



SARA Issues Paper

Female Genital Mutilation and the Risk of HIV

May 1995

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Support for Analysis and Research in Africa (SARA)



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Foreword

This study was conducted by the Support for Analysis and Research in Africa (SARA) in response to a request by the Health and Human Resources Analysis for Africa (HHRAA) Project of the Bureau for Africa's Sustainable Development Office as a preliminary exploration of the availability of relevant research and data on female genital mutilation (FGM) and the risk of human immunodeficiency virus (HIV). The list of resource persons contacted for this study was selective and many national committees and local activists working on FGM were not approached. Although by no means comprehensive, the survey findings highlight the lack of relevant research and information on the FGM/HIV issue. It is hoped that the report will serve as a first step for further in-depth research and data collection on the issue by USAID and other multinational organizations, private voluntary organizations and non-governmental organizations working in anti-FGM activities.

The author would like to gratefully acknowledge the cooperation of Dr. Claudia Garcia-Moreno (WHO), Ms. Maarit Kohonen (UN Human Rights Center), Dr. Olayinka Koso-Thomas (IAC/Sierra Leone), Dr. Benjamin Nkowane (WHO), Mr. Alan Phillips (The Minority Rights Group), Dr. Kenneth Schulz (CDC), Ms. Yvonne von Stedingk (IAC Liaison Office/Geneva), Ms. Sylvie Morel-Seytoux (USAID), Dr. Nahid Toubia and Ms. Sia Nowrojee (Research Action Information Network for Bodily Integrity of Women) and Dr. Judith Wasserheit (CDC) during the survey. Comments by Ms. Fran Hosken are also noted. Special thanks are owed to Dr. Sambe Duale (SARA) for useful comments and to Mr. William Lyerly (USAID) for his continuous support throughout the process.

Abbreviations

AIDS	acquired immunodeficiency virus
CDC	Centers for Disease Control and Prevention
FGM	female genital mutilation
HIV	human immunodeficiency virus
IAC	Inter-African Committee on Traditional Practices Affecting the Health of Women and Children
RTI	reproductive tract infection
SARA	Support for Analysis and Research in Africa
STD	sexually transmitted disease
USAID	U.S. Agency for International Development
WHO	World Health Organization

Executive Summary

It is estimated that over two million girls undergo female genital mutilation (FGM) each year and that an estimated 85 to 114 million girls and women in the world are genitally mutilated. The practice is prevalent in some 25 African countries and in parts of the Middle East and Asia.

Research and information exist on different types of genital mutilation and its immediate and long term repercussions for women's reproductive health, as well as the sexual and psychological effects of FGM. Information is available on how, why, and by whom it is performed, rough estimates of how many women and girls are subjected to FGM and where they live are also known. In contrast, the possible linkage between FGM and increased risk of HIV infection has not yet been the subject of detailed research.

Thus, the Support for Analysis and Research in Africa (SARA) project carried out a delphi-like polling of selected experts on their knowledge regarding possible linkage between FGM and increased risk of HIV infection. The project mailed a questionnaire to resource persons from a number of U.S. and international organizations working in the field of FGM as well as HIV/AIDS/STDs. The questionnaire consisted of three primary sections: their knowledge of the problem, types of FGM associated with increased risk of HIV, and specific data on high risk FGM, if any.

Over 75 percent of the resource persons to whom the questionnaire was sent responded. Various hypothetical scenarios discussed in the paper support the potential linkage between FGM and the risk of HIV, but from the responses received, it was apparent that few if any scientific data or information exist on the linkage. There was general agreement however, that the practice may lead to an increased risk of HIV infection. It is hoped, this report will serve as a first step for further in-depth research and data collection on the issue by organizations working with anti-FGM groups.

Introduction

It is estimated that over two million girls undergo female genital mutilation (FGM) each year and that an estimated 85 to 114 million girls and women in the world are genitally mutilated (Toubia 1993). FGM is one of the traditional rituals that prepare girls for womanhood, although the age at which it is practiced varies widely. In some cultures, girls experience genital mutilation as early as in infancy, while in others the ceremony may not occur until the girl is of marriageable age—approximately 14 to 16 years old (Toubia 1993). The practice is prevalent in some 25 African countries and in parts of the Middle East and Asia.

In addition, through migration and refugee movements, FGM has also become known in parts of Europe, Canada, Australia, and the United States. In the U.S. for example, rough estimates indicate that approximately 15,000 immigrants from the Horn of Africa (Somalia, Ethiopia, Sudan where FGM is a common practice) entered the country between 1990 and 1993. The number of girls and women subjected to FGM outside of Africa is difficult to estimate; for example in the United States, the facts regarding FGM done by immigrants have never been documented (Hosken 1993). Some non-African governments, however, are adopting legislative measures to prevent FGM. In Europe and recently in Canada, health ministries are warning health personnel that FGM is illegal. In France, FGM is a criminal offense and in Britain special anti-FGM legislation has been passed (Hosken 1993). In Australia, programs are being planned to educate new settlers against FGM and the introduction of anti-FGM legislation is being considered (Toubia 1993).

Research and information exist on different types of genital mutilation and its immediate and long term complications on women's reproductive health (e.g., hemorrhage, dysmenorrhea, recurrent urinary tract infections, complications during child birth), as well as the sexual and psychological effects of FGM. Information is also available on how, why and by whom it is performed and rough estimates of how many women and girls are subjected to FGM and where they live are also known. By comparison, the possible linkage between FGM and increased risk of HIV infection has not yet been the subject of detailed research and information and data are nonexistent.

Hypothetical Scenario

Based on reviews of FGM and HIV/AIDS literature, it is possible that there may be a linkage. The following is a discussion of various hypothetical scenarios supporting the potential linkage¹.

¹ The hypotheses put forth are postulated by the author based on literature review and, at this time, no scientific data are available to support them.

Hypothetical Scenarios

Role of Contaminated Instruments in Mass Circumcision

Traditionally, infibulation is performed on girls between four and eight years of age (Hosken 1993). Since "mutilations are usually performed on a group of girls with the same tools, sterilization unknown" (Hosken 1993), the risk of parenteral transmission from contaminated instruments is highly likely when young initiates are circumcised en block in areas with high HIV seroprevalence

Role of Repeated Exposure to the Practice

For girls and women in the older age group, repeated exposure to the practice may possibly play a role. Infibulation is performed to guarantee that a bride is "intact." The operation's objective is to devise a physical barrier to intercourse by creating a "hood of skin" that covers the urethra and most of the vagina. If the vaginal opening is too small, the bride often has to be re-infibulated (re-cut and re-stitched) before penetration resulting in further injury and infection. Re-infibulation also occurs with each child birth to allow easier exit of the fetal head through the scarred birth canal. Thus, for infibulated girls and women bound for "a destiny of cutting and re-stitching" (Toubia 1993), it is likely that the risk of HIV via parenteral transmission increases highly from repeated exposure to the practice and repeated contact with ritual instruments that may be contaminated or from contact with an infected circumciser who happens to injure herself during the circumcision.

Role of Damaged, Disrupted Tissue

It has been hypothesized that disruptions of epithelial surfaces facilitate HIV virus entry and probably augment susceptibility to infection. Therefore women who have undergone the operation resulting in damaged, disrupted tissue may be at increased risk of infection from an infected partner via sexual transmission.

Role of Wound Infection

Infection of the wound is a very common complication of female genital mutilation. Infection initiates the inflammatory process that results in the migration of large numbers of lymphocytes and macrophages (potential host cells for the HIV virus) into the genital tract mucosa, thus increasing the probability of mutilated women's susceptibility to HIV infection.

Role of Repeated Reproductive Tract Infections

The partial closing of the vaginal and urethral openings in infibulated women leads to several problems including repeated reproductive tract infections. Lower reproductive tract infections (RTIs) such as trichomoniasis and bacterial vaginosis causing vaginitis are commonly associated with an alkaline change in vaginal pH (Hillier

and Holmes 1989; Rein and Muller 1989). The normally low pH of the vagina may be virucidal in its own right (Voeller and Anderson 1992) and the disturbance and/or alkalinization of vaginal pH by repeated lower RTIs may possibly augment HIV transmission in women who have undergone FGM.

Repeated lower RTIs may also augment HIV transmission in women who have undergone the ritual through recruitment of inflammatory cells (*see Role of Wound Infection*), resulting in disruption of the vaginal flora which could in turn lead to vaginal pH alteration and increased HIV risk.

Role of Dyspareunia

Dyspareunia or pain during sexual intercourse is another common long-term complication among infibulated women. Consequently, anal intercourse may be an alternative to vaginal intercourse in infibulated women. Anal intercourse with resulting tissue erosion and damage has been hypothesized as a factor facilitating HIV virus entry augmenting risk of infection from an infected partner.

Role of Dry Sex

In many African countries, dry sex is a not uncommon practice. The vagina is dried out using traditional roots, juices, and leaves. Reasons given include male demand and the belief that men enjoy difficult penetration (de Bruyn 1993). Among infibulated women, dry sex may be a very common occurrence due to the absence of vaginal transudate. A possible mechanism may be the alteration or destruction of the normal anatomy of female organs including related networks of nerves, vessels, and glands during the ritual. The possible destruction of vestibular glands (Bartholin's glands) responsible for secretion during sexual activity may result in the absence of vaginal transudate. Moreover, infibulation is known to destroy much or all of the vulval nerve and pressure endings, possibly resulting in lack of sexual excitement and fulfillment with absent vaginal transudate leading to dry sex, regarded as a high risk factor in the transmission of HIV/AIDS because of resulting erosion and disruption of the vaginal mucosa facilitating HIV entry from an infected partner.

Purpose of the Study

Based on the concern that FGM might potentially facilitate the transmission of HIV infection, the Office of Sustainable Development (formerly the Analysis, Research and Technical Support Office) of the U.S. Agency for International Development Africa Bureau requested the Support for Analysis and Research in Africa (SARA) project to carry out a delphi-like survey of selected experts on their knowledge regarding possible linkage between FGM and increased risk of HIV infection.

Methodology

Methodology

In the *first phase of the survey* (June/July 1994), the project sent questionnaires to resource people from a number of U.S. and international organizations working in the field of FGM as well as HIV/AIDS/STDs to explore the availability of information regarding the subject. The questionnaire consisted of three primary sections:

- ◆ **Knowledge of the Problem.** The respondents were asked if they had any information or data regarding the possible linkage between FGM and increased risk of HIV infection.
- ◆ **Types of FGM Associated with Increased Risk of HIV.** To obtain any information on existence of linkages between HIV and specific types of FGM, questions such as: respondents' knowledge on linkage between increased risk of HIV infection with different types of mutilation such as circumcision, excision, infibulation? whether some types of mutilation carry higher risks than others? cause of the increased risk?
- ◆ **Specific Data on High Risk FGM.** This section included questions related to any specific information on high risk FGM such as: which ethnic groups in which specific parts of Africa practice high risk FGM associated with increased risk of HIV? the numbers who have been or are likely to be circumcised? their reasons for doing FGM? the operators and the types of instruments they use? and what percentage of girls/women have been diagnosed as HIV positive?

In the *second phase of the survey*, a report was drafted based on responses received from the first phase and the draft was sent out (October 1994) to the resource people contacted during the first phase, as well as to additional experts recommended by the resource people. The individuals were asked for comments and additional information he/she may have pertinent to the issue.

In the *third phase of the survey*, the second draft report incorporating comments and information received from the second phase was sent out (January 1995).

In the *fourth and final phase of the survey*, the final report was written, incorporating comments and additional information received from the third phase of the survey (March 1995).

Results

Over 75 percent of the resource persons to whom the mail questionnaire was sent replied. The following is a sampling of the responses received:

- ◆ Do not have any information/data on the HIV/FGM linkage.
- ◆ It is my impression that there are few reliable data available.
- ◆ I am sorry that the Group is not able to answer the questions that you pose on the linkage between FGM and increased risk of infection.
- ◆ As you rightly point out, this has not yet been the subject of any detailed research so far. Consequently, no conclusive evidence has been arrived at.
- ◆ We regret to inform you that we do not have any specific information relating to this topic.
- ◆ We are not aware of any published or unpublished studies that have addressed this issue.
- ◆ As stated in your draft report, we have not done any research to link FGM with the incidence of HIV in Sierra Leone.

Furthermore, at the suggestion of USAID's Office of Women in Development, the SARA project contacted the WHO for supporting data related to a statement in an FGM information kit developed and disseminated by the World Health Organization Division of Family Health which reads "HIV transmission is an increased risk for women with FGM, due to scar tissue, and the small vaginal opening prone to laceration during sexual intercourse. HIV may also be transmitted when groups of children are simultaneously mutilated with the same unsterile instruments." The project received two replies: one from WHO's Women, Health and Development Division indicating they are not "aware of any published studies on HIV transmission and FGM" and one from the Division of Research and Intervention Development stating "there is no data which specifically links these increased risks to FGM, both statements are based on the current understanding of the risks of sexual transmission of HIV and transmission as a result of contaminated or unsterile instruments."

Discussion

Speculating from the hypothetical scenarios previously discussed, it is clear a strong possibility exists that FGM might potentially facilitate the transmission of HIV infection. Some advocacy groups agree that there is a need for research and information on the linkage. For example, the Minority Rights Group sent an extract from a book they will be publishing on FGM, titled *Cutting the Rose*. The extract highlighted a letter sent to Amnesty International, British Section, which read: "while in Malawi a couple of months ago, I came across the story of a 14 year-old girl of the

Discussion

Yao tribe that inhabits land in the southern end of the country. She was diagnosed as HIV-positive although she was a virgin. Blame was laid on the fact that during tribal circumcision, the same razor would be used on any number of children at the same time." The executive director of the Minority Rights Group who shared the above information with SARA had this to say: "[the letter] has a reference to HIV transmission but in no way takes away from the need for new coherent research in this area. Indeed the converse is the case."

However, not everyone agreed to the need for research and information on the issue. In a letter to the SARA project, the WHO/GPA's Division of Research and Intervention Development wrote that research to establish the link is not considered a priority by WHO at the present time and "even if such research were to be conducted, whether it would provide any new information useful for interventions to prevent HIV transmission." *It should be noted however that the purpose of this survey is not to find "new information useful for interventions to prevent HIV transmission" but to explore the availability of relevant data regarding the existence of the linkage.*

The reason given by WHO/GPA's Division of Research and Intervention Development as to why it is not a priority to establish the HIV linkage with FGM was the fact that the risk "would only be high if mass circumcision occurred among groups of women who are sexually active." However, a letter from Dr. Olayinka Koso-Thomas, a prominent anti-FGM advocate from the Sierra Leone branch of the Inter-African Committee on Traditional Practices discussing "specific problems relating to FGM in Sierra Leone" indicated that the risk can be as high in societies where young initiates who are not sexually active are circumcised en block "if a circumciser who is HIV infected happens to injure her hands or fingers while carrying out the circumcision and inadvertently transmits the virus to an initiate while applying herbal dressing to the initiate's raw wounds; or where common dressing of wounds is used during mass circumcision."

Another consideration given by WHO/GPA's Division of Research and Intervention Development as to why it is not a priority to establish the HIV linkage with FGM was the fact that the scenarios discussed were "factors that put all sexually active women at increased risk of HIV and are not peculiar to women who have had FGM." *The author would like to clarify that the scenarios discussed are not claimed as "peculiar to women who have had FGM." It is precisely because women who have had FGM are exposed to the very same conditions that put women at higher risk of HIV infection that there may be a need for relevant research to establish the link (if any) so that the devastating consequences of FGM can be documented from yet another perspective.*

Conclusion

In many parts of Africa, the incidence of HIV/AIDS in women is increasing at a faster rate than in men. The number of HIV infections in men and women in the region are more or less equal, with females outnumbering males by 6 to 5. In fact, over 4 million women of childbearing age have been infected to date, and in some urban centers in Africa, more than 25 percent of pregnant women are HIV-infected.

Considerable research concerning women and HIV/AIDS is being done but the focus of research has been on causes other than FGM. A number of organizations, advocacy groups and NGOs deeply committed to eradication of FGM already exist. Lack of financial resources is a major constraint faced by these organizations. The Inter-African Committee (IAC) on Traditional Practices Affecting the Health of Women and Children, one of the organizations contacted during the survey was kind enough to share with SARA, a study carried out by IAC/Ethiopia *The Role of Skin Piercing Practices in HIV Transmission*, which was presented at the IAC Regional Conference in April 1994. The study by Dr. Keferie did not find any linkage between skin piercing traditional practices and HIV transmission possibly due to the "small number of study participants and the low viral circulation in the selected community at the time of the study." (See attachment). IAC noted however that "efforts by the Inter-African Committee to continually establish some scientific data in this regard has, unfortunately, not been successful because of lack of funds."

The knowledge and experiences of these groups and organizations connected with regional, national, and grassroots experts and already involved in anti-FGM activities should be capitalized to develop appropriate research agendas and collect reliable data. *Initial research should focus on the establishment of increased HIV serostatus and increased vulnerability to HIV in women who have undergone FGM.*

FGM deserves attention in its own right. Available information on the adverse consequences (health, sexual, and psychological) of the practice should in themselves be sufficient grounds for embarking in anti-FGM activities. Yet to date, FGM has not been a priority for most countries and development agencies. Perhaps in the face of today's HIV/AIDS epidemic, raising the awareness of key public and private sector policy makers on the potential role and impact of FGM on HIV/AIDS transmission may be the key, if the linkage exists. *It may be one more weapon in the fight to eliminate FGM.*

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List of Resources Contacted

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List of Resources Contacted

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*Attachment: The Role of Skin Piercing Traditional
Practices in HIV Transmission: A Pilot Study*

The role of skin piercing traditional practices in HIV transmission a pilot study

From the onset of the pandemic of the human immuno-deficiency virus (HIV) attempts were made to identify the routes of transmission of the virus. However it soon became clear that globally sexual transmission plays a major role even though blood transfusion is the most efficient. Cognizant of the fact that skin piercing traditional practices involve blood contamination of instruments being used the possibility of spreading the virus through these means was also suspected. Besides, studies have shown that certain skin piercing practices were risk factors for the transmission of viral diseases, like hepatitis B. in the Ethiopian National Hepatitis B study reported by Kefenie et al. it has also been demonstrated that people exposed to traditional practices like circumcision, tattooing, ear piercing and uvulectomies have higher prevalence of HB viral markers than those not exposed.

In spite of the suspicions and assumption that these practices could transmit the HIV virus there is no study to date, known to us, that substantiates these assertions. It is with this in mind that the Inter-African Committee and its Scientific Advisory Panel decided to conduct a study based on a previous survey that identified the distribution and frequency of harmful traditional practices prevalent in most part of Ethiopia. For the lack of mass female circumcision practices male circumcision as performed in the "Luva System" of the Sidamo ethnic people was chosen for this purpose. In this system group circumcision is ritually performed using the same contaminated instrument on a fixed day repeating itself every eight years among a given group of Luva living in the same locality. There are five groups in the Luva system known and practised in the Sidamo region, designated as Fulassa, Binancha, Wawassa, Derara and Hirboro.

Before the launching of the study it was felt that a pilot study be conducted with the following objectives.

1. to determine the feasibility of undertaking such a study in the selected community (logistics, community acceptance, administrative clearance, security etc.)

2. to ascertain the presence of viral circulation in the selected community.
3. to see the linkage between skin piercing traditional practices and HIV-transmission.

Subjects and methods

Three membered team consisting of a physician as a leader, a field supervisor from the National Committee for Traditional Practices of Ethiopia and a laboratory technician were sent to Sidamo administrative region November 1991. The place is located 275 km from Addis Ababa, the capital city. Twelve men, respected and known to the communities were selected by the team to assist in the coordination and to facilitate interactions with the people.

The study was conducted in 6 villages known to practice the Luva system and located close to each other. (Abela, Kutela, Finchawa, Soyama, Tulo and Jara). Pre-prepared questionnaires were filled by the physician for 61 circumcised and 59 uncircumcised randomly selected subjects. Their age distribution is shown in table 1. Mean age at circumcision was 30.4 years. Ninety percent of them are peasants. Fifty seven of the circumcised (93.4 %) and 53 % of the uncircumcised (89.8%) were married.

Distribution by Luva-system is shown in table 2. The majority (47.5%) belonged to the Fulassa group.

Five cc of blood was drawn from each; sera separated and stored in deep freeze until shipment to the national Research Institute of Health for analysis. The sera was screened for HIV antibodies by the ELISA method and confirmed by the western blot. The data from the questionnaires were feed in to the computer and analyzed for the various variables and risk factors.

Results

There were only two sera from the uncircumcised subjects that reacted positively for HIV - antibodies and none from the circumcised group. The two seropositive persons were older than 45 years, married, belonged to the binancha Luva system, had history

of gonococcal infection and intramuscular injections.

Educational levels between those circumcised and not circumcised were not different. (Table 3).

When exposure to the other skin piercing traditional practices were analyzed there was no significant difference between the two groups. (Table 4).

Comparison in terms of STD exposure revealed no significant difference between the two groups. (Table 5).

Mass circumcision was performed in 49 of 61 (80.3%) and in 40.9% it was done purely in the traditional method whereas in the others it was combined with the modern type. (Table 6).

Following the circumcision procedures significant bleeding and infections, both local and systemic, were reported in 44.5 and 47.5% respectively. (Table 7).

Discussion

This pilot study demonstrated that the existing condition in the selected community is conducive for a large scale study. The community is both receptive and cooperative, the administrative clearance is reasonable, the area is accessible and the logistics involved is acceptable. Besides, the local health workers, given the proper orientation and few days training, could be utilized in the survey. The deterrent factor in the whole operation is the very low rate of viral circulation in the community even though this is expected to increase because of the escalating infection rate nationally since the conduct of this study and more significantly due to the demobilization of the previous soldiers and their return to their respective places of origin. It has been well documented that HIV infection rate in the military is among the highest for any social group. These two factors combined would undoubtedly positively influence the infection rate in any community in the country.

Previous studies have shown that circumcision decreases the infection rate of both HIV and others STDs. However, these studies did not relate to the process of circumcision but rather to the long term risk of acquiring the infection in those circumcised and not circumcised. In this pilot study we didn't find any significant difference between the circumcised and the uncircumcised. This may be due the small number of the study participants and the low viral circulation.

In view of these concerns one would be tempted to do either on interval pilot study to see if, indeed, the prevalence rate of the infection has increased or look for other places where the prevalence rate is known to be high. The first choice seems a more reasonable alternative taking every thing in the consideration. If this project is to be conducted it would be either a cohort or a case control study. In view of the dynamic nature of the conditions that surrounds the project one would probably go for a case control crosssectional study. This has the advantage of early completion.

The last and certainly the most important factor that determines (the fate of the study is the availability of financial support. Given the fund we think that there is a reasonable chance of conducting the survey within an acceptable time limit.

Distribution by LVA system

Category	Circumcised	Uncircumcised
Fulassa	19 (31%)	28 (47.5%)
Binancha	18 (29.5%)	20 (33.9%)
Wawassa	1 (1.6%)	7 (11.9%)
Derara	15 (24.6%)	2 (3.4%)
Hirbora	5 (8.2%)	1 (1.7%)
Missing	3 (4.6%)	1 (1.7%)
Total	61 (100%)	59 (100%)

Results

Two uncircumcised =====> HIV+

By the level of education

Level of education	Circumcised	Uncircumcised
Illiterate	39 (63.9%)	37 (62.21 %)
Elementary	8 (13.11 %)	14 (23.7 %)
High school	5 (8.21)	4 (6.8%)
Others	9 (14.7%)	4 (6.8%)
Total	61 (100%)	59 (100%)

Exposure to risk factors

Risk factors	Circumcised	Uncircumcised
<u>Hospitalization</u>		
Yes	5 (8.2%)	5 (8.5%)
No	53 (86.9%)	49 (83.1%)
Unknown	3 (4.9%)	8 (8.5%)
<u>IM Injection</u>		
Yes	54 (88.5%)	49 (83.1%)
No	7 (11.5%)	10 (10.41%)
<u>Tattooing</u>		
Yes	1 (1.6%)	3 (5.1%)
No	60 (98.4 %)	56 (94.9 %)
<u>Tonsilectomy</u>		
Yes	3 (4.9 %)	7 (11.9%)
No	58 (95.1 %)	52 (88.1 %)
<u>T. Surgery</u>		
Yes	22 (36.1 %)	5 (8.5 %)
No	39 (63.9 %)	53 (89.8 %)
Unknown	1 (1.6 %)	-
<u>DENTAL WORK</u>		
Yes		
No	29 (47.5%)	18 (30.5 %)
	32 (52.5 %)	41 (69.5 %)

Risk factors	Circumcised	Uncircumcised
<u>Ear piercing</u>		
Yes	13 (21.3 %)	10 (16.9 %)
No	41 (67.2 %)	46 (78 %)
Unknown	7 (11.5 %)	3 (5.1 %)
<u>Cupping</u>		
Yes	2 (3.3 %)	3 (5.1 %)
No	57 (93.4 %)	57 (88.1%)
Unknown	2 (3.3 %)	4 (6.8 %)
<u>Scarification</u>		
Yes	52 (85.2 %)	49 (83.1 %)
No	7 (11.5 %)	7 (11.9 %)
Unknown	2 (3.3 %)	3 (5.1 %)
<u>Blood letting</u>		
Yes	0	0
No	59 (96.7 %)	54 (91.5 %)
Unknown	5 (3.3 %)	5 (8.5 %)
<u>Uvulectomy</u>		
Yes	9 (14.8 %)	13 (22.0 %)
No	50 (82 %)	42 (71.2 %)
Unknown	2 (3.3 %)	4 (6.8 %)
<u>Rectal Ulceration</u>		
Yes	5 (8.2 %)	8 (13.6 %)
No	53 (86.9 %)	46 (78 %)
Unknown	3 (4.9 %)	5 (8.5 %)

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Risk factors	Circumcised	Uncircumcised
<u>Shaving at Barbers' shop</u>		
Yes	25 (41.1 %)	21 (35.6 %)
No	34 (55.7 %)	31 (52.5 %)
Unknown	2 (3.3 %)	7 (11.9 %)
<u>Visit to prostitutes</u>		
Yes	2 (3.3 %)	3 (5.1 %)
No	50 (82 %)	54 (91.5 %)
Unknown	9 (4.8 %)	2 (3.4 %)

Exposure to STDs

<u>STD</u>	Circumcised	Uncircumcised
 <u>CG</u>		
Yes	33 (54.1 %)	36 (61 %)
No	28 (45.9 %)	23 (39 %)
 <u>Chancroid</u>		
Yes	60 (98.4 %)	57 (96.6 %)
No	1 (1.6 %)	2 (3.4 %)
 <u>NGU</u>		
Yes	9 (14.8 %)	4 (6.8 %)
No	52 (85.2 %)	55 (93.1 %)
 <u>Syphilis</u>		
Yes	0	0
No	60 (98.4 %)	59 (100 %)
Unknown	1 (1.6 %)	- -
 <u>Herpes simplex</u>		
Yes	0	0
No	60 (98.41)	59 (100 %)
Unknown	1 (1.6 %)	0
 <u>Jaundice (Hepatitis)</u>		
Yes	13 (21.3 %)	7 (11.9 %)
No	47 (77 %)	52 (88.1 %)
Unknown	1 (1.6 %)	

Pattern of circumcision

Single	12 (19.6 %)
Mass	49 (80.3 %)

Complication of circumcision

Major bleeding

Yes	27 (44.3 %)
No	34 (55.7 %)

Infection

Yes	29 (47.5 %)
No	32 (52.5 %)

Pain

Yes	61 (100 %)
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