



World Health
Organization



**PREVENTING HIV THROUGH SAFE
VOLUNTARY MEDICAL MALE CIRCUMCISION
FOR ADOLESCENT BOYS AND MEN IN
GENERALIZED HIV EPIDEMICS**

WEB ANNEX 2.3 PART 2

**SYNTHESIS OF LITERATURE ON VOLUNTARY
MEDICAL MALE CIRCUMCISION:
FACILITATORS AND BARRIERS, BY COUNTRY**

Preventing HIV through safe voluntary medical male circumcision for adolescent boys and men in generalized HIV epidemics: recommendations and key considerations. Web Annex 2.3 Part 2. Synthesis of literature on voluntary medical male circumcision: facilitators and barriers, by country

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This publication forms part of the WHO guideline entitled *Preventing HIV through safe voluntary medical male circumcision for adolescent boys and men in generalized HIV epidemics: recommendations and key considerations*. It is being made publicly available for transparency purposes and information, in accordance with the *WHO handbook for guideline development*, 2nd edition (2014).

WEB ANNEX 2.3 PART 2

SYNTHESIS OF LITERATURE ON VOLUNTARY MEDICAL MALE CIRCUMCISION: FACILITATORS AND BARRIERS, BY COUNTRY

Drawn from the 2018 Systematic Review Solutions literature review (see Annex 2.3, Part 1)

Organized according to the dimensions of effective service coverage by T. Mwatirura

To inform WHO guidelines development, in 2018 a review was undertaken of literature on enhancing uptake of VMMC among adolescent boys and men. The following table organizes reported barriers and facilitators to VMMC uptake extracted from studies, identified in this review,¹ in 16 countries. The study location, VMMC knowledge among participants and other comments are included. The facilitators of and barriers to VMMC are organized by the dimensions of the prevention cascade:

1. awareness, knowledge and intent
2. availability
3. accessibility
4. acceptability and quality.

¹ Systematic Review Solutions. WHO guidance on VMMC for HIV prevention amongst adolescent boys and men: literature reviews for PICOs 1, 2 & 3, full report, unpublished, 2018; available from WHO/UCN/Global HIV, Hepatitis and STIs Programmes (hiv-aids@who.int) and as Web Annex 2.1, Part 1.

Table A2.3(2).1. Facilitators and barriers to VMMC for adolescent and adult men from identified studies in systematic review, 2018

Author, publication date	Year data collected	Facilitators	Barriers	Location	VMMC knowledge	Comments
Botswana						
Jayeoba 2012	2009	Awareness–knowledge–intent • protection from HIV	Awareness–knowledge–intent Not indicated	Molepolole and Mochudi	80% of adolescent boys correctly described male circumcision	
		Availability Not indicated	Availability Not indicated			
		Accessibility • cost (free of charges)	Accessibility Not indicated			
		Acceptability and quality • protection from other illnesses	Acceptability and quality • pain • complications during/after procedure			
Wirth 2016	2013	Awareness–knowledge–intent • protection against HIV and other infections	Awareness–knowledge–intent Not indicated	Two communities with high uptake (Gaborone, Palapye) and two communities with low uptake (Molepolole, Maun)	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • increased cleanliness • increased sexual pleasure and perceived attractiveness • fashionable desire to fit in • influence of female partners	Acceptability and quality Not indicated			
Tapera 2017	2016	Awareness–knowledge–intent Not indicated	Awareness–knowledge–intent • lack of knowledge of how male circumcision reduces HIV infection	University of Botswana	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • health/hygiene benefits • sexual satisfaction • traditional/cultural values • how information about MC was received; media and friends were common sources	Acceptability and quality Not indicated			
China						
Jiang 2013	2009	Awareness–knowledge–intent • protection against HIV and STIs	Awareness–knowledge–intent Not indicated	Western provinces in China: Guangxi Chongqing Xinjiang	In group willing to be circumcised, 80.4% had heard about MC. In group not willing to be circumcised group, 64% had heard about MC.	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility • concern about cost of surgery			
		Acceptability and quality • improve partners' hygiene • redundant foreskin • enhance sexual pleasure • prevention of penile cancer • better penile appearance • traditional or religious reason	Acceptability and quality • not necessary or not effective • concern about potential danger associated with surgery • concern about reduced sexual ability			

Author, publication date	Year data collected	Facilitators	Barriers	Location	VMMC knowledge	Comments
Huang 2013	2009–2010	Awareness–knowledge–intent • protection against HIV and STIs	Awareness–knowledge–intent • no idea of benefits of VMMC	Western provinces in China: Guangxi Chongqing Xinjiang	In group willing to be circumcised, 88.5% had heard about MC. In group not willing to be circumcised, 83.1% had heard about MC.	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility • concern about cost of surgery			
		Acceptability and quality • having phimosis • prevention of penile cancer • improve partners' hygiene • enhance sexual pleasure • better penile appearance • traditional or religious reason	Acceptability and quality • not necessary or not effective • concern about potential danger associated with surgery • concern about reducing sexual ability			
Jiang 2015	2009–2010	Awareness–knowledge–intent • HIV/STI prevention	Awareness–knowledge–intent Not indicated	Guangxi Medical University; Chongqing Medical University; Xinjiang Medical University	81.5% had heard about MC.	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility • concern about cost of surgery			
		Acceptability and quality • improve partners' hygiene • remove redundant foreskin • enhance sexual pleasure • prevention of penile cancer • better penile appearance • traditional or religious reason	Acceptability and quality • not necessary or not effective • concern about potential danger associated with surgery • concern about reducing sexual ability			
Yang 2012	2009–2010	Awareness–knowledge–intent • HIV/STI prevention	Awareness–knowledge–intent Not indicated	Western provinces in China: Guangxi Chongqing Xinjiang	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • improve partners' hygiene • remove redundant foreskin • prevention of penile cancer • traditional or religious reason	Acceptability and quality • not necessary or not effective • concern about potential danger associated with surgery • concern about reducing sexual ability			
Wang 2016	2011–2012	Awareness–knowledge–intent • reduced risk of HIV/STIs	Awareness–knowledge–intent Not indicated	Shenzhen	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility • expensive			
		Acceptability and quality • reduced female sex partner's risk of gynaecological diseases	Acceptability and quality • pain • severe surgical complications • erectile dysfunction • perceived as strange by peers or by female sex partners • embarrassment			
Sullivan 2009	Not indicated	Awareness–knowledge–intent • protection from HIV infection	Awareness–knowledge–intent Not indicated	Xinjiang Uyghur Autonomous Region; Yunnan Province	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality Not indicated	Acceptability and quality Not indicated			

Author, publication date	Year data collected	Facilitators	Barriers	Location	VMMC knowledge	Comments
Dominican Republic						
Brito 2010	2007–2008	Awareness–knowledge–intent Nearly all health care providers knew of health benefits (hygiene, reduced STIs); two thirds knew about reduced risk of HIV	Awareness–knowledge–intent • lack of information and knowledge about MC and benefits in the community	Attagracia Province	Not indicated	Study was done to evaluate the feasibility of introducing MC services in the Dominican Republic and to assess qualitatively men's, women's and health care providers' acceptability, knowledge and attitudes toward MC.
		Availability Not indicated	Availability (potential) • lack of trained personnel to perform the procedures • lack of surgical equipment • lack of continuous electricity or running water in some of the clinics • lack of physical space for surgery			
		Accessibility Not indicated	Accessibility • cost of the procedure			
		Acceptability and quality • cultural tradition • increase in sexual pleasure and performance including fewer problems in retracting foreskin and easier to use condoms • improves hygiene	Acceptability and quality • uncircumcised penis more natural • equated removal of the foreskin to losing a part of the body • most men believed that women prefer their partners uncircumcised • fewer than half considered the foreskin a barrier against lacerations of the glans and, hence, protective against HIV			
Brito 2009	2008	Awareness–knowledge–intent • reduces STI/HIV	Awareness–knowledge–intent • lack of knowledge of MC benefits	19 communities in Attagracia Province	Not indicated	Acceptability improved from 29% to 67% after an information session explaining the benefits of the procedure.
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • improves hygiene • reduces STIs and penile cancer	Acceptability and quality • decreases sexual pleasure			
eSwatini						
Gurman 2015	2010	Awareness–knowledge–intent • knowledge about circumcision	Awareness–knowledge–intent Not indicated	Not indicated	95.94% of respondents had heard of VMMC.	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • importance of ploughing season to daily schedule • getting circumcised will raise man's status in his community • man will enjoy sex more if circumcised • erections last longer for circumcised men • women prefer sex with a circumcised man • been tested for HIV in last 12 months	Acceptability and quality • sex is more painful for a circumcised man • Christian man should not get circumcised • circumcision makes penetration more painful • circumcision will leave a wound that will never heal • getting circumcised takes too much time away from work • time required to abstain after circumcision is too long			

Author, publication date	Year data collected	Facilitators	Barriers	Location	VMMC knowledge	Comments
Adams 2015	2013	Awareness–knowledge–intent • difficult to get HIV and STIs (adolescents' perception)	Awareness–knowledge–intent Not indicated	Kwaluseni community, central eSwatini	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • perceived enhancement of sexual performance	Acceptability and quality • fear of pain was only a minor barrier • threat to masculinity: circumcision was perceived as a threat to a man's ability to function sexually, thereby indirectly threatening his ability to maintain his family and, consequently, his manhood • concerns about loss of sexual pleasure • fear of botched surgeries • the futility of VMMC: some men could not see the value of circumcision because VMMC is only partially protective and circumcised men still must use condoms for HIV protection. • fear of the unknown and irreversibility of circumcision • suspicion about the origins of HIV and Western health interventions			
India						
Sahay 2014	2009–2011	Awareness–knowledge–intent Not indicated	Awareness–knowledge–intent Not indicated	Meerut (Uttar Pradesh state, Northern India); Kolkata (West Bengal state, Eastern India); Belgaum (Karnataka state, Southern India); Mumbai (Maharashtra state, Western India)	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility • cost of operation			
		Acceptability and quality • religious faith • beliefs regarding hygienic benefits	Acceptability and quality • pain associated with the procedure			
Jamaica						
Walcott 2013	2011	Awareness–knowledge–intent • protection from STIs • knowledge of VMMC	Awareness–knowledge–intent • limited knowledge about MC	Western Jamaica	72.2% of men reported having heard of MC	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • penile hygiene • enhancement of sexual pleasure	Acceptability and quality • "should not change the way God made the penis" • "surgery may damage the penis"			

Author, publication date	Year data collected	Facilitators	Barriers	Location	VMMC knowledge	Comments
Kenya						
Westercamp 2012	2008–2009	Awareness–knowledge–intent • HIV prevention	Awareness–knowledge–intent Not indicated	Kisumu	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility • cost • lack of transportation			
		Acceptability and quality • condom use less necessary • increase in sexual pleasure	Acceptability and quality • belief that VMMC is not part of their culture • length of recovery • pain • perceived risks of the procedure • opposition by friends and family			
Evens 2014	2012	Awareness–knowledge–intent Not indicated	Awareness–knowledge–intent Not indicated	Urban Kisumu East and rural Rachuonyo in Nyaza Province	Not indicated	Interventions to increase uptake of circumcision suggested by participants: • improving messaging regarding expected pain and pain management • improving mechanisms for delivering the messages
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility • access to VMMC services			
		Acceptability and quality Not indicated	Acceptability and quality Primary: • financial issues, including missing work, losing income during the procedure and healing period • fear of pain during and after the procedure Secondary: • the abstinence period • female partners' opinions of circumcision • sexual function after VMMC • potential adverse events • cultural concerns • concerns about adverse events			
Macintyre 2014	2012	Awareness–knowledge–intent • protection against disease including HIV	Awareness–knowledge–intent Not indicated	Urban, peri-urban and rural sites in Turkana	Not indicated	
		Availability Not indicated	Availability • absence of service delivery • lack of drugs or equipment			
		Accessibility Not indicated	Accessibility • excessive distance to service delivery sites			
		Acceptability and quality • stigma against not being circumcised (most likely to prevail in urban areas) • cleanliness	Acceptability and quality • fears related to service delivery: low quality of care and disrespectful or even unqualified clinicians • not aligned with Turkana culture • old age (less sexually active) • no sexual activity ("no need to undergo circumcision because no longer having sex") • social influences (family and community relationships) • stigma from being circumcised (most likely to prevail in rural areas)			

Author, publication date	Year data collected	Facilitators	Barriers	Location	VMMC knowledge	Comments
Herman-Roloff 2011	Not indicated	Awareness–knowledge–intent • HIV/STI protection	Awareness–knowledge–intent Not indicated	Urban Kisumu East, rural Nyando and rural Kisumu West in Nyanza Province	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility • long distance to the health facility			
		Acceptability and quality • improved hygiene • sexual performance and satisfaction • social pressure	Acceptability and quality • too much time away from work • cultural and religious values • the possibility of adverse effects • the post-surgical abstinence period • a desire to maintain the status quo: "The protection against HIV and STIs is not 100%, and if a man is already HIV-positive, has good hygiene, or is already practicing other HIV prevention methods, he will not benefit from the procedure". • increased promiscuity • decrease in male and female sexual satisfaction			
Lanham 2012	Not indicated	Awareness–knowledge–intent • reduced HIV risk	Awareness–knowledge–intent Not indicated	Urban district of Kisumu East and rural District of Siaya in Nyanza Province	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • improved hygiene • fewer penile problems	Acceptability and quality Not indicated			
Lesotho						
Skolnik 2014	2013	Awareness–knowledge–intent • HIV and STI protection (self and partner)	Awareness–knowledge–intent Not indicated	Urban (Carewell and Apex clinics); peri-urban (Ntsekhe Hospital) and rural (Mokhotlong Hospital)	Not indicated	
		Availability Not indicated	Availability • not knowing where to go			
		Accessibility Not indicated	Accessibility • long wait time • lack of transport • cost			
		Acceptability and quality • penile hygiene • improved sexual pleasure (self and partner) • gaining social prestige	Acceptability and quality • female staff • poor service, staff attitude • lack of full coverage against HIV • mixing young and old clients • HIV testing • fear of pain and injection • long healing time or abstinence • safety concerns • preference for traditional circumcision			

Author, publication date	Year data collected	Facilitators	Barriers	Location	VMMC knowledge	Comments
Malawi						
Rennie 2015	2008	Awareness–knowledge–intent • effectiveness of male circumcision for HIV prevention	Awareness–knowledge–intent Not indicated	Blantyre District	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility • less time and expense would be involved in clinic-based circumcisions than in those done traditionally in the village, which often involve elaborate, expensive ceremonies and community celebrations	Accessibility Not indicated			
		Acceptability and quality • clinic-based circumcision has better access to proper anaesthetics and procedures than traditional male circumcision and will allow the wound to heal faster • religion	Acceptability and quality • fear/expect that the procedure will involve a great deal of pain • the wound will be a hindrance to sexual activity • do not believe that male circumcision can reduce a man's risk of contracting HIV • VMMC may result in greater infection because it would encourage reduced condom use and increased sexual risk-taking • would promote promiscuity, and men choosing to be circumcised would be stigmatized as immoral • fear that VMMC would promote premarital sex and sexual immorality • too invasive and the health benefits not sufficient to warrant adoption			
Shacham 2014	2008–2009	Awareness–knowledge–intent • reduced risk of STIs/HIV	Awareness–knowledge–intent Not indicated	70 villages in Zomba District	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility • cost			
		Acceptability and quality • enhanced sexual pleasure for female partners • religion/culture • improve men's health/cleanliness	Acceptability and quality • pain • increased risk of HIV • encouragement of premarital sex • religion/culture			
Papua New Guinea						
Kelly 2013	2009	Awareness–knowledge–intent • prevention of HIV and STIs	Awareness–knowledge–intent Not indicated	National Capital District; Eastern Highlands Province; East Sepik Province; West New Britain Province	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • cultural acceptability • penile hygiene and health	Acceptability and quality • sexual risk compensation (false sense of security) • risk of men becoming promiscuous • religion: goes against Christian faith • cultural: new practice that is culturally inappropriate			

Author, publication date	Year data collected	Facilitators	Barriers	Location	VMMC knowledge	Comments
Tyan 2013	2009–2011	Awareness–knowledge–intent <ul style="list-style-type: none"> prevention of STI (HIV) and cervical cancer reduction of STI/HIV cases awareness of MC in the community 	Awareness–knowledge–intent <ul style="list-style-type: none"> lack of information 	National Capital District; Eastern Highlands Province; East Sepik Province; West New Britain Province	Not indicated	
		Availability Not indicated	Availability <ul style="list-style-type: none"> scarce human resources 			
		Accessibility <ul style="list-style-type: none"> referrals made to access proper medical services 	Accessibility <ul style="list-style-type: none"> costs: young men would not have cash to access services due to poor employment options 			
		Acceptability and quality <ul style="list-style-type: none"> entry point to voluntary counselling and testing 	Acceptability and quality Not indicated			
MacLaren 2013	2011–2012	Awareness–knowledge–intent <ul style="list-style-type: none"> reduced risk of HIV 	Awareness–knowledge–intent Not indicated	National Capital District; Madang Province; Oro Province; Enga Province	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality <ul style="list-style-type: none"> proves manhood (sociocultural practice) have more sexual partners sexual pleasure makes a man's body grow strong and penis grow bigger (sociocultural beliefs) overall health benefit 	Acceptability and quality <ul style="list-style-type: none"> not a part of their cultural practice/tradition decreases sexual pleasure 			
South Africa						
Ikwegbue 2015	2012	Awareness–knowledge–intent <ul style="list-style-type: none"> protection against HIV 	Awareness–knowledge–intent <ul style="list-style-type: none"> low level of knowledge about the potential benefits of VMMC 	Northern KwaZulu-Natal	64% reported knowing the meaning of VMMC	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality Not indicated	Acceptability and quality <ul style="list-style-type: none"> sexual problems increase in promiscuity 			
George 2014	2012–2013	Awareness–knowledge–intent <ul style="list-style-type: none"> reduced risk of HIV acquisition 	Awareness–knowledge–intent Not indicated	Vulindlela sub-district of KwaZulu-Natal	Not indicated	
		Availability <ul style="list-style-type: none"> availability of mobile VMMC camps "Boys felt a positive and safe environment was created." 	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality <ul style="list-style-type: none"> improved hygiene increase in sexual pleasure availability of better pain management procedures cultural necessity preferences of sexual partners influence of peers and family 	Acceptability and quality <p>Individual barriers:</p> <ul style="list-style-type: none"> pain associated with the procedure and adverse events low perception of HIV risk fears about the procedure <p>Social barriers:</p> <ul style="list-style-type: none"> fear of HIV testing (subsequent results and stigma) the need to abstain from sex during the six-week healing period family disapproval of the procedure experience of peers 			

Author, publication date	Year data collected	Facilitators	Barriers	Location	VMMC knowledge	Comments
George 2017	2012–2013	Awareness–knowledge–intent • reduced risk of STIs	Awareness–knowledge–intent Not indicated	Vulindlela, rural sub-district of KwaZulu-Natal	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • improved hygiene	Acceptability and quality • self-efficacy to use condoms			
Hoffman 2015	2013	Awareness–knowledge–intent Not indicated	Awareness–knowledge–intent Not indicated	Saldanha Bay, Western Cape	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • improved hygiene • health benefits • cultural or religious reasons	Acceptability and quality • fear of infection, pain and loss of performance • religion • time off work • reaction of peers			
Marshall 2016	2015	Awareness–knowledge–intent • reduced risk of HIV	Awareness–knowledge–intent Not indicated	Orange Farm Township, Gauteng Province	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • tradition/religion • hygiene • peer pressure	Acceptability and quality • culture • fear of the procedure, pain or injury • time constraints			
United Republic of Tanzania						
Francis 2012	2010	Awareness–knowledge–intent Not indicated	Awareness–knowledge–intent • lack of awareness	Dar es Salaam	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility • cost			
		Acceptability and quality Not indicated	Acceptability and quality • anticipation of pain during circumcision • fear of losing part of the body			
Plotkin 2013	2011	Awareness–knowledge–intent Not indicated	Awareness–knowledge–intent Not indicated	Iringa Municipal Council, Mufindi and Njombe District	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • increased virility and a more attractive penis • VMMC within marriage as a favourable option for reducing risk of HIV acquisition • cleanliness • higher social status	Acceptability and quality • cultural reasons/pressure from parents • fear of penile injury from erections during the recovery period • concern about loss of income in the recovery period • best performed before puberty • perceived as shameful			

Author, publication date	Year data collected	Facilitators	Barriers	Location	VMMC knowledge	Comments
Osaki 2015	2014	Awareness–knowledge–intent Not indicated	Awareness–knowledge–intent Not indicated	Tabora and Njombe regions	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality <ul style="list-style-type: none"> denial of sex: woman may refuse to have sexual intercourse with uncircumcised man avoid embarrassment with female sexual partners mothers as decision-makers 	Acceptability and quality <ul style="list-style-type: none"> multiple concurrent partnerships (infidelity) 			
Thailand						
Tieu 2010	2008	Awareness–knowledge–intent <ul style="list-style-type: none"> knowledge of VMMC (informational pamphlet containing description of the procedure, costs, risks and benefits, recent circumcision trial results) 	Awareness–knowledge–intent <ul style="list-style-type: none"> lack of knowledge about male circumcision and its role in HIV prevention 	Not indicated	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality Not indicated	Acceptability and quality <ul style="list-style-type: none"> fear of pain and other risks of surgery having no time for surgery because of work constraints beliefs that they were not at risk for contracting HIV and other STIs time required away from work for the surgery and postoperative healing already had good genital hygiene by cleaning penis regularly (referring to association of circumcision with good genital hygiene) 			
Uganda						
Ssekubugu 2013	2004–2006	Awareness–knowledge–intent <ul style="list-style-type: none"> prevention and healing of STIs 	Awareness–knowledge–intent <ul style="list-style-type: none"> lack of awareness 	Rakai, southwestern Uganda	Not indicated	Factors considered as both barriers and facilitators of VMMC: <ul style="list-style-type: none"> HIV testing and counselling opportunity to access HTS and HIV care and treatment, but some fear of knowing status Partner's influence: <ul style="list-style-type: none"> women's perception that partners would be more sexually active with other women or that the man's partner would be promiscuous during the wound healing and abstinence period female partner's preference for circumcised penis Sexual potency: <ul style="list-style-type: none"> VMMC perceived to override the perceived effect of syphilis in Buganda by restoring or improving sexual potency VMMC and/or the anaesthesia for VMMC is associated with loss of sexual potency
		Availability Not indicated	Availability Not indicated			
		Accessibility <ul style="list-style-type: none"> access to HIV and other ancillary care 	Accessibility Not indicated			
		Acceptability and quality <ul style="list-style-type: none"> penile hygiene peer influence 	Acceptability and quality <ul style="list-style-type: none"> pain medical complications infertility lack of empirical efficacy, based on knowledge of people in the village who had died or considered to be HIV-infected, yet presumed to be circumcised waiting time before resumption of sex and work religion 			

Author, publication date	Year data collected	Facilitators	Barriers	Location	VMMC knowledge	Comments
Albert 2011	2008	Awareness–knowledge–intent • reduction in STIs and HIV/AIDS transmission	Awareness–knowledge–intent Not indicated	Kampala district (capital); Gulu district (North Central) Kumi district (Northeast) Rukungiri (Southwest)	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • increased hygiene • increase in men's sex drive and/or women's sexual pleasure	Acceptability and quality • concerns about the medical procedure • religious or cultural identity • influence on post-procedure risk behaviours – that is, promiscuity among men due to the safety that VMMC provides • financial assistance during recovery period			
Wilcken 2010	2008	Awareness–knowledge–intent • prevention of HIV/STDs	Awareness–knowledge–intent Not indicated	Rural areas of Mpigi, Kayunga and Kaliro districts, Central and Eastern Uganda	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility • accessibility of services • costs			
		Acceptability and quality • religious reasons • improved hygiene • cultural reasons • enhanced sexual pleasure • social acceptability	Acceptability and quality • cultural reasons • fear of complications • religious reasons • opposition of the partner or parents			
Kong 2014	2010–2011	Awareness–knowledge–intent Not indicated	Awareness–knowledge–intent Not indicated	Rakai District	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • receiving voluntary HIV counselling and testing	Acceptability and quality • low self-perceived HIV infection risk: did not think they were at risk of HIV infection • fear of pain or injury • against their traditional or religious beliefs • circumcised men may still get HIV • their partner objected to VMMC • concern of reduced libido or sexual satisfaction • men were too busy for surgery • already HIV infected			
Kibira 2015	2011	Awareness–knowledge–intent • protective against HIV	Awareness–knowledge–intent • not knowing VMMC is protective against HIV	Central, Kampala, Eastern, Northern and Western regions	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • higher perceived risk of HIV	Acceptability and quality Not indicated			

Author, publication date	Year data collected	Facilitators	Barriers	Location	VMMC knowledge	Comments
Mati 2016	2011	Awareness–knowledge–intent • knowledge of reduced HIV risk	Awareness–knowledge–intent Not indicated	Not indicated	Not indicated	Study among married women. “Younger, wealthier, more educated and Muslim women were more likely to support MC.”
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • religion (Muslim > Catholics) • ethnicity (Baganda) • ability to negotiate condom use • ability to refuse sex	Acceptability and quality • ethnicity and religious group (Itesa)			
Lilleston 2017	2012	Awareness–knowledge–intent Not indicated	Awareness–knowledge–intent Not indicated	Rakai district	Not indicated	“Quality of MMC services was influenced by the setting in which the procedure was performed, the safety of procedure, and the gender of the provider.”
		Availability Not indicated	Availability • distance from the clinic			
		Accessibility Not indicated	Accessibility • direct financial costs (that is, private clinicians’ charge for the procedure and transportation costs to get to the clinic) • limited VMMC appointment slots			
		Acceptability and quality • sharing experiences with friends • improves sexual performance • cleanliness of sex	Acceptability and quality • pain • negative effect on fertility • healing period • religion (among Christians) • fears of infection after surgery related to poorly executed circumcisions • lack of access to post-procedure treatment and follow-up • provider’s (female) gender • connotes infidelity • parental objections due to the belief that VMMC would encourage sexual promiscuity • indirect opportunity costs (for example, time away from work)			
Nevin 2015	2013	Awareness–knowledge–intent • increased protection from HIV and other STIs	Awareness–knowledge–intent Not indicated	Four fishing communities in Kalanga district: Bumanji, Kalanga Town Council, Kasenyi and Mweena	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • cleaner and more hygienic: – VMMC improves general hygiene of the penis, including the reduction of foul odours – VMMC reduces the transmission of STIs via improved cleanliness due to the removal of the foreskin • improved sexual performance and desirability	Acceptability and quality • increases a recipient’s libido: “no longer satisfied by one partner” • loss of income due to missed employment and subsequent failure to fulfil familial obligations • fisher folk require longer recovery periods after circumcision due to strenuous activity and submersion in potentially unsanitary water • both men and women reported concerns about spousal infidelity, post-circumcision abstinence and early resumption of sexual activity			

Author, publication date	Year data collected	Facilitators	Barriers	Location	VMMC knowledge	Comments
Gilbert 2018	2013–2015	Awareness–knowledge–intent Not indicated	Awareness–knowledge–intent Not indicated	Rural southwest	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality <ul style="list-style-type: none"> receiving a negative HIV test result hearing circumcision success stories from peers 	Acceptability and quality <ul style="list-style-type: none"> fear of physical pain, compromise of sexual health long healing time economic impact 			
Kibira 2017	2015	Awareness–knowledge–intent <ul style="list-style-type: none"> personal need to reduce HIV/STI risk protect sexual partners from risk of cervical cancer health education about surgical procedure and healing 	Awareness–knowledge–intent Not indicated	Wakiso district, central Uganda	[Study participants interviewed after receiving VMMC services]	Inconsistency in delivering information about VMMC: "One man said the session was rushed and that he had no opportunity to ask questions. They did not tell us anything."
		Availability Not indicated	Availability <ul style="list-style-type: none"> limited availability of counsellors or staff time to provide information about VMMC 			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality <ul style="list-style-type: none"> influence of sexual partners in circumcision decision personal hygiene positive community perception of male circumcision enhance sexual performance mistrust in partners' sexual behaviour 	Acceptability and quality <ul style="list-style-type: none"> not convinced that circumcision reduces HIV infection risk 			
Nakyanjo 2018	2015	Awareness–knowledge–intent <ul style="list-style-type: none"> reduced risk of HIV and STIs 	Awareness–knowledge–intent Not indicated	Rakai District	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality <ul style="list-style-type: none"> improved penile hygiene improved sexual desire and pleasure 	Acceptability and quality <ul style="list-style-type: none"> behavioural: <ul style="list-style-type: none"> riskier sexual behaviours increased sexual desire, leading men to seek extra-marital relationships if they thought they had lower risk of HIV infection wound healing period and sexual abstinence time off work and loss of income "blame game": if an HIV-negative man gets circumcised but acquires HIV, results in domestic violence or separation 			

Author, publication date	Year data collected	Facilitators	Barriers	Location	VMMC knowledge	Comments
Zambia						
Lukobo 2007	2003	Awareness–knowledge–intent • education on the advantages and disadvantages of VMMC	Awareness–knowledge–intent Not indicated	Lusaka District (capital city); Zambezi District (North West); Luanshya District (North Central); Monze (Southern Province)	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility • offered at no or minimal costs	Accessibility • cost			
		Acceptability and quality • reduced risk of STI/HIV • good hygiene	Acceptability and quality • cultural tradition does not include MC • pain associated with the procedure and the healing process • length of time for healing • before puberty is preferred age for circumcision because less painful, and child would heal quickly			
Jones 2013	2012	Awareness–knowledge–intent • HIV prevention	Awareness–knowledge–intent • knowledge that condom use would still be required for HIV prevention	Lusaka	Not indicated	"Public health initiatives should continue to clarify the limits of risk reduction associated with MMC, as well as risk associated with early resumption of sex in the immediate post-MMC period."
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • increased endorsement by female partner • cultural acceptability	Acceptability and quality Not indicated			
Price 2014	2012	Awareness–knowledge–intent • HIV/STI prevention	Awareness–knowledge–intent Not indicated	Lusaka	Not indicated	Participant's comment: "When I asked who could help me, the first person told me, "I don't know. Ask somebody else." The next person I asked told me they offer it every day, but somebody else said they did it only on certain days." "The supply side problems identified in this study are reflective of broader health system weaknesses, rather than VMMC specific issues." "Male participant explained how fear resulted in having a 10-year period between the time he decided to become circumcised and the date he was interviewed."
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility • service issues include difficulty accessing information from health professionals due to long queues, incomplete counselling and inconsistencies in information received			
		Acceptability and quality • hygiene, being clean • prevents cervical cancer • female pleasure/male sexual performance • prevents cracks, bruises and abrasions • encouragement from friends • female partner's support	Acceptability and quality • wound care and healing • pain and injections • adverse events and outcomes • fear of the surgery			
Zulu 2015	2012–2014	Awareness–knowledge–intent Not indicated	Awareness–knowledge–intent Not indicated	Lusaka	Qualitative study with clients after VMMC	"Early resumption of sexual activities is an important contributor to unfavourable outcomes, particularly for those with high risk histories."
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • improved penile hygiene • sexual satisfaction • women's perceptions, attitudes and opinions	Acceptability and quality • prolonged abstinence from sexual activity • post-surgical complications			

Author, publication date	Year data collected	Facilitators	Barriers	Location	VMMC knowledge	Comments
Cook 2015	Not indicated	Awareness–knowledge–intent Not indicated	Awareness–knowledge–intent Not indicated	Lusaka	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • women's attitudes and women's increased acceptance	Acceptability and quality Not indicated			
Zimbabwe						
Mavhu 2011	2009	Awareness–knowledge–intent • knowledge of VMMC and its health benefits	Awareness–knowledge–intent Not indicated	Rural (two unspecified provinces)	Level of knowledge based on eight MC items: High – 12% Medium – 32% Low – 56%	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • men more willing to undergo MC and women more favourable towards MC when aware of its benefits	Acceptability and quality • disbelief that VMMC protects against HIV • cultural issues • fear of pain and/or adverse effect			
Khumako-Sakutukwa 2013	Not indicated	Awareness–knowledge–intent Not indicated	Awareness–knowledge–intent • limited knowledge of both traditional and medical circumcision • reluctance to defer sexual contact during the healing period post-circumcision • older men (age not specified) highlighted the need for more education about the long-term benefits of medical circumcision and the need to abstain during healing period • older men prefer MC promotion addressed to younger men, who are perceived to be more sexually active and at higher HIV risk	Mutoko rural district in Mashonaland East province of Zimbabwe; Vulindlela, rural district in KwaZulu-Natal province of South Africa	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • HIV protection: willingness to accept VMMC if the procedure would prevent them from getting HIV • health and sexual benefits	Acceptability and quality • cultural and local barriers: VMMC regarded as an outsider's practice indicating lower social status or status as a foreigner • health risks with procedure • stigma and shame: emasculated because they did not have a foreskin • reduction of penis size			

Author, publication date	Year data collected	Facilitators	Barriers	Location	VMMC knowledge	Comments
Hatzold 2014	2013	Among those who were willing to undergo VMMC: Awareness–knowledge–intent	Among males who were not willing to be circumcised: Awareness–knowledge–intent	National population-based survey February 2013 in 60 rural and 40 urban areas Qualitative study conducted in June–Oct 2010 in Bulawayo, Harare, Mashonaland West, Masvingo and Matabeleland North	61% (both males and females) had heard of VMMC as an HIV prevention method	Quote: “She [wife] asked ‘Why, when you are already married? They say it offers prevention from HIV. Where do you think the HIV will come from?’”
		<ul style="list-style-type: none"> prevention of HIV self-efficacy social support 	<ul style="list-style-type: none"> myths/incorrect information, including that MC can lead to infertility partner has not asked (lack of partner’s support was a significant barrier among 4% of men ages 25–49) 			
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility <ul style="list-style-type: none"> worried about cost 			
		Acceptability and quality Major reasons: <ul style="list-style-type: none"> hygienic purposes Minor reasons: <ul style="list-style-type: none"> prevent cervical cancer in partner to set a good example for their community or children to please their female partners followed my friends my partner told me to 	Acceptability and quality Major reasons: <ul style="list-style-type: none"> fear of HIV test pain Minor reasons: <ul style="list-style-type: none"> not perceived to be at risk of HIV due to monogamy fear of complications length of healing period 			
Montano 2014	Not indicated	Awareness–knowledge–intent Not indicated	Awareness–knowledge–intent <ul style="list-style-type: none"> lack of knowledge on how VMMC prevents HIV 	Urban: Harare and Bulawayo Rural: Mutoko and Matobo districts	Not indicated	
		Availability <ul style="list-style-type: none"> in local (including rural) clinics 	Availability <ul style="list-style-type: none"> shortage of equipment and materials 			
		Accessibility Not indicated	Accessibility <ul style="list-style-type: none"> VMMC is not free 			
		Acceptability and quality <ul style="list-style-type: none"> will give you peace of mind will enhance sexual pleasure/enjoyment for you 	Acceptability and quality <ul style="list-style-type: none"> cause women to shun you and say your penis is different might not heal properly, cause disfigurement culture is against VMMC VMMC is new, not offered before in community wife/girlfriend is against VMMC people describe VMMC as painful 			
Rupfutse 2014	April–September 2013	Awareness–knowledge–intent <ul style="list-style-type: none"> village heads: prevention of HIV, STIs and cervical cancer in female partners 	Awareness–knowledge–intent <ul style="list-style-type: none"> procrastination 	Mazowe District: Shona people (92%) and Nyanja (8%)	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility <ul style="list-style-type: none"> VMMC offered for free 	Accessibility <ul style="list-style-type: none"> long queues or long waiting time at clinics or hospitals shortage of medicines at health facilities 			
		Acceptability and quality <ul style="list-style-type: none"> having a circumcised relative/friend encouragement by a friend or relative discussing circumcision with female partner 	Acceptability and quality Primary/major reasons: <ul style="list-style-type: none"> fear of pain long abstinence period (30.3%) rude nurses Secondary/minor reasons: <ul style="list-style-type: none"> too old for VMMC partner infidelity during abstinence being HIV-positive fear of reduced sexual performance reports of death due to traditional MC cultural barriers perceived excessive pain, excessive swelling, disfigurement 			

Author, publication date	Year data collected	Facilitators	Barriers	Location	VMMC knowledge	Comments
Moyo 2015	July–August 2012	Awareness–knowledge–intent Not indicated	Awareness–knowledge–intent <ul style="list-style-type: none"> • lack of reliable and adequate information on VMMC • misconceptions and myths about the health effects: <ul style="list-style-type: none"> – injection to control pain perceived to cause male infertility – cultural belief in witchcraft results in scepticism about the safety and disposal of removed foreskin 	Rural Mhondoro-Ngezi in Mashonaland West Province	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality Not indicated	Acceptability and quality <ul style="list-style-type: none"> • perceived challenge to masculinity • fear of HIV testing associated with VMMC • fear of possibility of irreversible accidents and mistakes during operation • in case of adverse event, lack of insurance to cover costs • post-circumcision stigma • recuperation period unwanted • operation by a female health worker • belief that VMMC is a strategy to control African men's sexuality 			
Chikutsa 2015a	2013	Awareness–knowledge–intent Not indicated	Awareness–knowledge–intent <ul style="list-style-type: none"> • use of condoms after circumcision: some respondents questioned the efficacy of male circumcision, given that one must use condoms for HIV prevention even after getting circumcised 	High density suburbs of Harare: participants in a mixed-sex focus group discussion from a local shopping area	Not indicated	Improves sexual performance Note: There is no evidence of change in sexual performance with MC. Author's remark: "It is not clear where belief on increased promiscuity emanates from, but it appears to be strong among men."
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality <ul style="list-style-type: none"> • cleanliness: widely understood as emphasized in the promotion of VMMC, where MC was defined as "getting men cleaned", while others viewed MC as a removal of a body part that keeps dirt, making it difficult for men to remain clean; "reduces the breeding of bacteria" • protective effect against STIs and HIV • women satisfied with circumcised penis • belief that it improves sexual performance 	Acceptability and quality <ul style="list-style-type: none"> • perceived to cause loss of sexual desire • leads to marriage breakdown due to prolonged healing period before resumption of intercourse • fear of HIV test before circumcision • cultural belief: fears that the removed foreskin may be used in satanic rituals • stigma among peers • VMMC associated with disability and illness • may lead to ridicule in a society where the practice is still relatively new • circumcising men at hospitals gives impression that you are already ill and, therefore, need medical attention • perceived boost in men's sexual appetite; women perceive increase risk of promiscuity 			

Author, publication date	Year data collected	Facilitators	Barriers	Location	VMMC knowledge	Comments
Chikutsa 2015b	Not indicated	Awareness–knowledge–intent Not indicated	Awareness–knowledge–intent Not indicated	Harare	97% of men and 96.7% of women had heard about VMMC	
		Availability • knowledge of a place offering VMMC services	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • HIV/STI prevention • improves genital cleanliness	Acceptability and quality • time off work • painful procedure			
Chiringa 2016	Not indicated	Awareness–knowledge–intent Not indicated	Awareness–knowledge–intent Not indicated	Four sections in Bambazonke	Not indicated	
		Availability Not indicated	Availability Not indicated			
		Accessibility Not indicated	Accessibility Not indicated			
		Acceptability and quality • reduced risk of STIs and HIV infection • sexual pleasure • religious purposes (religious affiliation has influence on decision to undergo circumcision or not) • reverse stigma: men and boys undergo circumcision for fear of being stigmatized, especially if the majorities are circumcised	Acceptability and quality • fear of pain • fear of the unknown • ancestors' permission and being shunned by the community • sociocultural factors: being viewed as worthless and shameful • religious beliefs that it is a sin to change the way one was created • psychological factors: – infection and delayed healing, being ashamed and dehumanized, stigmatized and discriminated against – fear of having an erection during treatment period – fear regarding sexual performance, penis size – fear of losing partner due to perceived reduction of sexual pleasure – fear of HIV testing – fear of injections • economic factors: – will take time from work – complications may arise, leading to spending money on treatment			

HIV = human immunodeficiency virus; HTS = HIV testing services; MC = male circumcision; MMC = medical male circumcision; STIs = sexually transmitted infections; VMMC = voluntary medical male circumcision.

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