male circumcision services among young men aged 15-24 years at multivariate analysis

Variable	Category	Crude PR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
I fear increased risk of meatitis (inflammation of the glans penis)	Strongly disagree	1.0		1.0	
	Disagree	.503(.281-.898)	.020*	.726(.338- .959)	.012*
	Neutral	.542(.239-1.228)	.142	.636(.216- 1.872)	.412
	Agree	1.228)	.082	.741(.340- 1.615)	.450
	Strongly agree	.588(.324-1.069)	.106	.932(.364- 2.388)	.883
SMC can prevent cervical cancer in my partner	Strongly disagree	1.0		1.0	
	Disagree	.815(.486-1.366)	.437	1.547(.779- 3.073)	.213
	Neutral	.782(.409-1.497)	.458	1.729(.742- 4.028)	.204
	Agree	1.497)	.115	1.346(.524- 3.458)	.537
	Strongly agree	.559(.271-1.152)	.012*	2.455(1.278- 3.627)	.004*
To me undergoing SMC is very painful and uncomfortable	Strongly disagree	1.0		1.0	
	Disagree	.458(.261-.802)	.006*	.976(.431- 2.213)	.954
	Neutral	.686(.222-2.123)	.514	1.169(.289- 4.721)	.827
	Agree	.839(.444-1.586)	.589	2.649(1.100- 6.379)	.550
	Strongly agree	.458(.221-.946)	.035*	.742(.279- 1.973)	.030*
I cannot afford cost of doing SMC at most private health facilities	Strongly disagree	1.0		1.0	
	Disagree	.394(.216-.722)	.003*	.538(.240- 1.203)	.131
	Neutral	.292(.120-.706)	.006*	.248(.080- .765)	.015*
	Agree	.393(.201-.768)	.006*	.385(.156- .948)	.038*
	Strongly agree	.223(.104-.478)	.000*	.167(.058- .478)	.001*

Fear of risk of meatitis, SMC preventing cervical cancer in partners, undergoing SMC being painful and uncomfortable, being unable to afford the cost of doing SMC at most private health facilities were found to be significantly associated with uptake of SMC services at multivariate analysis as indicated in Table 6.

Presentation of the qualitative data from the FGDs

Facilitating factors for SMC uptake: Participants in all FGDs cited increased protection from HIV and other STIs as an advantage of SMC. Similarly, it was consistently reported that circumcised men are cleaner and more hygienic than those who are uncircumcised. The concept of cleanliness manifests itself in the FGDs in two disparate ways:

SMC improves general hygiene of the penis, including the reduction of foul odors. FDG 1

SMC reduces the transmission of STIs via improved cleanliness due to the removal of the foreskin. Most men can spend the entire day without showering. Such a man harbors a lot of dirt under the prepuce, unlike a circumcised man. Therefore, that is the source of syphilis, HIV and other STIs . . . it is easy to contract them, especially if the woman is not ready for sex. FDG 2

In FGDs, circumcision was described as protective against HIV acquisition because it reduced “bruising.” However, there were inconsistencies with the description of how bruising affected HIV transmission. When bruising was mentioned in the FGDs, participants reported that circumcision reduced bruising of the penis and subsequently, risk of HIV transmission.

“A circumcised person cannot easily get HIV. He penetrates into the vagina smoothly, but a person who is not circumcised can easily get infected. Since the foreskin keeps on moving up and down, he gets bruises and the blood mixes up, thus being infected with HIV if the woman is infected”. A participant in FDG 3.

However, when discussed in the FGDs, SMC was described as protective against HIV transmission through reduced bruising of the vagina:

The foreskin keeps a lot of dirt. After removing the foreskin, the woman does not get bruises so much. The bruises are caused by the small size of the woman’s entry point because the skin rubs so much on it if one is not circumcised. FDG 1

In several of the FGDs, participants connected SMC with cancer prevention. The mechanisms through which circumcision reduces the risk of cancer were described in varying manners.

A male participant explained the relationship between circumcision, pregnancy, and cancer:

“We were taught that the foreskin keeps germs, so if you have sex with a pregnant woman before circumcision, it may cause cancer. One is clean after circumcision to the partner, which helps her deliver with no problem”. Participant in FDG 2

The perceived advantages and disadvantages of Safe Male Circumcision

General fear of pain regarding circumcision was the concern mentioned most often. Young men expressed concern over pain specifically during the SMC procedure but they also feared pain during recovery due to potentially poor suturing or a surgical mishap resulting in a deformity. A few teenagers thought that pain could result from a lack of follow-up wound assessment by SMC health providers. Concern over pain during morning erections was another common concern. Some men and women feared that pain during recovery would cause a man to miss work and lose income.

“We are afraid because those who had gone for the circumcision were saying that it was very painful when the foreskin is cut, during suturing, and then after that you were unable to perform your normal duties as usual. Being a person with dependents, it was not appealing to me.” Said one of the male respondents. FDG 1

However, concern about pain was not universal; those who were not circumcised at the time of their interviews said that they were not concerned about pain.

“No, no, right now I am 23, and there is no pain I will feel when I become circumcised because I have endured painful things so there is none I will feel when I become circumcised”. A participant in FDG 3

Circumcised participants were asked about pain during the post-circumcision recovery period. All of the circumcised men reported that they managed their pain well during recovery by following the post-circumcision instructions given to them by their SMC providers primarily, taking prescribed painkillers and urinating when waking with a morning erection. They said their circumcision experiences were not as painful as they feared prior to the procedure.

“The provider who performed the circumcision gave me some pain killers, and I used them as prescribed to me. The drugs really helped me such that the pain was bearable...I did not have too much pain.” One of the respondents in FDG 1 aged 18 years.

Discussion

Perceived risks associated with the uptake of safe male circumcision services among young refugee men aged 15-24 years.

This study found out that SMC uptake in respondents who agreed that their health is at risk due to infection, pain and discomfort ($p < 0.05$). The possible explanation for this could be the low knowledge levels about the protective benefits of SMC among respondents who disagreed. These results are similar to Bailey [12] who noted that having knowledge that SMC is a means of HIV prevention was linked with increased uptake of the service. It is further argued that based on the available information on epidemiology and clinical information, SMC will have a significant contribution to HIV/AIDS prevention

and spread [12]. On the other hand, in a study conducted in Botswana [13], findings from the study indicate that being circumcised and the willingness and urge of people to be circumcised was linked to the likelihood of a person having more than two sexual partners. It is also argued that it was also linked to a person having sex with multiple sexual partners and whereas this was a case linked to Botswana, this is the same scenario that applies to Uganda. This therefore, answers the misconceptions regarding sexual drive or performance reducing as a result of SMC. The indications from the study conducted as well as the arguments presents it as an item that has no effect on the sexual drive or performance of a person.

Perceived severity associated with the uptake of safe male circumcision services among young refugee men aged 15-24 years.

In this study, respondents agreed that being circumcised reduces their chances of getting the HIV infection ($p < 0.05$). This result agrees with previous finding from earlier studies by Hatzold [9] who reported that a higher perception of HIV/STI risks among men aged 15-49 years was associated with uptake of SMC and this is probably because SMC has been found to reduce chances of contracting HIV infection by 60%. This means stakeholders should provide clear messaging on SMC and bring this service closer to young men aged 15-24 years in Refugees Settlements. The findings suggest that when men perceive the risk of HIV and the protective effect SMC provides, they are more likely to take up circumcision.

Furthermore, this study found out no relationship between perceived fear of serious side effects upon undergoing SMC and its uptake. This is probably because of the few reported cases of adverse events that occur. This finding is inconsistent with a study by Bailey in Sub-Saharan Africa in 2007 [12] who noted that respondents expressed concern of over bleeding in medical, traditional or religious circumcisions. Another study by CDC [14] also identified the fear of negative outcomes (pain, death, damage to penis, wound not healing well) as a major SMC uptake barrier. However, this same study indicates that with SMC, the surgical risks associated are extremely low and the benefits gained far exceed the risks. In addition to that, the researchers argue that SMC has been proven to have no long-term adverse effects especially to the infants on physiological or sexual outcomes.[14]

This study found that uptake of SMC among the participants was affected by the perceived fear of receiving HIV test results as a requirement among those who had SMC. This is probably because many men would not wish to know their HIV status. This is in line with George [15] who identified barriers to SMC which included fear of HIV testing that precedes circumcision and Skolnik [16] who found that one of the key perceived barriers to SMC was compulsory HIV testing (fear of HIV testing and knowing one's sero status).

Limitations

There is currently insufficient evidence of individual or public health benefit to recommend male circumcision for HIV-positive men and since persons with severe immunodeficiency may have increased complication rates following surgery, male circumcision in HIV-infected men should only be recommended when it is medically indicated.

Conclusion

Safe Male Circumcision uptake in Rhino Refugees Settlement is lower than Uganda's national target of 80%. This is attributed to the perceived risks such as risk of infection, pain, irritability, and costs involved. To enhance SMC uptake among young men aged 15-24 years in Refugees Settlement, the current SMC programs should unpack the benefits to this subpopulation and redesign specific cues to action to increase uptake of SMC. Healthcare providers should portray simpler and positive messages to improve perceptions about the benefits of SMC.

Abbreviations

AIDS: Acquired Immune Deficiency Syndrome

FDG: Focus Group Discussion

HIV: Human Immuno-deficiency Virus

RCT: Randomised Clinical Trail

SMC: Safe Male Circumcision

STIs: Sexually Transmitted Infections

WHO: World Health Organisation

Declarations

Acknowledgement

Authors would like to acknowledge the moral and academic support by the departmental members especially during oral defence of this study.

Funding

This study was not funded.

Availability of data and materials

Data is available and will be provided on request by the Journal publisher.

Authors' contribution

This study was conducted by BMD under the supervision of JMB, and KEN. The manuscript was written by DK and SA.

Ethical Approval and Consent to participate

Participants gave both verbal and written consent to participate in the study.

Consent to publish

All authors have given their consent to publish this paper

Competing Interests

Authors have no competing interests to disclose

References

- [1] G. of Uganda Ministry of Health, "Government of Uganda Ministry of Health SAFE MALE CIRCUMCISION POLICY," 2007.
- [2] UNAIDS, "Joint Strategic Action Framework to Accelerate the Scale-Up of Voluntary Medical Male Circumcision for HIV Prevention in Eastern and Southern Africa," 2016.
- [3] M. Galukande *et al.*, "Mass safe male circumcision: early lessons from a Ugandan urban site - a case study," vol. 8688, pp. 1–13, 2012.
- [4] T. B. Hallett *et al.*, "Will circumcision provide even more protection from HIV to women and men? New estimates of the population impact of circumcision interventions," *Sex. Transm. Infect.*, vol. 87, no. 2, pp. 88–93, 2011, doi: 10.1136/sti.2010.043372.
- [5] B. J. Morris and C. A. Hankins, "Effect of male circumcision on risk of sexually transmitted infections and cervical cancer in women," *Lancet Glob. Heal.*, vol. 5, no. 11, pp. e1054–e1055, 2017, doi: 10.1016/S2214-109X(17)30386-8.
- [6] WHO Progress brief, "Voluntary medical male circumcision for HIV prevention; Men making a difference for HIV prevention," pp. 2017–2018, 2018.
- [7] Ministry of Health Kampala Uganda., "Uganda AIDS Indicator Survey (AIS) 2011," pp. 1–252, 2011.
- [8] S. P. S. Kibira, M. Daniel, L. M. Atuyambe, F. E. Makumbi, and I. F. Sandøy, "Exploring drivers for safe male circumcision: Experiences with health education and understanding of partial HIV protection among newly circumcised men in Wakiso, Uganda," *PLoS One*, vol. 12, no. 3, pp. 1–16, 2017, doi: 10.1371/journal.pone.0175228.

- [9] K. Hatzold *et al.*, “Barriers and Motivators to Voluntary Medical Male Circumcision Uptake among Different Age Groups of Men in Zimbabwe: Results from a Mixed Methods Study,” vol. 9, no. 5, pp. 1–7, 2015, doi: 10.1371/journal.pone.0085051.
- [10] B. M. Nanteza, D. Serwadda, E. N. Kankaka, G. B. Mongo, R. Gray, and F. E. Makumbi, “Knowledge on voluntary medical male circumcision in a low uptake setting in northern Uganda,” pp. 1–7, 2018.
- [11] UNHCR, “Rhino Camp Refugee Settlement in Ayua District Draft Report,” p. 1, 2018.
- [12] N. Westercamp and R. C. Bailey, “Acceptability of male circumcision for prevention of HIV/AIDS in sub-Saharan Africa: A review,” *AIDS Behav.*, vol. 11, no. 3, pp. 341–355, 2007, doi: 10.1007/s10461-006-9169-4.
- [13] M. Keetile and S. D. Rakgoasi, “Male circumcision; willingness to undergo safe male circumcision and HIV risk behaviors among men in Botswana,” *Etude la Popul. Africaine*, vol. 28, no. 3, pp. 1345–1361, 2014, doi: 10.11564/0-0-630.
- [14] B. J. Morris, J. N. Krieger, and J. D. Klausner, “CDC’s Male Circumcision Recommendations Represent a Key Public Health Measure,” *Glob. Heal. Sci. Pract.*, vol. 5, no. 1, pp. 15–27, 2017, doi: 10.9745/GHSP-D-16-00390.
- [15] G. George *et al.*, “Barriers and facilitators to the uptake of voluntary medical male circumcision (VMMC) among adolescent boys in KwaZulu-Natal, South Africa,” *African J. AIDS Res.*, vol. 13, no. 2, pp. 179–187, 2014, doi: 10.2989/16085906.2014.943253.
- [16] L. Skolnik, S. Tsui, T. A. Ashengo, V. Kikaya, and M. Lukobo-Durrell, “A cross-sectional study describing motivations and barriers to voluntary medical male circumcision in Lesotho,” *BMC Public Health*, vol. 14, no. 1, pp. 1–10, 2014, doi: 10.1186/1471-2458-14-1119.

Figures

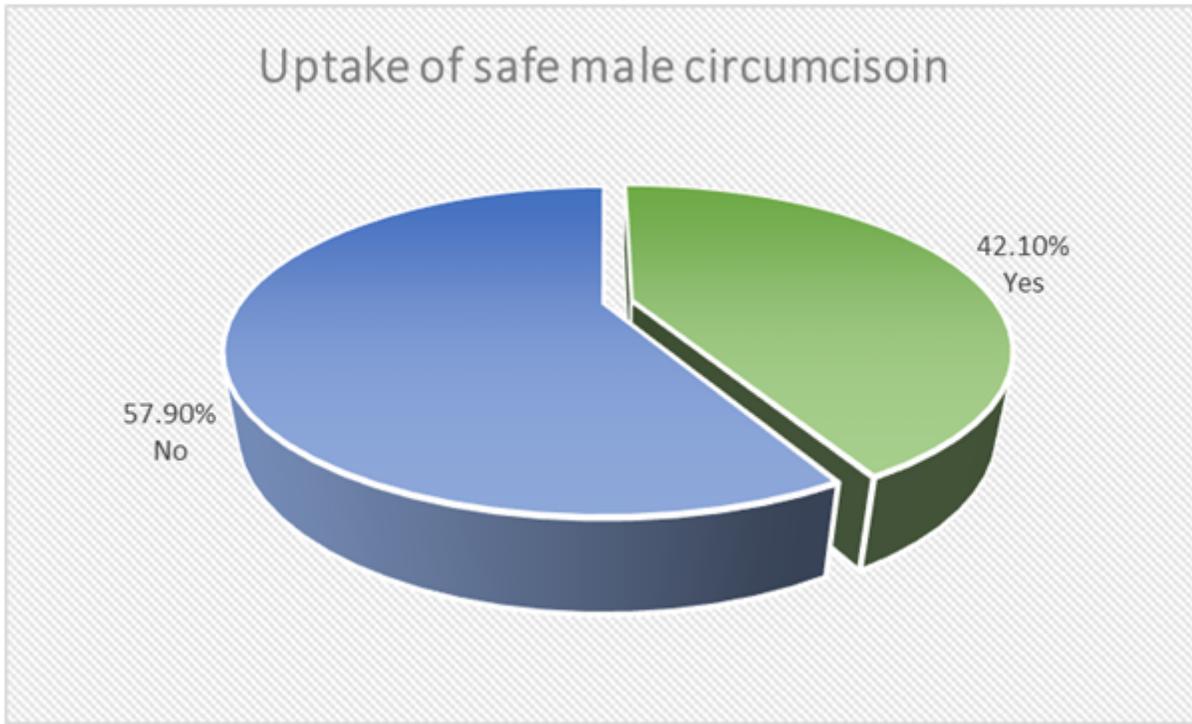


Figure 1

Showing the proportion of the young refugees who have undergone SMC (n=378)