

Sociodemographic factors affecting the uptake of voluntary safe medical male circumcision among adults aged 15-49 years attending the OPD at Mubende Regional Referral Hospital. A cross-sectional study.

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ABSTRACT

Background:

The study aimed to assess the sociodemographic factors affecting the uptake of voluntary safe medical male circumcision among adults aged 15-49 years attending the OPD at Mubende Regional Referral Hospital.

Methodology:

A descriptive cross-sectional quantitative study was conducted among adult males aged 15-49 years at Mubende Regional Referral Hospital OPD. Using a sample of 107, participants were selected via simple random sampling with a lottery method. Data were collected with structured, closed-ended questionnaires, translated into Luganda when necessary, and piloted at Mityana General Hospital. Data were entered into Excel and analyzed using SPSS v24, with results summarized as frequencies and percentages. Ethical approval, informed consent, confidentiality, and voluntary participation were ensured throughout the study.

Results:

The sociodemographic characteristics of the 107 respondents revealed that the majority, 76 (71%), were aged 36-49 years, while 31 (29%) were aged 15-35 years. Most were married (62, 58%) and had completed primary education or below (84, 78.5%), with only a small proportion attaining secondary or tertiary education. Almost all respondents were Christian (105, 98.1%), with very few adhering to traditional beliefs (2, 1.9%) or Islam (2, 1.9%). Employment status showed that over half were unemployed (57, 53.3%), 34 (31.8%) were self-employed, and only 16 (15%) were decently employed. Household income was low for most respondents (69, 64.5%), while only 17 (15.9%) earned high income. Additionally, 55 (52%) reported that their cultural beliefs did not support VMMC.

Conclusion:

Lower education levels, older age, marriage status, cultural non-support, and low income were key sociodemographic barriers limiting VMMC uptake.

Recommendation:

VMMC programs should engage cultural and religious leaders, tailor messages to older men, and provide financial or transport support to reduce cultural and economic barriers to uptake.

Keywords: male circumcision, sociodemographic factors, marital status, religion, cultural beliefs, household income, employment status.

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Background of the study

Sociodemographic characteristics significantly influence the uptake of voluntary safe medical male circumcision (VMMC). Evidence shows that education improves understanding and acceptability of VMMC. For instance, men with higher education are generally more aware of VMMC benefits and procedures, while those with limited education often demonstrate gaps in knowledge and uptake (Mwandi et al., 2022).

Religion also plays a key role in circumcision acceptance. The influence of religious beliefs on circumcision uptake shapes willingness to undergo the procedure (Pew Research

Center, 2023). Similarly, cultural contexts in Uganda affect men's decisions regarding VMMC (Kripke et al., 2023).

Age is another determinant. Younger men and adolescents are more likely to accept circumcision due to perceived health benefits and peer influence, whereas older adults are less inclined because of concerns about recovery and procedural risks (Wawer & Gray, 2021).

Ethnic and cultural traditions also shape acceptance. Men from communities with a history of circumcision are more willing to undergo the procedure, while men from non-circumcising ethnic groups often require additional

education or outreach to accept VMMC (Toroitich-Ruto et al., 2022).

Urban-rural residence impacts uptake as well. Men in urban settings are more likely to access VMMC services than those in rural areas, partly due to better facility availability and follow-up care (Ncube et al., 2022). Economic status also influences participation; men with higher income are more likely to proceed with VMMC because indirect costs, such as transport or lost wages, are less restrictive (Mwandi et al., 2022).

Finally, marital status and sexual behavior affect willingness to accept VMMC. Single, sexually active men are generally more open to circumcision than married men, as partner influence and household responsibilities affect decision-making (Kripke et al., 2023).

The study aimed to assess the sociodemographic factors affecting the uptake of voluntary safe medical male circumcision among adults aged 15–49 years attending OPD at Mubende Regional Referral Hospital.

METHODOLOGY

Study Design

The study used a descriptive cross-sectional design with a quantitative approach to data collection. This design was chosen because it allowed for the quantification of findings at a single point in time without the need for follow-up.

Study Area

The study was conducted at Mubende Regional Referral Hospital (MRRH), located in the central business district of Mubende Town, along Old Kampala Road, in Uganda's Central Region. It serves as the main referral facility for Mubende District and surrounding areas. The hospital is geographically positioned at approximately 0°34'03.0" N latitude and 31°23'35.0" E longitude, with an elevation of about 1,299 meters (4,262 feet) above sea level, and lies roughly 150 km west of Mulago National Referral Hospital in Kampala. The hospital has an estimated catchment population of over 610,000 people, with a capacity of 175 beds, accommodating general inpatient and outpatient services offering general medicine and surgery, obstetrics and gynecology, pediatrics, radiology, intensive care and operating theatre services, dental care, orthopedics, laboratory services, a blood bank, and accident and emergency care, HIV/AIDS care, voluntary medical male circumcision, and other public-health programs in collaboration with district health teams.

The district of Mubende is neighbored to the East by Kassanda District, North by Kiboga and Kyankwanzi Districts, South by Sembabule and Gomba Districts, and West by Kyegega and Kakumiro Districts.

Study Population

The study population consisted mainly of adult males aged between 15-49 years who were seeking treatment

services at the OPD clinic of Mubende Regional Referral Hospital. This age group was selected because they are at constant risk of exposure to STIs due to unsafe sexual practices.

Sample Size Determination

The sample size was determined using Kish Leslie formula for sample size determination, which is:

$$N = \frac{Z^2 PQ}{D^2}$$

N= Sample size

D= Sampling error (5%) or 0.05

P=the proportion of men who underwent SMMC at Mubende Regional Referral Hospital (7.5%) or 0.075 (Mubende Regional Referral Hospital, 2023).

Q= 1-p (1-0.075) = 0.925

Z = standard normal deviation; the value set at the 95% confidence interval limit corresponds to a level of statistical significance (1.96)

$\frac{(1.96) (1.96) \times 0.075 \times 0.925}{(0.05) (0.05)}$

= 106.6 respondents

Therefore, a total of 107 respondents were used in this study.

Sampling Technique

This study employed a simple random sampling technique since it aimed to give every willing participant an equal chance of being picked to participate in the study.

Sampling Procedure

After fulfilling all ethical requirements, a simple random sampling method, which involved selecting respondents from the study population by chance, was used by applying a lottery technique where two small pieces of paper were cut and written YES and NO on them, then properly mixed, as the prospective respondents were asked to choose from the box. The prospective respondents who picked YES were considered, while those who picked No were let go.

Data Collection Method

The study used a survey method applying self-administration of questionnaire approach to collect quantitative data. The survey method enabled the collection of much data from a large group of respondents in the shortest time possible.

Data Collection Tool

A standardized close-ended questionnaire was used to collect quantitative data from the respondents. The questions were phrased in English as extracted from the reviewed literature in the study and translated into Luganda for those who did not comprehend English.

Data Collection Procedure

After obtaining informed consent, the respondent was given a questionnaire that contained closed-ended questions phrased based on the objectives of the study

and as extracted from the literature reviewed in the study. Data were collected by asking the respondents to rank the given factors.

Study Variables

These included dependent and independent variables.

Dependent Variable

Uptake of voluntary medical male circumcision by adults aged 15-49 years. This was measured based on the knowledge and willingness to be vasectomized.

Independent Variables

These included the knowledge, sociodemographic, and health facility factors affecting uptake of voluntary medical male circumcision by adults aged 15-49 years, which were measured using respective attributes as listed in the questionnaire.

Quality Control

The study was piloted at Mityana General Hospital, which closely resembles the setting of Mubende Regional Referral Hospital. Consequently, further adjustments were made to enhance representativeness. This site was chosen because it provides the same services as the study area.

Research assistants were recruited and trained to administer pre-tested questionnaires. The skills of these research assistants were helpful in probing for further response, translating the questions in the research tools into the local language for the respondents who were not well versed in the English language.

Questionnaires were pre-tested on 10 randomly picked men at the outpatient clinic of Mubende Regional Referral Hospital, as this helped to check for the validity and accuracy of the research tools, after which adjustments were made before being administered to the target study participants.

Data collection was done over a period of two months, and

each respondent was given about thirty (30) minutes, as this allowed ample time for data collection as well as giving respondents sufficient time to complete the questions in the research tool.

All the males aged 15-49 years who were seeking OPD services at Mubende Regional Referral Hospital, who gave their consent and were able to talk, were considered in this study, whereas the study did not consider men who were too sick to talk or write, those who did not consent to the study, and those who needed payment so as to take part in the study.

All standard operating procedures that ensured no harm to the respondents, either physically, mentally, or emotionally, were adhered to. In this case, face masking, hand sanitizing, hand washing with soap and water, total confidentiality, privacy, and seeking consent were always ensured before involving a respondent in the study.

Data Analysis and Presentation

Quantitative data were summarized and entered into a dataset using an Excel spreadsheet. Afterward, it was exported to SPSS v24 for analysis, where frequencies and percentages were generated and used to rank the responses. Afterward, it was presented in the form of figures and tables.

Ethical considerations

Ethical approval to conduct the study was sought from the Mildmay Institutional Research Review Board after analyzing all ethical issues. Informed consent was obtained from each respondent, and the respondent retained the right to withdraw from participation or refuse to participate in the study at any point if he felt uncomfortable continuing without penalty. The identities of the respondents were not revealed, as this helped to keep the information they provided confidential.

RESULTS

Socio-demographic characteristics of the respondents

Table 1 shows the socio-demographic characteristics of the respondents (n=107)

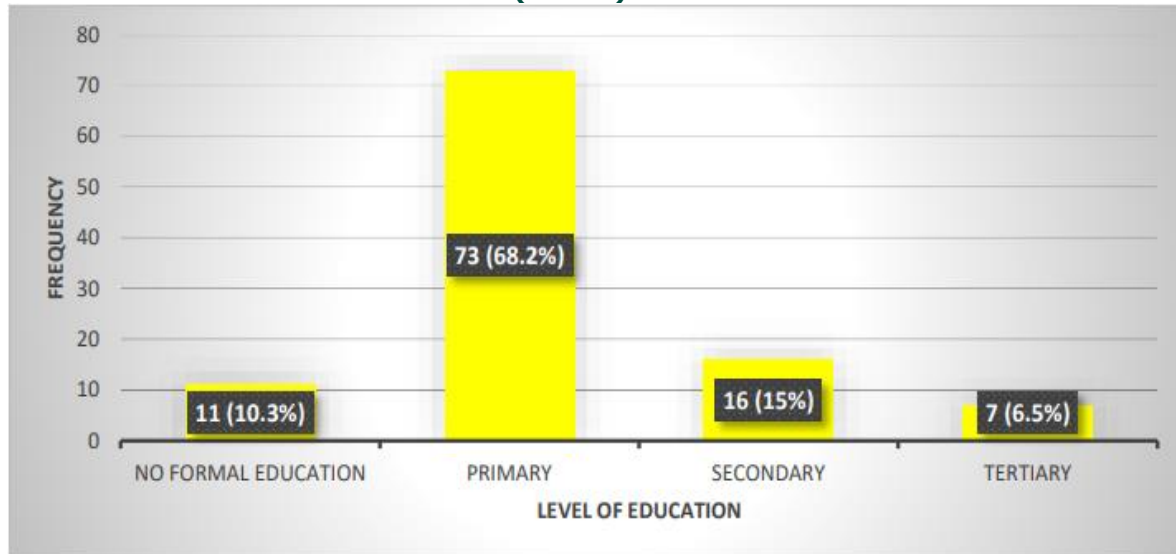
Variable	Category	Frequency (n)	Percentage (%)
Age	15–35 years	31	29
	36–49 years	76	71
Marital status	Married	62	58
	Unmarried	45	42
Level of education	Primary education and below	84	78.5
	Secondary education and above	23	21.5
Religion	Christian	105	98.1
	Muslim	2	1.9
Employment status	Self employed	34	31.8
	Unemployed	57	53.3

Decently employed	16	15
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The Socio-demographic data indicated that the majority of the respondents, 76 (71%), were aged 36–49 years, while the minority, 31 (29%), were aged 15–35 years. Slightly more than half, 62 (58%), were married, while 45 (42%) were unmarried. A majority, 84 (78.5%), had completed primary education and below, while 23 (21.5%) had secondary education or above. Almost all respondents, 105 (98.1%), were Christian, while 2 (1.9%) were Muslim. More than half, 57 (53.3%), were unemployed, while the smallest group, 16 (15%), were decently employed.

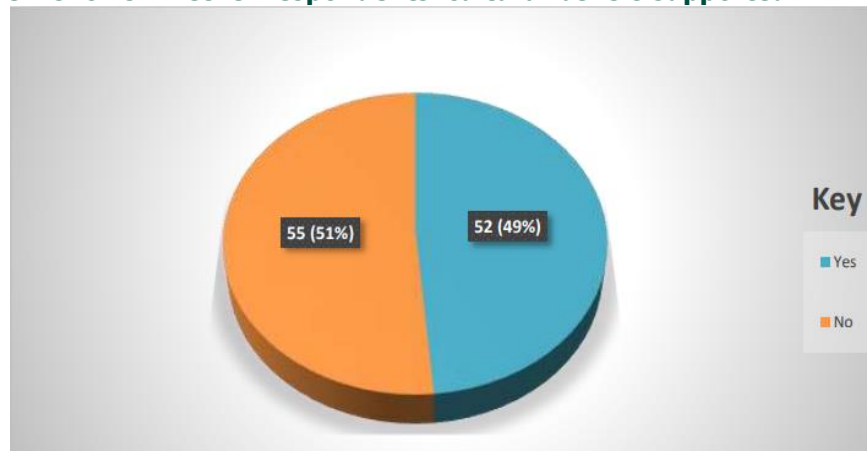
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Sociodemographic factors affecting VMMC uptake among adults aged 15–49 years.
Figure 1 shows respondents by the highest level of education they completed (n=107)



The majority of the respondents, 76 (71%), had completed primary level, while only 7 (7%) had completed tertiary education.

Figure 2 shows whether respondents' cultural beliefs supported VMMC (n=107)



More than half of the respondents, 55 (52%), stated that their cultural beliefs do not support VMMC, while less than half, 52 (48%), said their culture supports it.

Table 2: Shows additional sociodemographic factors of respondents affecting voluntary safe medical male circumcision uptake (n=107)

Variable	Category	Frequency (n)	Percentage (%)
Religion	Christian	105	98.1
	Muslim	00	0
	Traditional/Indigenous	2	1.9
Age category	15–24 years	10	9.3
	25–34 years	7	6.5
	35–44 years	10	9.3
	45–49 years	80	74.8
Marital status	Single	29	27.1
	Married	62	57.9
	Separated	8	7.5
	Divorced	6	5.6
	Widowed	2	1.9
Household income level	Low	69	64.5
	Moderate	19	17.8
	High	17	15.9

Findings on additional sociodemographic factors, as shown in the table above, revealed that almost all respondents, 105 (98.1%), were Christian, while only 2 (1.9%) reported traditional beliefs.

Most respondents, 80 (74.8%), were aged 45–49 years, while the smallest proportion, 7 (6.5%), were aged 25–34 years.

Over half, 62 (57.9%), were married, while the minority were widowed, 2 (1.9%).

Most respondents, 69 (64.5%), had low income, while high-income earners were the fewest at 17 (15.9%).

DISCUSSION

In this study, the majority of respondents, 76 (71%), had only primary education, which likely reduces the probability of accepting VMMC. Lower education is associated with limited exposure to health information and reduced health

literacy, which may hinder understanding of VMMC benefits and procedures. This finding aligns with Mwandi et al. (2022), who reported that education level influenced knowledge and acceptance of VMMC.

More than half of respondents, 55 (52%), indicated that cultural beliefs do not support VMMC, suggesting that entrenched norms may limit uptake. Toroitich-Ruto et al. (2022) similarly found that men from non-circumcising communities were less likely to undergo VMMC without additional education or outreach.

Almost all respondents, 105 (98.1%), were Christian, which presents mixed implications for circumcision uptake. While Christianity does not uniformly require circumcision, faith-based guidance and local interpretation can affect willingness to accept the procedure. This corresponds with

Pew Research Center (2023), which highlighted that religious affiliation shapes circumcision norms and uptake. Most respondents, 80 (74.8%), were aged 45–49 years, reflecting lower acceptance due to concerns about recovery and perceived reduced benefits compared with younger men. Wawer & Gray (2021) similarly observed that younger men were more receptive to VMMC than older adults.

Over half of respondents, 62 (57.9%), were married, which may reduce uptake due to household influence and spousal preferences. Kripke et al. (2023) reported similar patterns, where married men were generally less willing to undergo circumcision compared with single men.

Finally, 69 (64.5%) of respondents had low income, which may limit uptake due to indirect costs, such as transport or lost income during recovery. This aligns with Mwandu et al. (2022), who found that socioeconomic status influenced access to and utilization of VMMC services.

Conclusion

Lower formal education, older age, predominant Christianity, being married, cultural non-support, and low

income were identified as key sociodemographic barriers affecting VMMC uptake among adults aged 15–49 years.

Recommendation

To address sociodemographic barriers, VMMC programmes should engage communities through collaboration with local cultural and religious leaders, tailor messaging for older men, and provide conditional support such as transport vouchers or small wage compensation for lower-income individuals. These strategies will help reduce cultural resistance, economic barriers, and improve uptake among populations with limited formal education.

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List of abbreviations

AIDS:	Acquired Immunodeficiency Syndrome
HIV:	Human Immunodeficiency Virus
HPV:	Human Papillomavirus
MMC:	Medical Male Circumcision
VMMC:	Voluntary Medical Male Circumcision

Conflict of interest

The authors declare no conflict of interest.

Data availability

Data are available upon request from the author.

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Author contributions

AK: collected the data.

PN: supervised the study.

TM: supervised the study.

FS: supervised the study.

HN: supervised the study.

JFN: supervised the study

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