FEMALE GENITAL MUTILATION AND REPRODUCTIVE HEALTH MORBIDITY IN SECOND CYCLE SCHOOL GIRLS IN BOLGATANGA DISTRICT

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SUMMARY
The study was carried out to determine the associations between Female Genital Mutilation (FGM) and reproductive tract infections and other reproductive health morbidity factors in second cycle schoolgirls. Two stage (cluster sampling) sampling was carried out and two second cycle schools out of a total of six in Bolgatanga district were selected by simple random sampling in the first stage and 411 girls aged between 15 years and 23 years were recruited for the study. Structured questionnaires were administered to the girls to explore reproductive health morbidity factors and a specially trained physician conducted physical and pelvic examination of the girls to identify the various types of FGM. High vaginal swabs and urine samples were taken from each subject and laboratory investigations were conducted in the Bolgatanga Regional Hospital and the Public health reference laboratory at Korle Bu to determine the different types of infections. Frequency tables, 2 by 2 single table analysis and determination of cumulative incidence relative risks and cross tabulations tables determined that, girls who were cut run five times the risk of having pain at urination (relative risk: 4.94, 0.53<RR<45.82 at 95% confidence limit), four times the risk of bleeding during sexual intercourse (relative risk: 3.48, 1.26<RR<9.41 at 95% confidence limit), three times the risk of developing pain during sexual intercourse (relative risk: 3.17, 0.94<RR<10.35 at 95% confidence limit) and run sixteen times the risk of developing Pelvic inflammatory disease (Relative risk: 15.29, 7.63<RR<34.78 at 95% confidence limit). Girls who are cut are also ten times more likely to be pregnant or have been pregnant before while in school. (Relative risk: 9.87, 1.72<RR<56.50 at 95% confidence limit).

Keywords: Female Genital Mutilation (FGM), Reproductive Health (RH).

INTRODUCTION
Between 85 and 114 million girls and women have been subjected to female genital mutilation. Female genital mutilation in one form or another continues to exist in around 40 countries. The practice is widespread in many African countries and places girls and young women at risk for serious health consequences.

In 1994 World Health Organization (WHO) adopted a resolution urging member states to establish clear policies to end Female Genital Mutilation. A Technical Working Group met in Geneva in July 1995 to develop a framework for WHO activities. It adopted standard definitions of FGM to enable consistent terminology to be used in countries and to facilitate research.

In early 1997 a joint statement on FGM was published by WHO/UNICEF/UNFPA.

Definition of FGM: Female genital mutilation was defined as comprising all procedures involving partial or total removal of the external female genitalia or other injury to the female genital organs whether for cultural or other non-therapeutic reasons.

Classification of FGM: The different types of female genital mutilation known to be practiced are as follows:

- Type 1 Excision of the prepuce with or without excision of part or the entire clitoris.
- Type 2 Excision of the prepuce and clitoris together with partial or total excision of labia minora.
- Type 3 Excision of part of all the external genitalia and stitching/ narrowing of the vaginal opening (infibulation).
- Type 4 Unclassified – includes pricking, piercing, and scraping of tissue surrounding the vaginal orifice or cutting the vagina and intro-
duction of corrosive substances or herbs into the vagina to cause bleeding or for the purpose of tightening or narrowing it. The procedures described above are irreversible and their effect last a lifetime.

In Ghana the practice is mostly found in girls and women from the northern sector of the country and the migrant populations scattered all over the southern parts of the country.


Widespread interest in the health consequences of FGM has resulted in a large number of publications on the subject, but this has not been accompanied by the conduct of systematic epidemiological studies. In fact, no large-scale well-controlled studies of FGM and Reproductive Health morbidity have been reported in the literature to date. The available evidence suggests that women with FGM are more likely to suffer adverse Reproductive Health morbidity than women without FGM.

The objectives of this study are action-oriented: to raise awareness within the health sector and among the community-at-large of the importance of FGM as a health issue affecting the reproductive lives of girls and women, and to attract additional resources for the identification, treatment, and prevention of all forms of Reproductive Health damage occurring as a result of FGM which will lead to pressure to stop the practice.

MATERIALS AND METHODS
Two-stage (Cluster Sampling) sampling was carried out and two second-cycle school out of a total of the six in the Bolgatanga district were selected by simple random sampling in the first stage. Cluster sampling was preferable because a benefit was being offered to the participants in the form of treatment for genital tract infection that was highly prevalent in the schoolgirls.

All first year and second year female students from the Bolgatanga Girl’s Secondary school and the Bolgatanga Technical Institute totalling 411 were recruited for the study after an informed consent had been obtained. The third year students were preparing for their examinations and were excluded from the study.

For comparisons (cohort study), a facility survey of 425 girls and young women aged between 15 years and 23 years (which corresponds to the age group of the school girls), out-of-school and never been to school, but living in the Bolgatanga district, who came to the clinic for services that included pelvic examination at the same time as the school girls were being examined were recruited for the survey after an informed consent. Laboratory investigation conducted for all the schoolgirls could not be conducted for all the out-of-school girls and women because of logistical reasons.

The questionnaire
The first draft of the questionnaire was prepared and translated back into the local language for checking purposes and a small-scale pre-test was conducted. A revised draft of the questionnaire with instructions for interviews was prepared and using the interviewers who will be part of the survey, a pilot survey was conducted under field conditions. A hand analysis of the pilot survey was carried out and after extensive de-briefing of the interviewers and consultations with data processing specialist in order to minimize the risk of problems at data entry and editing stages, the questionnaire was finalized. The design used structured protocol, where detailed instruction were provided to the interviewers covering the response options provided and appropriate skips in questions to be asked for face to face interviewers. The response format was also designed in such a way that categorized boxes for the answers were precise to permit easy answers and good epidemiological modelling.

Some of the behaviours of interest were illegal, for example abortions; morally 'questionable' activities, for example sexual activity in schoolgirls are associated with societal problems and there were grounds for expecting an element of misreporting. Self-completion questionnaires were used in sensitive topics and absolute individual work and confidentiality was ensured. To ensure the accuracy of recall, questions that would lead to guessing the answers were eliminated from the questionnaire. The fact that sexual behaviour is rarely talked about in general every day conservation created a special problem for the phrasing of questionnaire items to explore it. This problem was especially pronounced when using the school settings; questionnaires were distributed to students who, despite their similar age distribution, had vastly differing clinical knowledge and experience of colloquial sexual language. The risk of causing offence was anticipated because the study involved different ethnic groups, where cultural and religious norms with regard to
with an offensive vaginal discharge, lower abdominal tenderness and laboratory evidence of cervical infection caused by multiple microorganisms including C. Trachomatis and/or N. gonorrhoea. For ethical reasons test were not performed for HIV infection and Syphilis.

Follow up procedures
A register was opened and each subject was entered on a separate sheet. The physical examination findings were immediately entered into the register after each examination. The results of the laboratory findings were also entered appropriately into the register. When all the results of the physical examinations and laboratory investigations were complete, the school authorities were contracted and the girls were all asked to report back to the medical centre. All the girls were seen individually, counselled and the appropriate treatment was administered to those who were found to have infections. This is a prospective study and the girls will be followed for another two years.

Data Management
All data was checked and double entered into Microsoft Access relational database to ensure accuracy. Some free text data was coded according to the ICD-10 classification. The data entry clerks were experienced in such procedures.

Data Analysis
The analyses were performed with standard personal computers using commercially available statistical packages (Statistical Package for Social Sciences (SPSS) 9.0 and Epi-info 6.04).

Missing values were recorded using a standard code such as 99 and variables with negative response were differentiated from those with an absent response. There was no loss to follow up.

RESULTS
In this document, FGM 0 means no genital cutting, FGM 1 means FGM type 1, FGM 2 means FGM type 2 and FGM 3 means FGM type 3.

The predominant religious faiths in the area of study (Christian, Traditional and Islam) were all found to be practising FGM and all the ethnic groups in the Upper East region of Ghana practised FGM.

In the schoolgirls, 58% (15/26) were forced to have the operation, while the remaining 42% (11/26) went for the operation themselves. All the operations were performed between the ages of 10 years and 17 years.

Table 1 Source and characteristics of data presented

<table>
<thead>
<tr>
<th>Period</th>
<th>Sample size</th>
<th>Study group</th>
<th>Age range (years)</th>
<th>Data characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>School based</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>survey</td>
<td>Oct-</td>
<td>Secondary school</td>
<td>15 – 23 (Median</td>
<td>• FGM status</td>
</tr>
<tr>
<td></td>
<td>ber 1998 to</td>
<td>girls in</td>
<td>age: 17)</td>
<td>• FGM types</td>
</tr>
<tr>
<td></td>
<td>March 1999</td>
<td>Bolgatanga</td>
<td></td>
<td>• RTI status</td>
</tr>
<tr>
<td></td>
<td></td>
<td>district</td>
<td></td>
<td>• RTI type</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• RH Status</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Socio-cultural determinant of FGM</td>
</tr>
<tr>
<td>Facility based</td>
<td>Oct-</td>
<td>Young women</td>
<td>15 – 23 (Median</td>
<td></td>
</tr>
<tr>
<td>(Hospital based)</td>
<td>ber 1998 to</td>
<td>attending clinic</td>
<td>age: 20)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>March 1999</td>
<td>with a condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>that required</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>vaginal examination</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 1a In-school subjects

Figure 1b Out-of-school subjects

Figure 1 Age Distribution of study subjects in the Bolgatanga District.

The FGM prevalence in the schoolgirls were 6% and comparative data shows in Figure 2 that all
other girls/young women out-of-school but also living in the Bolgatanga District had FGM prevalence of 27%.

The study determined that 45% of schoolgirls were sexually active. Figure 4 shows that 11% of schoolgirls were sexually active by age 15 years, 35% were sexually active by age 16 years and another 36% were sexually active by age 17 years.

![Figure 2a In-school subjects](image)

![Figure 2b Out-school subjects](image)

**Figure 2** FGM prevalence – comparing FGM prevalence of in-school and out-school subjects in the Bolgatanga District

![Figure 3a In-school subjects](image)

![Figure 3b Out-school subjects](image)

**Figure 3** FGM types – comparing FGM types of in-school and out-school subjects in the Bolgatanga District.

![Figure 4 Age distribution at first sex in school girls (45%; 185/411)](image)

Table 2 gives a summary of the percentages of Reproductive Tract Infections and the FGM types and demonstrates that, schoolgirls who are cut run sixteen times the risk of developing PID (Odds ratio 27.5, Relative risk: 16.29, 7.63<RR<34.78 at 95% confidence limit) and also shows that 53.3% of FGM 2 cases had PID as against 27.3% for FGM 1 and 2.6% for FGMO.

| Table 2 FGM and reproductive tract infections in schoolgirls. |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Bacterial Vaginosis | 42.6 | 42.6 | 27.3 | 53.3 | 0.99 | 0.62<RR<1.58 |
| Chlamydia Trachomatis | 33.1 | 31.7 | 45.5 | 60 | 1.70 | 1.16<RR<2.50 |
| GNID | 1.2 | 1 | 9.1 | 0 | 3.70 | 0.43<RR<31.94 |
| Herpes genitalis | 0.5 | 0.5 | 0 | 0 | 0.00 | 0.00<RR<63.13 |
| Candidiasis | 38.2 | 39 | 27.3 | 26.7 | 0.69 | 0.36<RR<1.32 |
| Trichomoniasis | 0.7 | 0.8 | 0 | 0 | 0.00 | 0.00<RR<34.86 |
| Vulval warts | 0.7 | 0.8 | 0 | 0 | 0.00 | 0.72<RR<3.88 |
| Shistosomiasis | 11.9 | 11.4 | 18.2 | 20 | 1.68 | 7.63<RR<34.78 |
| Pelvic inflammatory disease | 5.1 | 2.6 | 27.3 | 53.3 | 0 | 16.29 | 7.63<RR<34.78 |

Percentage of infections and FGM types and cumulative incidence relative risk for FGMO against FGM123.

Table 3 shows the relationships between FGM types and reproductive health morbidity and shows
that girls and women who are cut run five times the risk of having pain at urination (Relative risk: 4.94, 0.53<RR<45.82 at 95% confidence limit), four times the risk of bleeding during sexual intercourse (Relative risk: 3.48, 1.26<RR<9.14 at 95% confidence limit) and three times the risk of experiencing pain during sexual intercourse (Relative risk: 3.17, 0.97<RR<10.35 at 95% confidence limit, chi-square: 71.23). The other reproductive health variables showed no significance associations.

**Table 3** FGM and reproductive health morbidity in schoolgirls

<table>
<thead>
<tr>
<th></th>
<th>All cases</th>
<th>FGM 0</th>
<th>FGM 1</th>
<th>FGM 2</th>
<th>FGM 3</th>
<th>Relative Risk</th>
<th>95% confidence limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free menstrual flow</td>
<td>57.2</td>
<td>58.4</td>
<td>27.3</td>
<td>46.7</td>
<td>0</td>
<td>0.66</td>
<td>0.40&lt;RR&lt;1.03</td>
</tr>
<tr>
<td>Regular menses</td>
<td>61.1</td>
<td>61.6</td>
<td>81.8</td>
<td>33.3</td>
<td>0</td>
<td>0.87</td>
<td>0.61&lt;RR&lt;1.26</td>
</tr>
<tr>
<td>Menstrual pain</td>
<td>67.9</td>
<td>68.8</td>
<td>45.5</td>
<td>60</td>
<td>0</td>
<td>0.78</td>
<td>0.54&lt;RR&lt;1.12</td>
</tr>
<tr>
<td>Vaginal discharge</td>
<td>61.6</td>
<td>62.1</td>
<td>45.5</td>
<td>60</td>
<td>0</td>
<td>0.87</td>
<td>0.30&lt;RR&lt;1.74</td>
</tr>
<tr>
<td>Free urinary flow</td>
<td>65.7</td>
<td>64.9</td>
<td>81.8</td>
<td>73.3</td>
<td>0</td>
<td>1.18</td>
<td>0.95&lt;RR&lt;1.48</td>
</tr>
<tr>
<td>Pain at urination</td>
<td>1</td>
<td>0.8</td>
<td>9.1</td>
<td>0</td>
<td>0</td>
<td>4.94</td>
<td>1.53&lt;RR&lt;45.82</td>
</tr>
<tr>
<td>Had sex before</td>
<td>45</td>
<td>44.2</td>
<td>72.7</td>
<td>46.7</td>
<td>0</td>
<td>1.31</td>
<td>0.92&lt;RR&lt;1.85</td>
</tr>
<tr>
<td>Bleeding at sex</td>
<td>5.1</td>
<td>4.4</td>
<td>18.2</td>
<td>13.3</td>
<td>0</td>
<td>3.48</td>
<td>1.26&lt;RR&lt;9.41</td>
</tr>
<tr>
<td>Pain at sex</td>
<td>4.1</td>
<td>3.6</td>
<td>18.2</td>
<td>13.3</td>
<td>0</td>
<td>3.17</td>
<td>0.97&lt;RR&lt;10.35</td>
</tr>
<tr>
<td>Been pregnant before</td>
<td>1.2</td>
<td>0.8</td>
<td>9.1</td>
<td>6.7</td>
<td>0</td>
<td>9.87</td>
<td>1.72&lt;RR&lt;56.50</td>
</tr>
</tbody>
</table>

Percentage of reproductive health morbidity and FGM types and the cumulative incidence relative risk for FGM 0 against FGM 123.

**DISCUSSIONS**

Female genital mutilation (FGM) is believed to have been introduced to Ghana by migrating populations from the Sahelian countries of Burkina Faso, Mali and Niger. It may have followed the spread of Islam from North Africa to West Africa. In Burkina Faso and Mali, the prevalence rate of FGM ranges between 79% and 94%. This has led some communities in the study area where the predominant religion is Islam to erroneously believe that FGM is a requirement of Islam.

Female genital mutilation (FGM) is practiced in Ghana due to a variety of socio-cultural reasons. Most people have no tangible reason to support the practice except to say that it has been their long-standing tradition and must therefore be maintained. The culture demands and elaborate funeral observance for a dead mother, and girls who are not circumcised are not allowed to perform these rites and it is believed that the girls who are unable to perform the funeral rites will endure hardships for the rest of their lives. Girls and young women in the urban areas are spared the sustained pressure that is put on them by the older women who are the custodians of the traditional practices and make sure that all girls are cut before marriage. In the rural areas, mother-in-laws traditionally inspect the vulva of newly married girls and if it is discovered that they are not cut, the operation is arranged. The consent of the girls is not needed because they have no say in decisions that have come from the elderly.

The loss of revenue to the practitioner can be considerable. The financial gain, reputation and respect attached to the work of a circumciser are important and no one would willingly let it go. Certain economic plants ("wane" in the gruni dialect, the gourd plant - a climbing plant which produces large, hard-skinned, fleshy fruit; the dried shell of the fruit used as a bowl, cup, etc) in the communities are believed to become unproductive if they are touched or handled by uncircumcised women.

Female genital mutilation (FGM) is practiced for various reasons in the different communities in the study area and any effort to eradicate the practice should be addressed on one-on-one basis depending on the major reason why it is practiced in the specific community. For example, in the predominantly Islamic communities, it was necessary to identify a respected Islamic scholar who facilitated advocacy and behavioural change workshops to convince the community that FGM was not a requirement of Islam. In the community where it was believed that circumcised girls rendered economic plants unproductive, stopped the practice when it was demonstrated that it was not true.

FGM 1 and FGM 2 are predominant type seen in Ghana. FGM 1 accounts for 37% to 42% of all cases and FGM 2 accounts for 57% to 61% of cases. Only 1% to 3% of cases are of type 3. This is supported by a study conducted in Burkina Faso and Mali where FGM 3 was found to be 3% to 5% among the general population. This is consistent with the observation that FGM prevalence and severity declines from North Africa (98% in Somalia and Djibouti) to FGM 0 in the Ashanti’s of Ghana in West Africa. Amongst the schoolgirls, no case of FGM 3 was found.

Different communities practice different types of FGM and FGM 1 is the norm of the study area. Unfortunately because the procedure is performed without any form of anaesthesia, most of the girls
struggle violently during the operation and the 'surgeon' usually will accidentally go beyond the intended cut on one side of the vulva. For symmetry, the 'surgeon' then cuts the other side of the vulva and this might result in FGM 2 or FGM 3, which was not the planned procedure. The stitching together of the raw surfaces after the cut in FGM 3 is not practised in the study area. Instead, if there were excessive bleeding, the thighs of the girl would be bound tightly together for three days. This will result in poor drainage of the wound, wound sepsis, urethral obstruction, urinary retention and other long-term complications such as the formation of inclusion cysts and Vulval Keloid. The immediate and long-term complications arising from FGM explain the reproductive health morbidity encountered later on the lives of girls and women who have been cut.

Peak sexual activity in the in-school subjects was between 16 and 17 years. Girls enter secondary schools in the Upper East Region at age 15 years when 11% were found to be sexually active. The hike of sexual activity from 11% at age 15 years to over 35% after one year in school may suggest strong peer pressures from the older girl in the schools. Addressing Reproductive Health concerns of adolescents must be focused during this period of transition.

Female genital mutilation (FGM) is part of an initiation rite into womanhood in about 80% of the communities where ethnographic studies have been conducted. Young women become sexually active after the initiation into womanhood and this fact has been shown that girls who are cut are two times more likely to be sexually active and ten times more likely to be pregnant or have been pregnant before while in school leading to school dropouts. Teenage pregnancies and high school dropouts rates for girls and young women are highly prevalent in the Upper East region of Ghana, which is the epicentre of FGM in the country. Hitherto, FGM had not been reported as a contributing factor in teenage pregnancies and high school dropout rates and the evidence presented here supports the call for action to eliminate FGM from the society.

There is a paucity of information on the relationship between Reproductive Tract Infections (RTI) and FGM. Almost all publications available recognize that women who have been cut have an increased risk of developing reproductive tract infection but there is no empirical data available to support this. A systematic review of the evidence regarding the health consequences of FGM identified 504 articles on FGM, about 400 of which had primary data on gynaecological morbidity and the socio-cultural determinants of FGM (WHO, 1998). The vast majority of these are case reports or case series, while the few remaining studies involve a comparison between women who have and have not had FGM. In addition, some studies have not included clinical examination of the perineum and classification of FGM status may not be reliable under these circumstances (WHO, 1998).

The results of the present study showed that 45% of all the schoolgirls were sexually active and it was not surprising obtaining between 30% and 42% infection rates for *Chlamydia trachomatis*, *Bacterial vaginosis* and *Candidiasis* during the study. It is important to stress here the high prevalence of pelvic inflammatory disease (PID) found especially in girls who had been cut. The results also indicate that the rate of infection rises with the severity of FGM. This is a serious morbidity factor and must be addressed with all the seriousness it deserves. In recent times, the risk of HIV transmission becomes important because the specially made knives used for the cutting are not washed and one may be used to cut a number of clients.

Though evidence is scanty, information obtained from earlier studies also indicate that there is about 10% mortality associated with the practice of FGM. About one in ten of the informants interviewed knew of some one who died after the operation from excessive bleeding. This is obviously an avoidable death and it is hoped that the morbidity and mortality associated with FGM demonstrated in this document will lead to pressure to stop the practice.

Shistosoma Hematobium infection was an incidental finding during the laboratory investigations; it was determined that girls who are cut run 1.7 times the risk of infection (Tables 2 and 3). This association has not been reported before in the literature search and this opens an avenue for further studies.

**CONCLUSION**

This study was conducted to look for and present accurate information about FGM in order to raise awareness within the health sector and among the community-at-large of the importance of FGM as a health issue affecting women, men and children and to attract additional resources for the identification, treatment, and prevention of all forms of FGM and the resulting adult psychosexual damage which
hopefully will lead to pressure to stop the practice. The results presented have shown clearly the harmful effects of FGM on the reproductive lives of girls and women.

Several factors have in the past, prevented FGM to be seen as harmful and as a human rights issue. Parents and family members who believe that it will have a beneficial consequence for the child later in life encouraged FGM. FGM and other violence against women and girls in the home or in the community were seen as a "private" issue. The practice was rooted in a cultural tradition and outside intervention in the name of universal human rights risked being it perceived as cultural imperialism.

Today, however, the harmful effects of FGM on women and girls have been clearly demonstrated and the human rights implications of FGM are clearly and unequivocally recognised at an international level. This recognition requires governments, local authorities and others in position of power and influence to honour their obligations established under international law – to prevent, investigate and punish all forms of violence against women especially FGM.

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Finally we are grateful to the principals and staff of the participating schools and the chiefs and opinion leaders of the Upper East Region of Ghana without whose support this study could not have been possible.

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