

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

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Abstract

Background

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

Methodology

This study employed a descriptive cross-sectional design to assess knowledge, sociodemographic, and health-facility factors affecting VMMC uptake among males aged 15-49 years at Mubende Regional Referral Hospital. A sample of 107 participants was randomly selected using a lottery technique. Data were collected via structured questionnaires, pre-tested at Mityana General Hospital, and translated into Luganda when needed. Data were analyzed in SPSS v24 using descriptive statistics. Ethical approval was secured, and participants provided informed consent, with privacy and confidentiality strictly observed.

Results

Over half of the respondents were unemployed (57, 53.3%), 34 (31.8%) were self-employed, and only 16 (15%) were decently employed. Among 107 respondents, 80 (75%) reported that the nearest VMMC facility was far from their homes, while only 11 (10%) said it was near. Most participants, 89 (83%), perceived the facility as clean and hygienic, whereas 18 (17%) disagreed. Nearly all respondents, 97 (90.7%), confirmed that VMMC services were provided by skilled healthcare workers, while 2 (1.9%) said no and 8 (7.5%) were unsure. However, 104 (97.2%) experienced long waiting times exceeding 30 minutes, with only 3 (2.8%) reporting short waits. Additionally, 79 (73.8%) described service hours as very inconvenient, compared to 28 (26.2%) who found them convenient. Regarding supplies, 70 (65.4%) reported they were always available, 9 (8.4%) often, 20 (18.7%) sometimes, and 8 (7.5%) rarely available.

Conclusion

Long distances, extended waiting times, and inconvenient service hours were key health-facility barriers limiting VMMC uptake.

Recommendation

Health facilities should extend service hours, reduce waiting times through appointment systems, expand mobile outreach, and maintain quality standards to improve VMMC uptake.

Keywords: Health facility factors, voluntary safe medical male circumcision, skilled healthcare workers, VMMC uptake

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Background of the study

Health facility and service delivery factors play a critical role in the uptake of voluntary safe medical male circumcision (VMMC). A qualitative study in Uganda exploring health-system barriers found that 68% of adult men (aged 18–65) from rural and peri-urban districts lived far from mobile outreach centers or health facilities, limiting their access to VMMC services (Byabagambi et al., 2024). Similarly, focus group discussions with men aged 25–39 in Western Kenya revealed that facility attributes such as

skilled and experienced providers (72%), clean and hygienic clinics (65%), and privacy assurance (59%) were essential determinants of service acceptability (Mwandi et al., 2022). Service costs and delivery design further influenced uptake. A multi-country analysis in Kenya, Rwanda, South Africa, and Zambia reported that while 62% of facilities charged negligible fees, 38% imposed higher costs that deterred lower-income clients (Miller et al., 2023). Pilot interventions integrating education, peer support, and safe healing environments significantly improved acceptance among street-connected youth, with 81% reporting comfort

and respect, and 99% valuing the educational component (Herman-Roloff et al., 2023).

Operational factors such as waiting times and clinic hours also affected client decisions. A cross-sectional study in Kira, Wakiso District, found that 55% of men declined or postponed VMMC due to long waits, while 48% indicated that extended hours, including evenings or weekends, would increase uptake (Curran et al., 2020). Continuous quality improvement programs implemented across 30 health units in Uganda enhanced provider confidence and consistency in delivering culturally sensitive counseling, with 65% of clients reporting improved understanding of benefits, risks, and post-procedure care (Sgaier et al., 2020).

Additionally, health-system evaluations highlighted challenges in facility readiness. In northeastern Uganda, 63% of health workers reported shortages of sterile surgical instruments and pain-management supplies, while facilities with reliable kits and strong supply chains were more trusted by both providers and clients (Byabagambi et al., 2024). Collectively, these findings underscore that accessibility, service quality, operational efficiency, cost, and supply readiness are key determinants of VMMC uptake and must be addressed to improve service utilization.

The study aimed to determine the health facility 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 from 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, 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 Kyegegwa and Kakumiro Districts.

Study population

The study population consisted mainly of adult males aged between 15 and 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 the Kish-Leslie formula of sample size determination, which is: $N = Z^2 PQ / D^2$
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, applying the lottery technique where two small pieces of paper were cut and on them written YES and No, 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 allowed to go.

Data collection method

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

Data collection tool

A standardized closed-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 which 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 enlisted 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 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

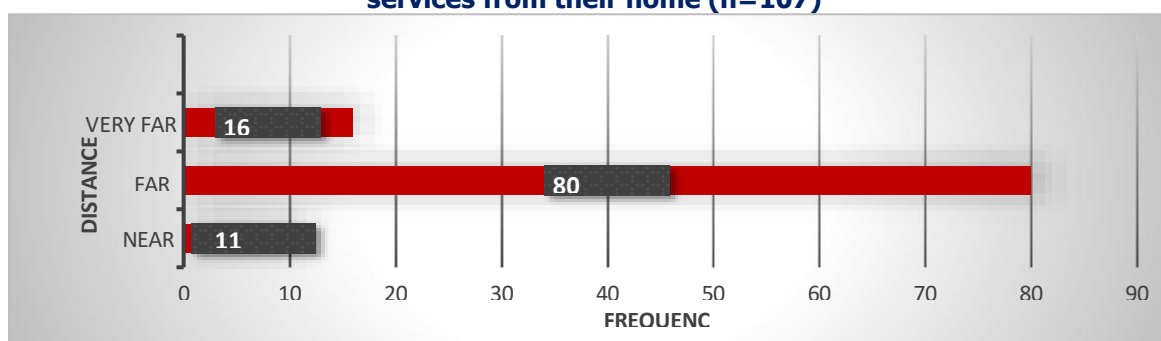
	Secondary education and above	23	21.5
Religion	Christian	105	98.1
	Muslim	2	1.9
Employment status	Self employed	34	31.8
	Unemployed	57	53.3
	Decently employed	16	15

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.

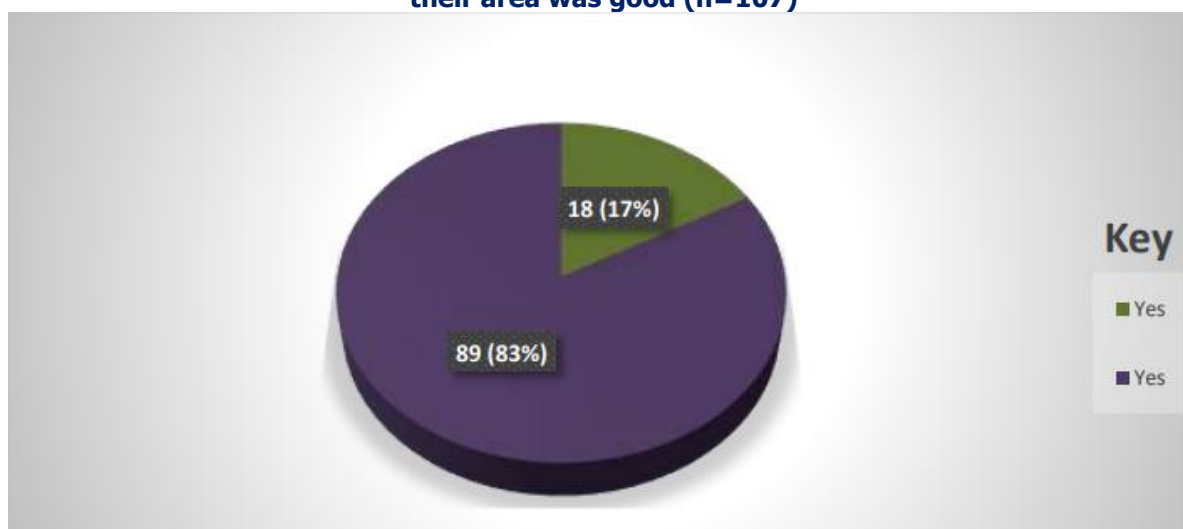
Health facility factors affecting VMMC uptake among adults aged 15-49 years

Figure 1: Shows respondents by the distance of the nearest facility that offers VMMC services from their home (n=107)



The majority, 80 (75%), reported the nearest VMMC facility as far, whereas only 11 (10%) said it was near.

Figure 2: Shows respondents by whether the cleanliness and hygiene of the VMMC facility in their area was good (n=107)



More than three-quarters of the respondents, 89 (83%), reported that the VMMC facility was clean, while 18 (17%) believed it was not clean.

Table 2: Shows additional health facility factors affecting voluntary safe medical male circumcision uptake (n=107)

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Variable	Category	Frequency (n)	Percentage (%)
VMMC offered by skilled healthcare providers in a facility	Yes	97	90.7
	No	2	1.9
	Not sure	8	7.5
Waiting time before receiving services at the VMMC facility	< 30 minutes (short)	3	2.8
	>30 minutes (long)	104	97.2
Convenience of the VMMC service hours	Very convenient	28	26.2
	Very inconvenient	79	73.8
Availability of medical supplies and equipment needed for VMMC services	Always available	70	65.4
	Often available	9	8.4
	Sometimes available	20	18.7
	Rarely available	8	7.5

Regarding findings on additional health facility factors, it revealed that;

Almost all respondents, 97 (90.7%), said that VMMC was performed by skilled providers, while 2 (1.9%) disagreed. Nearly all respondents, 104 (97.2%), indicated that waiting time exceeded 30 minutes, while only 3 (2.8%) experienced short waiting times.

The majority of the respondents, 79 (73.8%), said service hours were very inconvenient, whereas 28 (26.2%) found them convenient.

More than half of the respondents, 70 (65.4%), reported that supplies were always available, while the least proportion, 8 (7.5%), said supplies were rarely available.

Discussion

The majority, 80 (75%), reported that the nearest VMMC facility was far, indicating long travel hours and indirect costs which may discourage seeking services. This may be due to sparse distribution of outreach and fixed sites, limited transport options or schedules, and opportunity costs tied to long journeys for working men. This finding agrees with Byabagambi et al. (2024), who found that 68% of participants lived far from outreach centres.

More than three-quarters, 89 (83%), reported that the VMMC facility was clean, a perception that may motivate the uptake because visible hygiene and facility quality build client trust in safety and sterility. This positive assessment may be driven by facility management prioritizing infection control, successful maintenance routines, and reputation effects communicated by peers. This outcome agrees with Mwandi et al. (2022), who reported that 65% of men prioritized clean, well-maintained clinics when choosing services.

Almost all respondents, 97 (90.7%), said VMMC was performed by skilled providers, which strongly raises the chance of uptake because trust in provider competence reduces perceived procedural risk and increases confidence in safe outcomes. This perception may result from visible credentials, word-of-mouth endorsements, and prior positive experiences with professional staff. This aligns with Mwandi et al. (2022), who found that 72% of men preferred facilities with skilled and experienced providers.

Nearly all respondents, 104 (97.2%), indicated waiting time exceeded 30 minutes, which indicated extended waiting time that may demoralize the men, leading them to hesitate to take the services. The extended waiting time is likely due to limited staffing. This finding aligns with Curran et al. (2020), who reported that 55% cited long waiting times as a deterrent.

The majority, 79 (73.8%), said service hours were very inconvenient, which indicated inaccessibility to the needed services, which may reduce the likelihood of uptake because restricted hours conflict with work schedules and increase opportunity costs. This service shortcoming may be due to concentrated service hours without slots and inefficient patient flow systems. This finding aligns with Curran et al. (2020), who reported that about 48% said flexible clinic hours would make them more likely to return but were inconvenient.

More than half, 70 (65.4%), reported that supplies and equipment for VMMC were always available, which may increase the chance of uptake because reliable supplies reduce cancelled appointments and signal functional service readiness. This may be due to effective supply-chain

management, prioritized stocking for surgical kits, and routine checks that prevent stock-outs. This finding corresponds with Byabagambi et al. (2024), who noted that about 47% of units with well-stocked kits were more trusted by providers and clients.

Page | 6 Conclusion

Long distances to service centers, inconvenient operating hours, and long waiting times were significant health-facility factors that limited the uptake of VMMC among the target population.

Recommendation

To mitigate health-facility challenges, administrators should expand service hours to include evenings and weekends, implement appointment and fast-track systems to reduce waiting times, and increase the frequency of mobile outreach services. These measures should be combined with maintaining high standards of cleanliness and skilled staffing to build trust and encourage higher uptake of VMMC.

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List of abbreviations

ART: Anti-retroviral Therapy
HIV: Human Immunodeficiency Virus
MC: Major complications
MMC: Medical Male Circumcision
PLWH: Persons Living With HIV
VMMC: Voluntary Medical Male Circumcision
WHO: World Health Organization

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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