Traditional male circumcision and the risk for HIV transmission among men: a systematic review

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ABSTRACT

Objectives To synthesise evidence to determine whether, in contrast to medical male circumcision, traditional male circumcision (TMC) practices may contribute to HIV transmission and what the impacts of TMC are on the initiates, their families and societies.

Design Systematic review.

Data source PubMed, CINHAL, SCOPUS, ProQuest, Cochrane database and Medline were searched between 15 and 30 October 2022.

Eligibility criteria (1) Studies involving young men, young male adults, male adults and mixed male and female participants; (2) studies on TMC involving men living with HIV (married and non-married); (3) studies on TMC, HIV transmission and impact in low-income and middle-income countries; (4) qualitative, quantitative and mixed-method studies and (5) studies aimed at exploring TMC and how it contributes to HIV transmission and the impacts of HIV on circumcised men and their families.

Data extraction Data were extracted based on study details, study design, characteristics of participants and results.

Result A total of 18 studies were included: 11 were qualitative studies, five were quantitative studies and two were mixed-method studies. All the studies included were conducted in areas where TMC was performed (17 in Africa and one in Papua New Guinea). The review's findings were categorised into themes: TMC as a cultural practice, consequences of not being traditionally circumcised on men and their families and TMC-related risk of HIV transmission.

Conclusion This systematic review highlights that TMC practice and HIV risk could negatively impact men and their families. Existing evidence suggests that little attention has been paid to men and their families experiencing the impacts of TMC and HIV risk factors. The findings recommend the need for health intervention programmes such as safe circumcision and safe sexual behaviours following TMC and efforts to address psychological and social challenges in communities practising TMC.

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INTRODUCTION

Circumcision is a cultural practice older than written history can explain, can be traced back to pre-Abrahamic times and can be found in many Judeo-Christian traditions in Africa. It may also be one of the world’s oldest human surgical procedures. It is a practice that has been widely performed on boys and young men by cutting off the foreskin of the penis as a rite of passage to mark the transition from childhood to manhood, primarily for religious and cultural reasons/beliefs. In many parts of the world, such as Africa, Asia, Australia, Polynesia and South and North America, it has traditionally been practiced. From the late 19th century onwards, circumcision is seen both as a cultural or religious practice/identity and also as a public health approach. In the 1980s, observational studies developed the hypothesis that circumcision might protect against HIV transmission.

Male circumcision provides significant protection against HIV transmission and other sexually transmitted infections (STIs) in men. This has been proven by randomised controlled trials in South Africa, Kenya and Uganda, showing that circumcised males were less likely to become infected with HIV. As a result, male circumcision is increasingly recommended as a strategy to reduce HIV transmission, particularly in areas with a high prevalence of HIV. A WHO and the United Nations report has also highlighted a correlation between the lack of male circumcision and higher HIV rates, specifically in Eastern and Southern Africa. Likewise, some meta-analyses showed that male circumcision protects significantly against HIV infection. However, scepticism has also been...
raised regarding the protective effect of male circumcision on HIV transmission. Some previous studies failed to prove the correlation between male circumcision and HIV infection prevention, while another study falsely claimed that circumcision increased the risk of HIV transmission. This false claim was strongly criticised as the study used simple data pooling that can lead to incorrect results. Such scepticism seems also to be supported by some evidence from Japan and Scandinavian countries showing that the percentage of circumcised men is low, but the prevalence of HIV cases in these countries is also low. However, when it comes to male circumcision and HIV infection in socioeconomically advanced countries, such as Scandinavian, as well as others in Europe, the UK, North America and Australia, male circumcision is protective once sexual practice and sexual activity are taken into account, namely receptive anal intercourse by men who have sex with men. This is the primary source of HIV infection in such countries, and male circumcision would have no biological capacity to protect against transmission. Furthermore, factors such as sexually active behaviours prior to circumcision, religion, history of STIs and age have been reported to be overlooked in the findings of randomised trials. These factors have also been as supporting reasons for doubt about the strength of the relationship between male circumcision and HIV transmission prevention.

Similar to medical circumcision, the protective benefits of traditional male circumcision (TMC) have been a common question. Some evidence has suggested that TMC provides less or no protection from HIV transmission due to less amount of foreskin removed. Newly traditionally circumcised males are also considered to have minimal protection if they have sexual intercourse before the wound heals completely. The possibility of acquiring HIV infection through TMC is also considered high due to sharing of a surgical knife or blade on multiple men. TMC refers to the procedure of removing the foreskin of the penis in males in a non-clinical way by traditional circumcisers without formal medical training. In addition to preparing newly circumcised males for the transition to manhood, TMC symbolises new initiates officially being accepted in the community with a new status of being a man and becoming a good model in family and society. TMC also denotes that new initiates have a greater social responsibility to their families and community, act as negotiators in community disputes and have a chance to learn about the community’s problems. These symbolisations highlight TMC as a sacred and secret rite. For example, in Africa, initiates are forbidden to talk with outsiders about the circumcision ritual and those who undergo the ritual as it will cause severe punishment imposed by the community.

Similarly, sanctions will be imposed on females and non-circumcised males who gain information about the ritual. To some extent, due to its sacredness, the further consequences of TMC practice have become a challenge for health intervention programmes.

Studies on male circumcision and the risk for HIV transmission have been conducted in many parts of the world, including low-income and middle-income countries (LMICs) and developed countries. The American Academy of Paediatrics and the US CDC have suggested that the health benefits of male circumcision outweigh the risk. They support parents who approved of infant male circumcision and recommend male circumcision at any age for the health reason. Although TMC is still practised in several countries, and its healing process may have a high risk of HIV and other STIs transmission, to the authors’ knowledge, there have been no published systematic reviews on TMC, HIV risk and impacts on circumcised men and their families. Thus, the authors consider it essential to conduct a systematic review to synthesise evidence and determine whether, in contrast to male medical circumcision, TMC practices may contribute to HIV transmission and what the impacts of TMC are on the initiates, their families and societies. The review was conducted to address these specific questions: how does TMC practice contribute to HIV transmission? What are the implications of TMC on men, their families and societies? To determine whether a previous systematic review exploring this theme had been completed or is in progress, we conducted a preliminary search in PubMed, CINHAL and Scopus and found no published systematic reviews or systematic review protocols on this topic in LMICs and developed countries. We also searched the International Register of Systematic Reviews (PROSPERO) to identify underway or protocols of systematic reviews to avoid unintended duplication of reviews. Therefore, this systematic review is needed to fill the gap and to help inform future health efforts at all levels, including health practitioners, researchers and policy makers.

METHODS

The systematic search strategy

The protocol for the systematic review has been registered with PROSPERO. The systematic search started with an initial search following the PICO (Population, Intervention, Comparison and Outcomes) framework, which has been used as part of the WHO guidelines development process to inform evidence-based practice. The systematic search was developed in collaboration with a health librarian expert, and the search terms were adjusted by each database. Databases searched included PubMed, CINHAL, SCOPUS, ProQuest Public Health, Cochrane Library and Medline Complete—EBSCO. The search was limited to the English language, and with no year limit to capture as many articles as possible about circumcision, TMC, HIV and its impact on men and their families. The search strategies for the databases are in online supplemental appendix 1. Medical Subject Headings were used as part of the search strategies. The search terms were formulated using the combination of key terms or the synonym of each concept using Boolean terms (OR and
AND). In addition to electronic search, Google Scholar and Google were used to search grey literature using key terms, such as TMC OR traditional circumcision. Reference lists of all relevant articles were also scrutinised to identify articles not recaptured by electronic database search. The search for databases was conducted from 15 to 30 October 2022. The combination of key terms for electronic database search, including the synonym of each concept, is in box 1.

Inclusion and exclusion criteria
The review included qualitative, quantitative and mixed-method studies and evidence syntheses (systematic reviews). A summary of inclusion and exclusion criteria is shown in table 1.

Data screening
All the identified articles (figure 1) were collated and imported into EndNote X9 (Clarivate Analytics, PA, USA). The search identified 3041 articles from databases and eight articles from other sources. Duplicates (n=690) were removed using EndNote. The titles and abstracts of the remaining 2359 articles were screened by the first author and 2118 articles were removed due to irrelevant populations and focus or aims. In total, 241 articles were examined in full text for eligibility by the first and second authors and disagreements were resolved through discussion among the three authors. Of this, 222 articles were excluded due to not meeting inclusion criteria. Nineteen articles fulfilling inclusion criteria were then assessed for methodological quality using critical appraisal tools developed by the Joanna Briggs Institute (JBI) for study design.57 This led to the exclusion of one article not meeting the methodological quality, and the remaining 18 articles were included in the final review. The methodological quality assessment was performed by the authors GAA and NKF. Uncertainty was

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**Box 1 Search terms**

| Concept and search items | 1. Circumcision OR male circumcision OR traditional circumcision OR traditional initiation OR traditional male initiation OR TMC OR traditional male circumcision OR indigenous male circumcision OR traditionally circumcised OR traditionally circumcised male OR open circumcision OR traditional men circumcision OR sifon OR traditionally circumcised men OR traditionally circumcised husband OR traditional practice of male circumcision OR practice of traditional men circumcision OR ritual traditional circumcision OR ritual initiation. | 2. HIV infect* OR HIV prevention OR HIV control OR HIV OR AIDS OR sexually transmitted infections OR risk of HIV infection OR HIV transmission OR sexually transmitted disease.* | 3. Impact* OR psychological well-being OR distress OR economic impacts OR social effect OR stigma OR discrimination OR unproductive husband OR loss of job OR loss income OR health impacts OR powerlessness OR worthless OR social distance OR social isolation OR stress OR mental health. | 4. Developing countries OR less developed OR disadvantaged OR resource limited OR poor OR low* OR middle income* OR region* OR area* OR low resource regions OR resource limited regions OR resource limited countries* OR developed countries OR pacific countries. |

**Search combination**

#1 AND #2 AND #3 AND #4

The search will be applied in different databases: PubMed, CINHAL, SCOPUS, ProQuest, Cochrane database and Medline.

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**Table 1 Inclusion and exclusion criteria**

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<th>PICO acronym</th>
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<tr>
<td>P- Population</td>
<td>Young men, young male adults, male adults, mixed participants males and females; Studies on TMC involving men living with HIV (married and non-married); Mixed gender (male and female) but with explicit evidence on male</td>
<td>Infant, children, women, female</td>
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<tr>
<td>I-Phenomenon of Interest</td>
<td>TMC, HIV transmission and impact</td>
<td>Medical circumcision and its impact and voluntarily medical male circumcision (VMMC)</td>
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<tr>
<td>Co-Context</td>
<td>LMICs and developed countries</td>
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<tr>
<td>S-Study design</td>
<td>Qualitative, quantitative and mixed-method studies. Literature reviews, reports, policy documents, ethnography, anthropology and social study</td>
<td>Other than English</td>
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<td>Language</td>
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<tr>
<td>Purpose of study</td>
<td>Studies aiming at exploring the TMC and how it contributes to HIV transmission and the impacts of HIV on circumcised men and their families</td>
<td>Studies aiming at exploring HIV risk factors and impacts on women</td>
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<td>Text</td>
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<tr>
<td>LMICs, low-income and middle-income countries; TMC, traditional male circumcision.</td>
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resolved through discussion among the three authors. The screening process of the articles is reported and presented according to the Preferred Reporting Items for Systematic review and Meta-Analysis (PRISMA) flow diagram (figure 1).58

**Data extraction and data analysis**

For each included article, data extraction was conducted with an extraction sheet. In the sheet, we recorded (1) study details: the last name of the first author, year of publication and study setting; (2) study design: type of study, study aim and analysis methods; (3) characteristics of participants: population, sex of participants and age of respondents and (4) results: the main themes, including TMC as a cultural practice, the impact of not being traditionally circumcised and the risk for HIV transmission (online supplemental file 1). The analysis followed three-stage procedures by Thomas and Harden framework:59 (1) coding the text line by line, interpreting the data and identifying concepts or themes; (2) developing descriptive themes by grouping similar concepts in theme and subtheme and (3) generating analytical themes by reviewing preliminary themes and discuss the addition or revision of the themes. The final analytical themes were then reviewed and decided, as presented below.

In general, the quality of methodological assessment of the included studies varied. Among the 18 studies, five studies reached 100% in assessment of methodological quality, eight reached 90%, four reached 80% and one reached 70%. The detail of methodological quality assessment can be seen in online supplemental file 2.

**Patient and public involvement**

This study used published studies and did not include patients and public involvement.

**RESULT**

**Characteristics of included studies**

All included articles were published in English from 2003 to 2020. Among the 18 included publications, 11 were qualitative studies,43 45 53 60–67 five were quantitative studies,68–71 and two were mixed methods.72 73 All the included studies were conducted in areas where TMC was performed. A total of 48 468 participants were involved in the review, of whom 1055 and 47 413, respectively, were involved in qualitative and quantitative studies. Eleven studies involved male only,20 45 53 60 61 64–67 71–73 75 seven studies involved men and women,43 60–62 68 71 73 two studies involved traditional circumcisers45 62 and one study involved health practitioners.62 Participants’ ages ranged from 13 to 70 years old. Of the 18 studies, two did not report the participants’ age.53 60 Most of the studies (n=17) were conducted in Africa, while one was conducted in Papua New Guinea (PNG).60

Key findings were grouped into three main themes, including (1) TMC as a cultural practice, (2) TMC and challenges of not being traditionally circumcised on men and family and (3) TMC and the risk for HIV transmission. Finally, knowledge gaps were identified.

**TMC as a cultural practice**

It is widely recognised that TMC is practised by various cultural groups among men as a rite of passage from childhood to adulthood. To the search, TMC is mainly practised in LMICs in Africa and PNG. Thirteen studies43 45 53 60 61 64–67 71–73 75 discussed TMC as a cultural practice: the process of TMC, TMC as a secret and sacred practice, and reasons to undergo TMC.

**Process of TMC**

Of the 14 studies, seven43 45 53 60 61 65 66 73 described three steps of the TMC ceremony, including the separation from family and community, transition and incorporation into the family and community. In separation step, new initiates were taken to a mountain or camp for weeks or months.53 73 This long period was reported to be adequate time for the healing process and learning about manhood.53 The separation was meant for new initiates to demonstrate survival skills, such as the ability to endure pain, which could improve men’s qualities, such as strength, courage, respect and fortitude.61

Transition process is a step where initiates were taught about the social norms, cultural knowledge and community expectation for them so that they can socialise with their nuclear family, friends and community.66 For example, a study in Papua New Guinea60 found that new initiates were taught about what they have as a clan, such as their ancestral values and spirit, their clan’s history, status, the land, the forest and the sea. Three studies43 63 73
discussed expectations in initiate’s families and communities after being traditionally circumcised, which is in line with a study reporting that new initiates were expected to be role models, have the ability to protect family, solve family disputes and refuse tasks considered as a female domain. In the community, they were also expected to have a sense of belonging to the community, take greater responsibilities (avoiding criminal activities and abuse of women), be able to cooperate with elders and could face difficulties in the future.

In addition to learning about family and community, several studies reported that new initiates were taught about sexuality during the TMC ceremony. A study in Limpopo, South Africa found that sexual socialisation during TMC emphasises on sexual control and sexual reserve rather than ‘permit to sex’. For example, initiates were taught that if they did not wait a long time to have sexual intercourse after being circumcised, their foreskin would grow again, and therefore, they would have to undergo a new circumcision which is more painful. However, other findings discovered that the emphasis on sexuality during circumcision had been changed with circumcision as a ‘license’ for sex, including unsafe sex behaviours. These studies support the findings of another study reporting that traditionally circumcised men tended to assume that they had unlimited and unquestionable rights to have access to sex.

The incorporation process was marked by the return of initiates to the family and community. In South Africa, on returning, new initiates wore a new dress code symbolising newly circumcised men re-entering family and community as new individuals or transformed individuals who were ready to fulfil new roles in their society. This process is marked with a celebration by slaughtering animals (a goat or a sheep) as a sign of thanks to ancestors, family and community. A study in PNG found that incorporation was marked with having a celebration or party with family and community. Celebration of successful traditional circumcision draws the symbolic power of being custodians of cultural practices resulting in the sense of community, social identity and belonging.

Three studies described TMC as an incomplete or partial circumcision, as only part of the foreskin was removed during circumcision. This is usually performed in non-clinical settings by traditional circumcisers without formal medical training. Having a partial foreskin is considered the same as not being circumcised as the foreskin keeps semen in the penis, thus, making them ‘dirty’ and vulnerable to easily being infected with HIV and other STIs infections compared with full circumcision (medical circumcision). Findings showed that TMC, similar to medical circumcision, may reduce the risk of HIV and other STIs. The findings also showed that the amount of foreskin removed during the ceremony determines the extent of effectiveness against HIV transmission.

TMC as a secret and sacred practice
Six studies described TMC as a sacred, secret and compulsory cultural practice in communities. As a sacred and secret practice, TMC was conducted with certain rituals in certain places and performed by certain people (traditional circumcisers). In Tanzania, the traditional circumcisers were appointed by ancestors through dreams, and the skills were passed from one person to another through observation. Meanwhile, in Xhosa, South Africa, the skills were taught by elder circumcisers through apprenticeship. The ritual ceremony was performed by traditional circumcisers or clan leaders prior to circumcision. Similarly, as a compulsory practice, all men within the community were required to undergo such practice. Secretness is also marked by separation or isolation. Studies in Africa found that secretness is kept by isolating or separating new initiates from their families and communities. Similarly, a study in PNG found that TMC was performed in a designated home for the exclusive use of men, where only men were allowed to witness the actual process.

The cultural practice of TMC in Africa and Asia does not allow women to be around the ceremony and view or have knowledge of the process of TMC. It is believed that initiates will be affected by witchcraft and experience a slow recovery process if women were present during the ceremony. However, women in PNG were found to be highly knowledgeable about the whole process of TMC and able to explain in detail the cutting process, the procedures and the disposal of blood. The role of women in the community in PNG was to start preparing for welcoming new initiates, such as making food, buying pigs to be eaten during the celebration, singing, dancing and giving gifts.

The sacredness of the TMC was reported to be related to the initiate’s ancestors’ intervention, as highlighted in two studies. In South Africa, ancestors were reported to be involved in the TMC process and wound healing following circumcision. Long-healing wounds or not healing correctly is associated with sexual impurity. For example, in Monduli, Tanzania, it was believed that the wound took 2 weeks to be completely healed for initiates who had not engaged in sexual intercourse before circumcision and took more than 1 month for the exposed ones. Due to this, in certain communities, initiates were asked to repent their sins so that the wound would heal quickly.

Reasons to undergo TMC
Ten studies described rationales for TMC. These studies underlined an obligation to perform cultural rites to prepare new initiates for the responsibility of adulthood as the main reason for TMC. A qualitative study in South Africa found that men and women underlined the importance of TMC to live up to cultural values and community expectations. They believed that traditionally circumcised men were more mature, less abusive and more responsible than non-traditional circumcision as they had received teachings during ceremonies.
Furthermore, learning social norms, cultural values and men’s related values, such as being tough and brave to take risks, were aspects that were only found in traditional circumcision and not in medical circumcision.65 This reason seemed to influence initiates’ resistance to modern medical circumcision. Expecting the privilege of being accepted and being together, such as having meals in the same dishes with the circumcised ones, was also a supporting factor for men to undergo TMC.72

Four studies71 72 75 77 described economic reasons to undergo TMC. The low cost of TMC compared with medical circumcision was reported to affect the initiates’ and their family’s decision.77 Evidence from South Africa showed that new initiates could not afford to pay for medical circumcision, and the amount of money charged by legal traditional circumcisers resulted in new initiates taking health risks by visiting illegal traditional circumcisers because they charge less.72 Such evidence seemed to show that people who were economically vulnerable in traditional settings may only be able to access cheaper circumcision services with a high risk of complication and potential risk of HIV transmission. Nevertheless, in many cases, the cost charged for traditional circumcision did not include the time the wound was fully recovered, complications requiring further medical treatment, and celebration of full recovery.75

Five studies43 45 60 65 67 discussed the influence of women (eg, girlfriends, future wives/partners), family, community and peers on men to undergo circumcision (TMC and medical circumcision). Evidence from South Africa showed that women often scheduled appointment for their boyfriend or husband to be traditionally circumcised.74 Similarly, another finding in South Africa showed that women tended to undermine the manhood of non-circumcised males.65 Also, findings in PNG showed that women prefer circumcised men for marriage and as sexual partners.66 In addition to cultural reasons, women’s preferences for circumcised men were related to pleasure and satisfaction during sexual intercourse compared with uncircumcised men.63 This is in line with other systematic reviews reporting that women prefer circumcised men for multiple reasons, including sexual pleasure.78 79 Family, community and peers were also reported as significant influencers for young men to undergo TMC.45

Another significant pressure was from women. Studies found that boys felt pressure when asked by girlfriends or partners about their circumcision status. A study in South Africa found that girls were undermined if dating and walking with uncircumcised boys.66 Uncircumcised boys were also considered not ready building relationships with women.63 Another finding in Africa also showed that circumcision is beneficial for women who were married to men who were cheating, as circumcision might protect against HIV transmission.66

Social challenges: stigma, discrimination and disrespect

Seven studies43 60 61 65 66 68 80 described stigma and discrimination related to TMC. A study in Xhosa, South Africa, noted that 70% of Xhosa initiates felt that they would experience stigmatisation if they were not traditionally circumcised.81 In the same study setting, uncircumcised men and those who underwent medical circumcision were stigmatised as boys who were immature and impossible to distinguish them from ‘real men’.63 Similarly, uncircumcised men in PNG69 felt ridiculed, mocked and people made fun of those who were not traditionally circumcised. Indeed, uncircumcised men in PNG are referred to as utilusa (foreskin) instead of using their actual name. Such impact was experienced by both the initiates and also the initiates’ families in which others in the community looked down on the initiates’ father and family. For young uncircumcised men in Africa, stigma, discrimination and rejection were reported to have caused long-term psychological effects reflected in anxiety, personality change and lack of confidence.63

It is also reported that uncircumcised men were treated differently and assumed negatively, as reported in two studies.63 66 In the family and community, they were highly vulnerable, often blamed for inappropriate actions and
considered incapable of moral worth. For example, uncircumcised men are often accused of being liars and thieves and treated like animals (dogs) in their community. Another Africa study showed that uncircumcised men and those who underwent medical circumcision would not be accepted in the community, did not obtain rights and responsibility in their families and had no rights to negotiate with elders. Also, they were not allowed to start families within their community and to inherit and have property on their own. Such negative impacts were reported to affect uncircumcised men psychologically, such as feeling embarrassed, disadvantaged and having low/no moral worth.

A couple of studies also suggested that uncircumcised men who underwent medical circumcision did not earn respect from the community. In some settings, it is considered proper for the community not to respect men who failed to follow the rite of passage, leading them to not receiving the same status as other men. Uncircumcised men and those who failed to follow the ritual would be marginalised from the traditional ceremony and community discussion. These studies suggested that such consequences can lead to further psychological problems, such as sadness, low self-esteem, guilt, social withdrawal and frustration among traditionally uncircumcised men.

The social challenges, stigma, discrimination and expectation towards traditionally circumcised men underline cultural constructions of the penis and body, leading to the construction of masculinity and womanhood, which further raises issues of gender constructions. The body functions metaphorically to symbolise social status, tribal affiliation, family position and gender. Rite of passage indicated by ritual and social transformation plays significant roles in social interaction within community.

**TMC and the risk for HIV transmission**

Nine studies described (1) shared knife and bandage, unhygienic environment and the risk for HIV transmission; (2) TMC promoted multiple sexual intercourses and increased sex partners, (3) belief in the protective effects of TMC against HIV/AIDS and (4) TMC and knowledge of HIV transmission.

**Shared a knife and bandage, unhygienic environments and the risk for HIV transmission**

Four studies highlighted the practice of one knife or blade used to circumcise several initiates. For example, most participants in a study in Tanzania reported that one knife was used in all TMC ceremonies. Similarly, a quantitative study in South Africa showed that using one knife or blade to circumcise several initiates in one or several TMC ceremonies was reported to put initiates at high risk of being infected with HIV and other STIs as some of the initiates may have had unsafe sexual intercourse before circumcision and may already be HIV-positive. However, another finding in a quantitative study showed that some traditional circumcisers started using one knife or razor one for one initiate.

A study by Mpateni and Kang’ethe also highlights the possibility of being infected with HIV and other infectious diseases through sharing bandage and unhygienic environments reflected in contaminated areas around the ceremony and using unwashed dishes to eat. Such poor environments were supported by the careless mistakes of traditional circumcisers who lacked knowledge of the importance of hygiene and how infectious diseases spread.

**TMC promotes multiple sexual intercourses and increases sex partners**

Promoting multiple sexual intercourses in TMC was reported in five studies. A qualitative study in Malawi found stakeholders’ concern about the role of the TMC ceremony in promoting sexual adventure among new initiates, asserting that circumcised men were not children anymore after they had sexual intercourse following circumcision. Similarly, there was also myths and false teaching that after being traditionally circumcised, initiates had to have sex with several females for testing of the penis. As a result, many boys took this ceremony as a license to start having sex. This finding supports the finding of a study that traditional initiation schools had a strong influence on initiates sexual behaviours. This strong sexual desire was reported to be supported by a considerable amount of time they spent in the bush or camp during TMC ceremonies without any contact with females. Elsewhere, a qualitative study found that traditionally circumcised men were told to have sexual intercourse without condoms to prove that they could enjoy flesh-to-flesh sex following the circumcision. As a result, some initiates continued to not use condoms following TMC.

Promoting sexual intercourse has led traditional initiates to increase the number of sex partners, as reported in two quantitative studies. The study in Kenya found that some initiates had more sexual desire following TMC, resulting in initiates increasing their number of sexual partners. Such practice was reported to increase the transmission of STIs. The study suggests the need for the synergy between traditional rituals and medical intervention for HIV preventive practice.

**Belief in the protective effects of TMC against HIV and condom use**

Belief in the protective effects of TMC against HIV/AIDS transmission was also a risk factor which further affects initiates’ sexual behaviours. Four studies discussed about beliefs in the protective effects of TMC. Traditionally circumcised men tended to believe that TMC offers complete protection against HIV and other STIs and that circumcision is an alternative to condom use. A quantitative study in Eastern Cape, South Africa, found that 97% of TMC initiates believed that TMC made initiates become ‘real men’ and did not need to use condoms during sexual intercourse. A study in sub-Saharan
African countries found that traditionally circumcised males were less likely to use condoms following circumcision. This is similar to Eastern Cape findings, reporting that TMM initiates were more likely to engage in risky sexual activities. Similarly, a cohort study in South Africa found that 38% of traditionally circumcised men reported inconsistent condom use when having sex, and 8% reported never using condoms.

**TMC and knowledge of HIV transmission**

Lack of knowledge of HIV and other STIs among initiates and traditional circumcisers was reported in five studies. Similar to medical circumcision, TMC initiates also believed that TMC protected them from STIs such as syphilis and gonorrhea and enhanced personal hygiene. A cohort study found that new initiates who went through traditional circumcision were mainly for cultural reasons rather than HIV prevention.

The absence of information about HIV and other STIs prior to and after the circumcision was also reported as an HIV risk factor. For example, a study in Limpopo found that traditional initiation schools did not provide information about sexual health and HIV/AIDS and other STIs but tended to encourage new initiates to engage in risky sexual activities. Safer sexual behaviours, such as condom use and being faithful to one sex partner, were not considered a part of initiation school programmes. This was acknowledged by initiates, who said that they obtained information about condoms from local clinics and mass media. A qualitative study in South Africa found that the absence of information has led to a lack of understanding about the correlation between circumcision and HIV transmission.

Lack of knowledge of the mode of HIV transmission was both in TMC initiates and also among traditional circumcisers, reflected in encouraging sex adventure, using one knife for several initiates, sharing bandages for several initiates and ignorance of unhygienic environments. A study in Tanzania revealed that most traditional circumcisers did not associate traditional circumcision practice and HIV/AIDS, assuming that HIV/AIDS was an urban disease. However, another finding of the same study also showed that careless mistakes performed by traditional circumcisers by not using any protection, such as gloves, when cutting the foreskin of the penis increased the risk of HIV transmission.

**DISCUSSION**

**TMC practices and HIV transmission**

The findings show evidence that TMC as a cultural practice remains practised in some communities in LMICs in Africa and Asia. The majority of the studies reported that TMC in communities is not merely to cut off the foreskin but also to live up the tradition, keep the relationship with their ancestors and to teach and inherit cultural values and the values of ‘manhood’ to new initiates. The practice of TMC is highly valued as a secret and sacred practice, taking weeks and months from the separation step until the new initiates return to the families and communities. Secretness and sacredness aspects in TMC may have led to difficulties in health intervention to control safety procedures. Such practice and its potential health risk factors reflect the community’s high value on culture or tradition rather than any other type of medical or modern health intervention.

Studies in many Africa communities found that TMC is a compulsory practice where all men were required to be traditionally circumcised, leaving challenges at individual and family levels for those who did not undergo such practice. At the individual level, TMC causes psychological impacts for uncircumcised men and those who followed medical circumcision, including feeling ashamed, stressed and pressured. These impacts were supported by the cultural values that put TMC as a standard of maturity for men. In addition to experiencing pressure from family and community, uncircumcised men also felt pressure from girls or women who preferred to build a relationship or to have sexual intercourse with traditionally circumcised men. Such impacts were also attributed to those who did not completely follow the process of TMC or mixed with medical circumcision. Although studies included in this review did not report the challenges of TMC on families, it is plausible to argue that family would be impacted if young men within the family did not undergo TMC.

Not undergoing TMC could also lead to negative social challenges such as stigma, discrimination and disrespect towards men. For example, those who did not undergo TMC could be labelled immature, irresponsible and easily ridiculed, humiliated and mocked. Traditionally uncircumcised men were stigmatised in families and communities as the cause of any crime or irresponsible actions. Similarly, they did not have full rights to discuss and negotiate with elders about families’ and communities’ problems. They are labelled and treated without respect (eg, like a dog), implying that they are considered less than human. Such impacts are in line with the components of stigma, such as labelling human differences, hegemony of cultural practices associated labelled persons to undesirable characteristics, labelled persons being separated with the term ‘us’ and ‘them’, labelled persons experiencing loss of status and discrimination and labelled persons experiencing difficulties in access to social, economic and political power. Similar to psychological impacts, all the studies included in the review mainly focus on stigma on initiates and thus less concern on stigma on the family. Stigma, discrimination and disrespect experienced by initiates prior to circumcision and uncircumcised men also reflect a lack of social and psychological support from their families, friends and communities.

TMC is generally assumed to have implications for HIV transmission. The unsafe procedure of TMC practices, such as using one knife to circumcise several initiates, not wearing gloves when circumcising...
initiates and unhygienic environments, raise the concern of on potential spread of infectious diseases, including HIV. In addition, to learn about culture and manhood in the transition period, initiatives were also taught about exploring their sexuality, leading initiatives to consider TMC as a ‘gateway’ to have unquestionable sex adventures and more than one sexual partner. For example, initiatives were asked to have sexual intercourse with women who had sex before as reported in a previous study. For example, initiatives were suggested to have sexual intercourse with women who had sex before, which is in line with another study reporting that initiatives were required to have sexual intercourse without protection several days before the wound heals as a way to speed up the recovery process. The correlation between TMC and the risk of HIV transmission is also related with the belief that TMC has the same protective effects as using a condom. This belief may also be supported by the sacredness aspect of the TMC rite, believing that the dead ancestors will intervene in the health of the initiates, as in line with previous studies. Another supporting factor for TMC and the risk of HIV transmission is the lack of knowledge on the mode of HIV transmission. In some communities, safe sexual behaviour was not part of the subjects taught during the TMC rite, leading initiates to not know HIV risk. This is in line with a finding in another study among 100 participants, of whom 67% were unaware of the risk of traditional circumcision for HIV transmission. However, the risks for HIV transmission were also reported among initiatives who knew about HIV transmission. Findings of a previous study suggest that circumcised men who had knowledge about HIV preventive measures of male circumcision and believed that male circumcision could reduce the risk of HIV infection were more likely to engage in risky sexual behaviours or sex without condoms with multiple partners. The risks for HIV transmission in the practice of TMC reflect a lack of education, public awareness campaigns and counselling for young men, parents, students, local leaders and traditional circumcisers in the community practising TMC.

Implications for future intervention
The systematic review provides a range of negative impacts of not being traditionally circumcised on men and scant information about the effects on their families. Overall, the studies highlight psychological and social challenges that need to be addressed in communities practising TMC. The studies also highlight TMC and the risk for HIV transmission, which require future health interventions.

This review shows that stigma, discrimination and disrespect towards uncircumcised men or those who followed medical circumcision were within initiates’ families and communities. This is because TMC is viewed as more prestigious than any other circumcision. It is suggested to have continuous counselling, approach and education in communities where traditional beliefs and norms are still highly valued. These approaches should reach families, communities and schools. In light of the TMC and the risk for HIV transmission, it is noted that in some communities, TMC has no role to play in preventing HIV and other STIs transmission, such as promoting multiple sexual intercourses, not using condoms and believing the complete protection of circumcision against HIV transmission. To address this problem, education to target traditional circumcisers, traditional leaders, parents and young men is required to improve the safe practice and prevent HIV transmission as reported in several studies. Similarly, education on condom use and free, accessible condoms should also reach the camps where TMC practices were performed. In addition, service delivery on providing free HIV testing for initiates in communities practising TMC is needed.

Strengths and limitations of the study
Although many studies on male circumcision have been conducted mainly in Africa and some in Asia, this review is, as far as the researchers know, the first known study on TMC, the risk for HIV transmission and its impacts on them and their families. The use of six databases and multiple search terms helped the researchers conduct a comprehensive systematic review of the literature and provided a broad range of studies in LMICs. The inclusion of qualitative, quantitative and mixed-method studies helps the researchers collate the current knowledge and identify knowledge gaps on the risk factors and impact of TMC on men and their families. Finally, the study selection methods and the appraisal process provided substantial evidence supporting the key findings reported in the literature review. However, the literature review only included articles published in English which may have narrowed the scope, and the authors may have missed the topic reported in other languages.

Implications for future studies
The literature review documents evidence and knowledge gaps about TMC, HIV risk and its impact on men and their families. The literature review suggests that the previous studies mainly focus on the correlation between TMC and the risk for HIV transmission; none has explored TMC, HIV risk and its impacts on men and their families and none involved traditionally circumcised men living with HIV. Similarly, most included studies were in African settings, and only one was in PNG. Exploring TMC practice in different settings other than in Africa can help understand the similarities and differences of TMC practices and the implication of HIV transmission and its impact on men and their families. The review found very limited number of studies involved wives of married men who have done traditional circumcision and women who have unprotected sexual intercourse with newly traditionally circumcised men to explore their views and sexual practices about TMC. Furthermore, none of the included studies explored the views of health professionals and policy makers on TMC, its possible adverse health consequences and how these have been addressed.
CONCLUSION

The review presents three main themes: TMC as a cultural practice, the consequences of not being traditionally circumcised and the TMC-related risk of HIV transmission. These themes provide evidence that TMC and HIV risk could bring significant and negative challenges for men and their families. This review may be useful in designing programmes to address social and psychological impacts associated with TMC practice in communities and supports the integration of health intervention with medical circumcision.

Contributors

Gregorius Abanit Asa (GAA), Nelsensius Kluau Fauk (NKF), and Paul Russell Ward (PRW) developed the protocol and methodology. GAA and NKF conducted systematic searches, screened articles, and formal analysis. GAA synthesized the data, interpreted the findings, and wrote the original draft. GAA, NKF, and PRW were involved in reviewing, editing, and supervision. GAA is the guarantor for this work.

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Supplemental material

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