BEHAVIOURAL STUDY REPORT

HIV VULNERABILITY AMONG FEMALE SEX WORKERS ALONG GHANA'S TEMA-PAGA TRANSPORT CORRIDOR

ACKNOWLEDGEMENT

The primary data for this study on HIV vulnerability among female sex workers along Ghana's Tema-Paga transport corridor was successfully collected during November and December 2011. The efforts of a number of individuals who were involved in the study are hereby acknowledged.

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ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ALCO	Abidjan Lagos Transport Corridor
BCC	Behavior Change Communication
CI	Confidence Interval
ECOWAS	Economic Community of West African States
FHI	Family Health International
FSW(s)	Female Sex Worker(s)
GAC	Ghana AIDS Commission
GSS	Ghana Statistical Service
HIV	Human Immuno-deficiency Virus
IOM	International Organization for Migration
KAP	Knowledge, Attitudes and Practice
LDD	Long Distance Drivers
MARP(s)	Most-At-Risk-Population(s)
MSA	Management Strategies for Africa
NGOs	Non-Governmental Organizations
NPC	National Population Council
OR	Odds Ratio
PAF	Programme Acceleration Fund
SHARP	Strengthening HIV and AIDS Response Partnerships
SPSS	Statistical Package for Social Sciences
UNAIDS	United Nations Joint Program on AIDS
UNFPA	United Nations Population Fund
WAPCAS	West African Project to Combat AIDS and STIs Ghana

EXECUTIVE SUMMARY

Background

There is growing interest among researchers and public health practitioners on the relationship between mobility, migration and HIV. The association between mobility and the risk of HIV infection among female sex workers (FSWs) is not yet fully understood. Mobility and migration are not by themselves definitive HIV risk factors. Migration can make migrants vulnerable to high risk sexual behaviours because of the conditions they face during the migration process. These conditions take migrants away from regular sexual partners and practices for periods of time. Migrants are difficult to reach with HIV interventions and their social networks create opportunities for sexual networking, including among FSWs.

In Ghana, two types of FSWs are commonly described: roamers and seaters**.** Roamers are those who move around within or between cities/towns and actively seek clients in bars, night clubs, hotels, popular eating and drinking spots, recreational spaces and on the streets. Seaters are home or brothel-based and may live in a community with some form of structure and hierarchy.

Ghana has a population of 24.6 million people and an estimated overall prevalence of HIV infection at 1.5% in 2011. The population of FSWs in Ghana ranges between 47,786 and 58,920, of these women about 90% are roamers. The overall prevalence of HIV infection among FSWs was estimated at 11.1% in 2011 with a prevalence of 6.6% among roamers and 21.4% among seaters.

In 2011, with funding from UNAIDS, the International Organization for Migration's (IOM) mission in Ghana in partnership with Management Strategies for Africa (MSA) and the West African Program to Combat AIDS and STI (WAPCAS), conducted a study of HIV vulnerability among FSWs operating along Ghana's Tema-Paga transport corridor, the longest and busiest corridor in the country.

Objective

The aim of the study was to generate data on HIV and mobility to inform strategic decisions on HIV programming for FSWs. Specific objectives of the study were to: (a) understand characteristics of the FSWs operating along the Tema-Paga transport corridor, (b) understand mobility characteristics, (c) understand HIV vulnerability similarities and differences between roamers and seaters, and (d) identify HIV vulnerability (risk) factors.

Methods

The study was conducted in eight purposively selected study sites along the Tema-Paga transport corridor namely: Tema, Nkawkaw, Kumasi, Techiman, Kintampo, Tamale, Bolgatanga and Paga. A two-stage self-weighting sampling design was used to recruit participants. A cross-section of 559 FSWs (75% roamers, 25% seaters) aged 16 years or more and who had engaged in sex work in the past month were interviewed face-to-face using a structured questionnaire during November and December 2011.

Roamers were interviewed in and around bars, night clubs, hotels, popular eating and drinking spots, public gardens and on the streets, while seaters were interviewed at their homes or in brothels where they operated.

Vulnerability to HIV infection was measured by inconsistent condom use with clients three months before interview. Chi square tests were performed to identify factors associated with inconsistent condom use as well as similarities and difference between roamers and seaters by background

characteristics. Odds ratio was used to assess risk factors for inconsistent condom use and logistic regression was applied to examine independent risk factors.

Results

About 91% of the respondents were Ghanaians. 59% of the total respondents entered into sex work due to poverty related reasons, 75% were introduced to sex work by friends and 87% continued sex work because of economic hardship. 91% of the respondents indicated the intention to stop sex work and 83% among them cited the need for financial assistance to quit sex work.

The mean age of the respondents at the time of interview was 27.9 years and the mean age respondents had sex in exchange for money or a gift for the first time was 22.2 years. Assuming the given age for the first time respondents exchanged sex for money or gifts was indicative of start of sex work; the respondents had been in sex work business for an average of 5.3 years. On the last day worked before the interview, respondents had an average of 4 clients and earned an average of Ghana cedis (GH¢) 66.20 (US Dollar 42.4)

Of the total 559 participants interviewed, 55 reported inconsistent condom use with clients during the three months prior interview giving an overall prevalence of inconsistent condom use of 9.84% (95% CI: 7.50-12.61). The prevalence of inconsistent condom use among roamers and seaters were 11.46% (95% CI: 8.57- 14.90) and 5.0% (95% CI 2.03-10.03) respectively. Even though consistent condom use was high with clients (90.2%), the majority of the respondents (53.3%) were inconsistent condom users with their non-paying partners.

About 46% of the respondents had travelled within Ghana from one city/town to another for the purpose of sex work during the three months before interview. Among those who had travelled, 31% travelled at least once every week, 43% travelled at least once every month while 25.8% travelled once during three months before interview. Excluding the city/town where respondents were interviewed, respondents made a total of 420 visits to various cities/towns in their three most recent travels. Respondents travelled to both cities/towns located along and outside the Tema-Paga transport corridor. Popular destinations along the Tema-Paga transport corridor were Kumasi (71 visits or 16.9% of total visits), Tema (33 visits or 7.9%) and Techiman (22 visits or 5.2%). Popular destinations outside the corridor were Accra (71 visits or 16.9%) followed by Sunyani and Takoradi, both received 33 visits or 5.2% of the total visits. Overall, Accra and Kumasi were the popular destinations; each received 71 visits or 16.9% of the total visits. There were cross-border movements among the respondents. Of the 17 respondents who travelled outside Ghana, 76.5% travelled to Burkina Faso in their most recent travel while equal number of respondents travelled to Togo and Benin (11.8%).

Seater and roamer FSWs were different in many ways. Roamers were significantly younger than seaters (mean age: 24.8 yrs. vs.37.3yrs, $P < 0.001$) and were more likely to be single (80.9% vs. 25.7%, $P <0.001$). Even though roamers had fewer clients on the last day worked before the interview than seaters (mean number of clients: 3 vs. 4; $P <0.001$), they earned more income (mean income: GH¢ 76.90 vs., GH¢ 34.30, $P < 0.001$). Roamers had significantly more non-paying partners than seaters (59.9% vs.34.29%, $P<0.001$) and also had significantly higher frequency of sex with non-paying partners on weekly basis (87.30% vs. 74.47%; $P=0.023$). Compared to seaters, roamers were more likely not to always carry or have condoms while at work (5.7% vs. 0.0% $P=0.004$) and usually bought fewer condoms ($P<0.001$). Roamers had fewer dependents than seaters (mean number of children: 1 vs. 3; $P <0.001$). The proportion of seaters who indicated the intention to stop sex work was significantly higher than roamers (97.9% vs. 89.0%; $P=0.001$) and more seaters also cited the need for financial assistance to quit sex work (93.6% vs. 79.0%; $P <0.001$).

Roamers and seaters were not significantly different in their consistent condom use with their non-paying partners (P=0.057) and in their perception of how often condoms should be used during sex (P=0.927).

Risk factors for inconsistent condom use with clients during the three months prior interview were being a roamer (OR 2.46; 95% CI: 1.10-5.59, P = 0.027), not always carrying or having condoms when at work (OR 25.44, 95% CI: 9.41-68.78, P < 0.001), having one or more non-paying partners (OR for linear trend 1.57 ; 95% CI: 1.10-2.27; P=0.017), perception that condoms should not be used every time when having sex with any one (OR 5.23, 95% CI:2.84-9.57, < 0.001) and place of work at time of interview: Tema (OR 11.31, 95% CI: 1.46-87.41, P = 0.020); Nkawkaw (OR 10.5, 95% CI: 1.28-86.32; P= 0.029) and Bolgatanga/Paga (OR 9.80, 95% CI: 1.21-79.47, P=0.033).

Independent risk factors for inconsistent condom use were not always carrying or having condoms when at work (adjusted OR 20.52, 95% CI: 7.88 – 53.43, P <0.001) and the perception that condoms should not be used every time when having sex with any one (adjusted OR 4.23, 95% CI: 2.22 – 8.07, P<0.001).

Conclusion

Behaviour wise, roamers are more vulnerable to HIV infection than seaters because of their frequent movements, concurrent multiple non-paying partnerships and not always having condoms while at work. Seaters are older, less mobile, have more dependents and earn less income from sex work than roamers. A greater proportion of seaters than roamers indicated the intention to quit sex work if supported financially.

Recommendations

Innovative and integrated approaches are required to simultaneously target roamers, their non-paying partners and clients with behaviour change communications (BCC) messages. Places of contact and interaction between roamers, their clients and partners could be optimal points for interventions. Seaters could benefit from special HIV prevention projects such as income generating activities to wean them from sex work.

I BACKGROUND AND INTRODUCTION

1.1 *Literature review*

At the end of 2010, about 34 million people (31.6-35.2 million) were living with HIV worldwide and 2.7 million (2.4-2.9 million) new infections occurred in Sub-Sahara Africa accounting for 70% of all new infections.[1] Sex work is an important contributor of HIV epidemics in West, Central and East Africa regions.[2] It is estimated that 32% of new infections in Ghana, 14% in Kenya and 10% in Uganda are associated with sex work. The prevalence of HIV infection among FSWs in Sub-Sahara Africa is estimated at 11·8% (11·6-12·0).[3]

The population of Ghana is about 24.6 million people.[4] The HIV epidemic in Ghana is generalized with a prevalence of more than 1% in the general population as shown by successive sentinel surveys conducted among antenatal attendants.[5] The HIV prevalance from sentinel surveys conducted in 2010 and 2011 were 2.0% (CI:1.6-2.4) and 2.1% (1.48-2.72) respectively. The national HIV prevalence was estimated at 1.5% in 2011.

In Ghana, two types of FSWs are commonly described: roamers and seaters.[6, 7] Roamers move around within or between cities/towns and actively seek clients in bars, night clubs, hotels, popular eating and drinking spots, parks and on the streets. Seaters are home or brothel-based and may live in a community with some form of structure and hierarchy. The estimated population of female sex workers in Ghana is 51,934 (47,786-58,920).[8] The overall prevalence of HIV among FSWs in Ghana has fallen from 25% in 2009 to 11.1% in 2011.[5] HIV prevalence among roamers and seaters was 6.6% and 21.4% respectively in 2011.[8] It is reported that 2.4% of new HIV infections is contributed by FSWs, 6.5% by clients and 22.2% by partners of FSWs.[5] Among FSWs, inconsistent condom use is common among roamers.[9] The proportion of inconsistent condom use with a paying client during the most recent sex act was 9.7% among roamers and 4.1% among the seaters (4.1%).

A cross-sectional study, conducted in Accra in 2001, among clients of female sex workers, found that 84% of HIV cases among men aged 15-49 years was attributable to transactional sex.[10] Prevalence of HIV among clients of roamer FSWs was 4.9% and 15.8% among clients of seater FSWs. A behavioural surveillance study conducted in 2010 among FSWs in Accra and Kumasi estimated that 37.7% of all those infected with HIV were infected within the first year of entry into sex work.[11]

Some of the risk factors for HIV infection among FSWs in Accra-Tema and Kumasi include duration of sex work and number of clients per day. It has been reported that 58% of seaters and 27% of roamers were infected with HIV within six months after entry into sex work.[7]

There is growing interest among researchers and public health practitioners on the interconnectedness of mobility, migration and HIV. Mobility and migration are by themselves not definitive risk factors.[12, 13, 14, 15] Migration and mobility can make migrants vulnerable to high risk sexual behaviours because of the conditions they face during the migration process. These conditions take migrants away from regular sexual partners and practices for periods of time, makes migrants difficult to reach with HIV intervention and migrants' social networks create opportunities for sexual networking, including among FSWs.[12,15]

Studies conducted in Ghana show some links between HIV and mobility. The HIV epidemic in Ghana may have been accelerated by the migration of women from the Manya Krobo districts in Eastern Region of Ghana to Côte d'Ivoire after the construction of the Akosombo dam in the 1960s. This dam flooded the Volta River Basin and formed Lake Volta (the largest man-made lake in Africa) which led to a population displacement.[16]

While in the Ivory Coast, these women may have been infected with HIV through sex work and upon return home, facilitated local transmission of HIV through sex work, which in turn led to a gradual spread of HIV in Ghana.

A 1991 socio-behavioural study conducted in Ghana showed that migrants had regular sexual partners as well as casual partners and that international migration was associated with higher than average numbers of sexual partners.[17] Anarfi et al. in their 1995 study among female itenerant traders (women who move around trading in goods) in Ghana, found that female traders, because of their difficult working conditions, were vulnerable to sexual explotation by men with whom they came into contact with while on the road and at trading centres.[18]

A United Nations Population Fund (UNFPA) study conducted in 2008 among Kayayei, young economic migrant girls predominantly from northern Ghana working in urban market centres in southern Ghana as porters, indicated that Kayayei could be vulnerable to HIV infection.[19] The study participants had very low knowledge about HIV in general and none knew their HIV status. 32% were sexually active and 4.4% had experienced forced sex by acquaintances.

A research study on tourism, sexual violence and HIV and AIDS conducted in 2011 by the National Population Council (NPC) among five communities in Central and Greater Accra regions found that 18.2% of all female respondents had had sexual relations with tourists. Among the female respondents who had sex with tourists, only 16.3% and 5% used condoms in the Greater Accra and Central regions respectively.[20]

Transport corridors are known to have many hot spots (economic hubs, ports, mining fields, boarder towns) where mobile populations, female sex workers and resident populations interact and risky sexual practices take place.[15,21,22,23] Long Distance Drivers (LDD), a highly mobile population, are known to have sexual relationships with multiple women, often but not always, with FSWs.[14] In West Africa, the prevalance of HIV among truck drivers ranges between 3% and 32 %.[24] Hower, a study conducted in the Accra-Tema Metropolitan area found HIV prevalence among commercial drivers not to be significantly higher than that of all men in Ghana or men in the Greater Accra area.[25]

In its 2011-2015 strategy, UNAIDS has set forward three strategic visions for a renewed global HIV response: zero new infections, zero AIDS related deaths and zero discriminations.[35] The goal of the vision, zero new infection, is to reduce by half, sexual transmission of HIV including among young people, men who have sex with men and transmission in the context of sex work.

The Ghana National Strategic Plan for Most at Risk Populations (MARPs) 2011-2015 has articulated the goal of reaching 80% of all identified MARPs by 2015 with a comprehensive and evidence based package of HIV prevention, protection, treatment, care and support.

Cognisant that migration and mobility can make migrants vulnerable to HIV infection and that vulnerability not only stems from individual knowledge and behaviour but also from a range of environmental factors specific to a place including the relationship dynamic between mobile and sedentary populations, IOM advocates “spaces of vulnerability” approach in HIV programming.[12]

“Spaces of vulnerability are those areas where migrants and mobile populations live, work, pass through or originate from and may include the following: land border posts, ports, truck stops or hot spots along transport corridors, construction sites, commercial farms, fishing communities, mines, migrant communities and urban informal settlements, migrant-sending sites, detention centres, and emergency settlements.”

1.2 *Situational Analysis*

In 2011, with funding from UNAIDS, the IOM mission in Ghana in partnership with MSA and WAPCAS conducted a situational analysis of HIV and population mobility along transport corridors in Ghana. The aim was to provide synthesized information to guide the design and implementation of the FSW study. In addition to a literature review, interviews were conducted with key informants and various stakeholders including government, non-governmental institutions, development partners and transport unions in Ghana.

There are four main transport corridors in Ghana: Elubo-Aflao (East-West corridor); Tema-Paga (North-South corridor); Tema-Bawku (Eastern corridor) and Takoradi-Hamile (Western corridor). The Elubo-Aflao corridor is part of the Abidjan-Lagos Transport Corridor (ALCO), where there is an on-going HIV intervention programme targeting mobile population, especially truck drivers. This route originates in Elubo and passes through the cities of Takoradi, Cape Coast, Accra, Ada, Sogakope, Akatsi, Agbozume, Denu, ending in Aflao.

The Tema-Paga corridor originates at the southern port of Tema and transits through two major cities (Kumasi and Tamale), popular market centres and nodal settlements (Techiman, Kintampo and Bolgatanga) and terminates at the northern border town of Paga. This route facilitates transit of goods to Burkina Faso, northern Niger, Mali, Guinea as well as northern Cote d'Ivoire.

The Eastern Corridor originates in Tema and traverses the cities of Hohoe, Nkwanta, Bimbilla, Yendi, Nakpanduri and ends in Bawku. This corridor facilitates transit of goods to northern Togo, Benin as well as southern parts of Niger. The Western Corridor originates in Takoradi and traverses the cities of Cape Coast, Kumasi, and Techiman where it branches westward to Hamile through Wa. The western corridor serves northern Cote d'Ivoire, south-western parts of Burkina Faso, Guinea, and Mali. The Tema-Paga corridor thus shares traffic with the Takoradi-Hamile corridor, between the Kumasi-Techiman stretch of the road.

The situational analysis showed that the Tema-Paga Transport Corridor is an important corridor worthy of study for the following reasons:

a. it is the longest transport corridor and traverses six of the Ghana's ten regions,
b. it is the busiest transport corridor and serves neighbouring countries,
c. there are well known hot spots along the corridor, and
d. there are Non-Governmental (NGOs) and Community Based Organizations (CBOs) working along the corridor targeting Most at Risk Populations (MARPs).

Key Informant Interviews with government and non-government institutions, pharmacists, drivers, NGO staff and private transport companies along the Tema-Paga transport corridor confirmed that sex work is "thriving" and "vibrant" along the corridor. The human dynamics of mobility and sex work along the Tema-Paga Transport Corridor is composed of three groups: roamers (Ghanaians) who move from place to place in search of clients; mobile populations (Ghanaians and non-Ghanaians) who solicit sex from both roamers and the seaters and non-Ghanaian FSWs who could be either roamers or seaters.

1.3 *Rationale for the study*

In Ghana, empirical research on HIV, migration and mobility is limited. The HIV prevalence among FSWs in Ghana is 11.1% and prevalence varies by geographical areas, gender, age and residence. Sex work contributes a significant proportion of new HIV infections in Ghana: 2.4% of new HIV infections are contributed by FSWs, 6.5% by clients and 22.2% by partners of FSWs. Socio-cultural factors influence the presence of high risk populations in certain geographical areas and this is particularly true for populations found along the main transport corridors.

As the movement of people, goods and services across the country increases due to economic growth; closer integration amongst the Economic Community of West African States (ECOWAS); refugees fleeing from neighbouring countries due to war, and increasing population of economic migrants; it is important to understand links between HIV, migration and mobility for more effective HIV program interventions.

This study focused on the behavioural aspects of FSWs operating along the Tema-Paga Transport Corridor to better understand risk factors for HIV infection. The findings of this study provide evidence to guide HIV interventions for FSWs in Ghana.

1.4 *Aims and objectives*

The aim of the study was to generate data on HIV and mobility to inform strategic decisions on HIV programming for FSWs.

Specific objectives of the study were to:

1. Understand characteristics of FSWs operating along the Tema-Paga Transport Corridor,
2. Understand mobility patterns,
3. Understand HIV vulnerability similarities and differences between roamer and seater FSWs, and
4. Identify HIV vulnerability (risk) factors.

2 METHODOLOGY

2.1 Sampling methodology

2.1.1 Study population and operational definition

The target population for this study were FSWs (seaters and roamers). A FSW was defined as any female aged 16 years and above and who engaged in sex work within the month preceding the interview date.

Seaters were defined as FSWs who were home or brothel-based and clients come to them. Roamers were FSWs who move around (within or between cities/towns) actively seeking clients in bars, night clubs, hotels, popular eating and drinking spots, parks and on the streets. Seater sites refer to the sites where seaters FSWs operate (e.g. residences or brothels). Seaters may reside and operate in a well-defined community. Roamer sites refer to the sites frequented by roamer FSWs in search for clients.

2.1.2 Study Site selection

The Tema-Paga transport corridor passes through six of the ten regions of Ghana. There are roughly 40 settlements along the corridor. Eight study sites were purposively selected for this study and included at least one study site from each region the corridor passes through. In each of the selected study site, a list of seater and roamer sites were provided by WAPCAS. Some of the criteria used to select the study sites included but not limited to:

- Known hot spots,
- Major resting stops for long distance drivers and their assistants,
- Known interaction sites between mobile and resident populations,
- Major trading sites,
- Border sites, and
- Prevalence of HIV infection.

Table 1: Selected study sites along the Tema-Paga transport corridor

	City/Town	Reason for selection
1	Tema	One of the two harbour cities that serves other landlocked West African Countries (Burkina Faso, Mali and Niger). Industrial city with a lot of commercial activities. Rest spot for long distance drivers as they wait loading of trucks. There is a lot of interaction between the mobile population, port workers and resident population. Known hot spot for sex work. It has 3 seater and 19 roamer sites.
2	Nkawkaw	A commercial town and a market centre for a number of surrounding villages. Popular rest stop for travellers to northern part of Ghana. A transit point for those who travel in and out of the Kwahu areas for festivities and funerals. It has 1 seater site and 39 roamer sites.
3	Kumasi	Capital of Ashanti Region and the second largest city in Ghana. Transit point of travellers and long distance drivers to the northern part of Ghana and beyond. Known hot spot for sex work. It has 5 seater and up to 72 roamer sites.
4	Techiman	Commercial town, popular market for maize and yam throughout the week. Known hot spot for FSWs. It has 3 seater sites and up to 27 roamer sites
5	Kintampo	Town with commercial activities and a major rest point for long distance drivers and travellers to the north. Kintampo's waterfall is a known attraction site. it has 2 seater sites and up to 20 roamer sites.
6	Tamale	Capital of Northern Region and a very fast growing city. Major rest stop for long distance drivers and travellers heading to northern part of Ghana. It has 2 seater sites and up to 34 roamer sites.
7	Bolgatanga	Capital city of Upper East Region. A growing town with illegal mining activities. There is no known seater site but has up to 13 roamer sites
8	Paga	Border town with a lot of cross border commercial activities. Major rest stop for long distance truck drivers as they wait for custom clearance which may take some days. Paga is also known for its crocodile ponds and is a tourist attraction site. It has 1 seater site and up to 5 roamer sites

2.1.3 *Sample size estimation*

The desired sample size for the FSWs along the Tema-Paga Transport Corridor was calculated using the formula:

n = [4*(1-r)r*f(1+t)]/[((0.10*r)^2)*h*p]

Where
r = HIV prevalence rate among FSWs
f = design effect for the indicator
t = non response rate
h = average number of FSWs in a social network
p = proportion of FSW among the population along the Tema – Paga Transport Corridor
n = minimum number of FSW to be interviewed per domain for the indicator
Confidence level: 95 %

The strategy of the sample size estimation was to estimate the minimum number of FSWs per study site with a precision level of 5% in terms of sampling relative error that could be made in estimating the main indicator of the study. The main indicator of the study was HIV prevalence among FSWs, 25% (r). The sampling relative error was 8% of (r). Using the above formula, the desired sample size of FSWs for each of the study site was calculated and a total of 560 participants were required for the study.

2.1.4 Sampling

The study was implemented with a target sample size of 560 FSWs as a representative population of FSWs along the Tema – Paga Transport Corridor. The sample was selected in such a manner as to allow separate estimates of key indictors with acceptable precision in eight purposely selected study sites along the Tema – Paga Transport Corridor. Each of the study sites constituted a domain of the study.

A two stage self-weighting sampling design was used. The first stage involved the random selection of a total of 76 roamer and seater operation sites from a well updated frame of operational sites along the Tema – Paga Transport Corridor prepared by WAPCAS - an NGO who primarily work with MARPs. The selection was done with a systematic sampling method with probability proportional to an estimated number of FSWs in operational areas within each of the study sites. The desired number of FSWs for each study site was determined statistically (Annex Table 20). Within each study site, the selected roamer and seater operational sites were randomized with equal probability to establish an order of visitation. This method was adopted because a comprehensive list of FSWs could not be prepared due to ethical considerations and operational difficulties in listing, especially the roamers.

The second stage selection followed a randomized order where the first operational site on the randomized list was visited and identifiable FSWs operating at the site were screened and interviewed after informed consent was obtained. The study team then moved to the second operational site on the random list and this procedure continued until the total number of FSWs proportionally allocated to the study site was achieved for the designated study site.

Where all the operational sites within a particular study site were visited and the number of FSWs allocated to that designated study site was not achieved, the outstanding number was considered as non-response. A total sample size of 560 FSWs was required to ensure that there was adequate number of interviews conducted in each of the eight study sites.

2.2 Data Management

To ensure that high quality was maintained and that the data obtained from the field met data quality standards, measures of supervision in line with international standards were instituted. Research assistants were given a three-day intensive residential training in the proper administration of the study instrument. A data collection guide and manual was developed to support the training and for use as a reference guide in the field by the research assistants. The study questionnaire was field tested during the training to ensure uniformity of understanding and accurate data collection. A field monitoring visit was conducted at all the study sites by the research investigators and supervisors to ensure the quality of data collection. The monitoring exercise was guided by the field manual developed for the purpose.

Ten per cent of interviews generated by each interviewer were checked by the supervisors to verify that respondents had indeed been contacted and the relevant information had been recorded. Questionnaires were edited in the field by the field supervisors on the day of the interview and respondents were contacted where necessary. Daily reviews with all team members were held to discuss and find appropriate solutions to challenges in the field.

2.3 Analysis Strategy

2.3.1 Variables of interest

To assess vulnerability of FSWs to HIV infection, the study outcome adopted was inconsistent condom use with clients during the three months before the interview. Factors potentially associated with inconsistent condom use that were collected during the interviews were as follows:

a. **Demographic characteristics:** Study site, FSW type, nationality, age and education
b. **Socio-cultural characteristics:** marital status, number of children, number of dependants, family size, religion and ethnicity
c. **Sexual behaviours:** age at first sex, age at first transactional sex, number of non-paying partners, type of sexual intercourse on last day worked, group sex, condom availability when at work and intention to stop sex work
d. **Income, mobility and intention to stop sex work:** weekly income from sex work only, income from sex work on last day worked, number of clients on last day worked, travel during 3 months before interview and intention to stop sex work
e. **HIV knowledge, attitudes and practices:** Knowledge on modes of HIV transmission, HIV test, HIV infection risk perception and condom use perception.

2.3.2 Statistical methods

Data entry was done using the Census and Survey Processing system software package (CS Pro) and the Statistical Package for the Social Sciences (SPSS). Data cleaning and validation were carried out to identify errors and inconsistencies for immediate corrections before analysis. The Data Analysis and Statistical Software (STATA) package version 10 was used to analyse the data obtained.

Univariable analysis was performed to describe basic characteristics of the study population. Two types of bivariable analyses were performed using the chi-square test to examine overall associations between the variables of interest. First, the associations between female sex worker type (seaters and roamers) and various characteristics were performed to examine the similarities and differences between seaters and roamers and results were tabulated. Secondly, association between inconsistent condom use and potential risk factors were performed and the variables significantly associated with inconsistent condom use were identified.

Odds ratio was then used to calculate risk factors associated with inconsistent condom use. A test for linear trend was performed for the variables *number of non-paying partners* and *study sites* using the Mantel-Haenszel method. This was followed by a test for departure from linear trend using logistic regression which compared models with separate versus linear effects.

Multivariable analysis was performed using a Forward Logistic Regression method to identify independent risk factors for inconsistent condom use. The following steps were performed to build the model:

1. using the chi-square p-values, variables associated with inconsistent condom use were ranked in ascending order, starting with variable with the least p-value.
2. variable with the least p-value was added to the model and the Likelihood ratio test was performed to compare model with and without the variable to assess overall improvement of the model and p-value < 0.05 was adopted to indicate significant improvement of the model.
3. variables were added one by one in order of the smallest p-value and likelihood ratio test performed at each step until all variables were added to the model.
4. the model containing variables that significantly improved overall fit of the model was chosen as the final model and used to summarize risk factors independently associated with inconsistent condom use.

2.4 Ethical approval

Ethical clearance for the study was granted by the Institutional Review Board of the Noguchi Memorial Institute for Medical Research (NMIMR-IRB) (Annex 7.2). High ethical standards were applied during the study in accordance with the approved study protocol and included:

a. free and informed consent from all respondents,

b. adherence to the right to privacy regarding respondents' private life, sensitive issues or reluctance to answer sensitive questions,

c. confidentiality,

d. ensuring the mental, physical health and the safety of the respondents during interviews,

e. option for respondents to withdraw from the interview at any time, and

f. compensation for the respondents' time with a token of ten Ghana Cedis.

3 RESULTS

3.1 Basic characteristics of the study population

3.1.1 Study site and FSW type

Table two shows the distribution of the population by study site and FSWs type. A total of 559 FSWs aged 16 years and above, were interviewed of which 419 (75%) were roamers and 140 (25%) were seaters. Kumasi had the highest proportion of the total number of the respondents interviewed followed by Tema. Paga did not have the required minimum number of FSWs originally allocated and had to be combined with Bolgatanga to achieve the required sample size.

Table 2: Distribution of study population by study site and FSW type

Study site	N (%)	Seater: N (%)	Roamer: N (%)
Tema	96 (17.17)	26 (18.57)	70 (16.71)
Nkawkaw	51 (9.12)	1 (0.71)	50 (11.93)
Kumasi	147 (26.30)	50 (35.71)	97 (23.15)
Kintampo	50 (8.94)	12 (8.57)	38 (9.07)
Tamale	70 (12.52)	15 (10.71)	55 (13.13)
Bolgatanga/Paga	60 (10.73)	5 (3.57)	55 (13.13)
Total	559 (100)	140 (100)	419 (100)

3.1.2 Reasons for entry into, continuation with and intention to stop sex work

Table three shows the distribution of the study population by reasons of entry into sex work, person who introduced respondents to sex work, reasons for continuation and intention to stop sex work. The majority of the respondents entered into sex work due poverty related reasons (58.9%), 75% of them were introduced into sex work by friends and 86.6% continue with sex work because of economic hardship. Nearly all the respondents had the intention to stop sex work (91%) and about 83% of those with intention to stop sex work cited the need for financial assistance to stop sex work.

Table 3: Reasons of entry into sex work, reasons for continuation and intention to stop sex work

Variable	Number	%
Reasons that led to sex work		
Poverty related	329	58.86
Peer influence	120	21.47
Others	110	19.68
Person who introduced respondents into sex work		
Friend	420	75.13
Relatives (mother, sibling, guardian)	34	6.08
Others	105	18.78
Reasons for continuation of sex work		
Economic hardship	484	86.58
Peer influence	25	4.47
Others	50	8.94
Intention to stop sex work		
Yes	510	91.23
No	23	4.11
Do not know	26	4.65
Kind of help needed among those with intention to stop sex work		
Financial assistance	421	82.55
Employment skills	76	14.90
Others	13	2.55

3.1.3 Demographic characteristics

Table four shows the demographic characteristics of the study population. The majority of the respondents were Ghanaians (90.7%). Among the non-Ghanaian population, Nigerians were the largest (63.5%) followed by Burkinabes (13.5%). The age of the respondents ranged from 16 to 59 years with a mean of 27.9 years (SD±8.7). Of the total population, the 16-24 year age group constituted the highest proportion (43.7%) and those aged 45 years and above were the least (7.2%). The proportion represented by each age group decreased with increasing age. About 82% of the total respondents had not attended or had only completed primary school and only 1.1% had completed post-secondary education.

Table 4: Demographic characteristics

Characteristic	N	%
Nationality		
Ghanaians	507	90.70
Non- Ghanaians	52	9.30
Non-Ghanaians		
Nigerians	33	63.46
Burkinabes	7	13.46
Other West Africans	12	23.08
Age (years)		
16-24	244	43.65
25-34	203	36.31
35-44	72	12.88
≥45	40	7.16
Highest level of formal education completed		
None	179	32.02
Primary	279	49.91
Secondary	95	16.99
Higher	6	1.07

3.1.4 Social characteristics

Table five shows socio-cultural characteristics of the study population. There were few married individuals in this sample, with only five married respondents (0.9%). More than two thirds (67%) of the total respondents were single. Thirty-two per cent of the total respondents were divorced, separated or widowed.

The number of living biological children respondents had ranged from zero to ten with a mean of one child per respondent. Slightly over one third of the respondents (37.8%) had at least two living biological children. The number of dependents who solely or mostly depended on the respondent's income ranged from zero to 13 with a mean of three dependents per respondent.

The number of siblings (brothers and sisters) respondents reported ever had ranged from zero to 37 with a mean of six siblings per respondent. Approximately half (51%) of the total respondents came from large families, and indicated five to nine siblings. About 37% of respondents indicated they had four or fewer siblings, while 12% had 10 or more siblings.

Most of the respondents interviewed were Christians (70%) followed by Muslims (19%). Those subscribing to traditional religion formed 0.4% (n=2) of the total respondents, while those not affiliated to any religion formed about 11%.

Akans, who form the largest tribe in Ghana, also formed the largest ethnic group among the respondents, representing 46.9% of those interviewed. Hausas were the least in number, representing 1.4% of the total respondents.

Table 5: Social characteristics

Characteristics	N	%
Marital Status		
Single	375	67.08
Married	5	0.89
separated/divorced/widow	179	32.02
Number of living biological children		
None	169	30.23
1	179	32.02
≥2	211	37.75
Number of dependents solely or mostly on respondents income		
None	75	13.42
1	87	15.56
2	102	18.25
≥ 3	295	52.77
Number of siblings ever had (brothers and sisters)		
0-4	208	37.21
5-9	284	50.81
≥ 10	67	11.99
Religion		
Christian	391	69.95
Muslim	107	19.14
Traditional religion	2	0.36
Not affiliated to any religion	59	10.55
Ethnicity		
Akan	262	46.87
Ewe	18	3.22
Ga/Adangbe	76	13.60
Hausa	8	1.43
Mole-Dangbane	89	15.92
Gussi/Guan/Gruma/Mande	54	9.66
Non-Ghanaians	52	9.30

3.1.5 Sexual behaviours

Sexual behaviours of the study population are shown in Table six. The age respondents had sex for the first time ranged from 8 to 26 years with a mean of 16.5 yrs (SD±2.7). Over two-thirds of the respondents (36.7%) had their sexual debut below 16 years. About 89% of the respondent did not use condoms at their sexual debut. The age respondents received money or gift in exchange for sex ranged from 8 to 56 years with a mean of 22.6 years (SD± 8.0). Approximately 43% of the respondents received money or gift in exchange for sex for the first time between the ages of 18 to 24 years.

The number of non-paying partners (husband, boyfriend, fiancé) of the respondents ranged from zero to eight with a mean of one non-paying partner per respondent.

Slightly over two-thirds (35.4%) of the respondents had one non-paying partner and 18% had two or more non-paying partners. More than half (53.3%) of the respondents with non-paying partners reported inconsistent condom use with their non-paying partners. The most common reasons given for inconsistent condom use with non-paying partners were "I trust my partner" 63.6% and "partner objects to use of condoms" 26.0%. There were 42.7% of the respondents with non-paying partners in a relationship with intent to marry, 41.3% were in casual/boyfriend type relationship, 15.4% were cohabiting with their non-paying partners and 0.7% were married.

A total of 55 (9.8%) respondents reported inconsistent condom use with clients during the three months before interview. Among the inconsistent condom users, the reasons cited for inconsistent condom use were clients insisting on not using condoms 27.3%, condom not readily available (at the time of need) 18.2%, to earn more money 14.6% and lack of time/delay (in getting condoms) 12.7%,

The vast majority of the respondents (95.4%) had engaged in vaginal sex only on the last day worked before the interview.

About 21% of respondents reported participation in group sex where one or more men had sex with two or more women, or one or more women had sex with two or more men at the same time. Among the respondents who ever practiced group sex, 39.5% practiced group sex during the three months before the interview. An overwhelming 95.7% of respondents reported they always carry or have condoms while working.

Table 6: Sexual behaviours

Characteristics	N	%
Age first time had sex (yrs.)		
<16	205	36.67
16-17	149	26.65
18-24	199	35.60
≥25	6	1.07
Condom use first time had sex		
Yes	60	10.75
No	498	89.25
Age first time received money or gift in exchange for sex (yrs.)		
<16	67	11.99
16-17	88	15.74
18-24	240	42.93
≥25	164	29.34
No. of non-paying partners		
None	260	46.51
1	198	35.42
≥2	101	18.07
Consistent condom use with non-paying partners [a]		
Yes	136	46.74
No	155	53.26
Reasons for not using condoms with non-paying partners [b]		
I trust my partner	98	63.64
Partner objects to use of condoms	40	25.97
Others	16	10.39

Relationship with non-paying partners [c]		
Intend to marry	125	42.66
Marital	2	0.68
Consensual/cohabiting	45	15.36
Casual/boyfriend	121	41.30
Consistent condom use with clients during three months before interview		
Yes	504	90.16
No	55	9.84
Reasons for inconsistent condom use with clients		
Lack of time/Delay	7	12.73
Condom not readily available	10	18.18
Client insist on not using condom	15	27.27
To earn more money	8	14.55
Others	15	27.27
Type of sexual intercourse engaged on last day work		
Anal only	2	0.36
Vaginal only	533	95.35
Oral only	1	0.18
Mixed (more than 1)	23	4.11
Ever practiced group sex [d]		
Yes	114	20.54
No	437	78.74
No response	4	0.72
Group sex in past 3 months among those who ever practiced group sex		
Yes	45	39.47
No	69	60.53
Have or carry condom when at work		
Always	535	95.71
Not always	24	4.29

a. eight respondents have missing data
b. one respondent has missing data
c. six respondents have missing data
d. four respondents have missing data

3.1.6 Income

Table seven shows the distribution of the study population by income. About 97% of the respondents indicated sex work as their first main source of income. Almost two-thirds (61.5%) of the respondents reported a weekly income of over GH¢ 75 from sex work only.

The income earned by the respondents on the last day worked before the interview ranged from GH¢ 5 to 700 with a mean of GH¢ 66.20. About half (50.3%) of the respondent earned between GH¢ 25 and GH¢ 75 and 26.3% earned more than GH¢ 75 on the last day worked before the interview. The number of clients respondents had on the last day worked ranged 1 to 20 with a mean of 4 clients per respondent.

Table 7: Income

Characteristics	N	%
First main source of income and livelihood		
Sex work	541	96.78
Trade/business	11	1.97
Office work	4	0.72
Skilled labour	2	0.36
Bar attendant	1	0.18
Weekly income from sex work only (GH¢)		
<25	6	1.07
25-75	209	37.39
>75	344	61.54
Income earned on the last day worked (GHc)		
<25	131	23.43
25-75	281	50.27
>75	147	26.30
Number of clients respondents had on last day worked		
< 4	286	51.16
≥ 4	273	48.84

3.1.7 HIV knowledge, risk perceptions and condom use perception

Table eight shows the distribution of the study population according to HIV knowledge, risk perception and perception of how often respondents think condoms should be used. A minority of the respondents (16.5%) still believe HIV can be transmitted through mosquito bites, while about 40.8% also believed HIV can be transmitted through witchcraft/supernatural means.

About 57% of the respondents perceived that they had no or a small risk of getting HIV infection. The majority of respondents (82.8%) had tested for HIV within the past 12 months before interview. About 82% of the respondents perceived that condoms should be used every time when having sex with any one as opposed to 18% who thought otherwise.

Table 8: HIV knowledge, Risk perception and condom use perception

Characteristics [a]	N	%
HIV can be transmitted by mosquito bites		
Yes	92	16.52
No	436	78.28
Don't Know	29	5.21
HIV can be caused by witchcraft or by other supernatural means		
Yes	227	40.75
No	274	49.19
Don't Know	56	10.05
Risk perception of HIV infection		
No/small risk	317	56.91
Moderate/high risk	144	25.85
Don't Know/no response	96	17.24

HIV test		
Tested in the past 12 months	461	82.76
Tested but not in the past 12 months	47	8.44
Never tested	49	8.80
Perception on how often condom should be used when having sex with anyone		
Every time	455	81.69
Otherwise	102	18.31

[a] Two respondents have missing data in all the variables

3.2 Mobility characteristics

3.2.1 Movements

Table nine shows distribution of the respondents by mobility characteristics during the three months before interview. About 46% of the total respondents travelled during the three months before interview. Among those who travelled, 31.3% travelled at least once every week, 43.0% travelled at least once every month while 25.8% travelled once during three months before interview.

About half of the respondents (51%) worked in one city/town excluding the city/town where they were interviewed. Slightly less than a third (30.5%) worked in two cities/towns, 15.6% worked in three cities/towns while 3.1% worked in four or more cities/towns.

There were cross-border movements among the respondents during the three months before interview. Of the 17 respondents who had travelled outside Ghana, 76.5% went to Burkina Faso in their most recent travel and an equal number of respondents had also travelled to Togo and Benin (11.8%).

Table 9: Characteristics of the recent movements

Characteristics	N	%
Travel from one city/town to another for purpose of sex work during three month before interview		
Did not travel	303	54.20
Travelled	256	45.80
Frequency of travel		
At least once every week	80	31.25
At least once every month	110	42.97
Once in the past 3 months	66	25.78
Number of cities/towns worked excluding city/town respondent interviewed		
1	130	50.78
2	78	30.47
3	40	15.63
≥ 4	8	3.13
Most recent country visited outside Ghana		
Benin	2	11.76
Burkina Faso	13	76.47
Togo	2	11.76

3.2.2 Most recent movements

Table ten shows the characteristics of the respondents in their most recent movement before the interview. Among the respondents who travelled during the three months before interview, 29.3%, 23.4%, 30.9% and 16.4% had their most recent travel within one week, two weeks, one month and three months before the interview respectively. The majority of the respondents (56.6%) travelled alone in their most recent travel and 64.5% of the respondents stayed for about a week in the city/town they visited most recently.

Table 10: Characteristics of the most recent movement

Characteristics	N	%
Time of the most recent travel before interview		
Within last week	75	29.30
Within last two weeks	60	23.44
Within last month	79	30.86
Within last 3 months	42	16.41
Travelled with whom during the most recent travel		
Alone	145	56.64
Friends	106	41.41
Clients	5	1.953
Duration of stay in the city/town most recently visited		
At least a week	165	64.45
At least two weeks	61	23.83
At least a month	22	8.59
More than a month	8	3.13

3.2.3 Popular destinations in Ghana

The cities and towns respondents visited during their three most recent travels excluding the city/town they were interviewed are shown in Table 11. Respondents travelled to cities/towns along the Tema-Paga transport corridor as well as to cities and towns outside the corridor.

Among the most recently visited cities/towns along the corridor, Kumasi received the highest number of visits ((16.4% or 42 visits) followed by Tema (9.4% or 24 visits) and Techiman (5.5% or 14 visits). Among the most recently visited cities/towns outside the corridor, Accra received the highest number of visits (18.0% or 46 visits) followed by Sunyani and Takoradi each with equal number of visits (5.9% or 15 visits).

Of the total three most recent visits, Accra and Kumasi received the highest number of visits (16.9% or 71 visits). Tema received the second highest number of visits (7.7% or 33 visits) while Sunyani and Takoradi tied for third highest number of visits (6.4% or 27 visits).

Table 11: Cities/Towns respondents visited excluding the city/town of interview

City/Town	Most recent visit		1st to most recent visit		2nd to most recent visit		Total visits	
	N	%	N	%	N		N	%
Cities/Towns along Tema-Paga Transport Corridor								
Tema	24	9.38	6	5.00	3	6.82	33	7.86
Nkawkaw	1	0.39	2	1.67	3	6.82	6	1.43
Kumasi	42	16.41	25	20.83	4	9.09	71	16.90
Techiman	14	5.47	8	6.67	0	0.00	22	5.24
Kintampo	2	0.78	1	0.83	2	4.55	5	1.19
Tamale	7	2.73	7	5.83	2	4.55	16	3.81
Bolgatanga	4	1.56	2	1.67	1	2.27	7	1.67
Paga	4	1.56	4	3.33	1	2.27	9	2.14
Cities/Towns outside Tema-Paga Transport Corridor								
Sunyani	15	5.86	8	6.67	4	9.09	27	6.43
Accra	46	17.97	17	14.17	8	18.18	71	16.90
Cape Coast	2	0.78	6	5.00	0	0.00	8	1.90
Takoradi	15	5.86	8	6.67	4	9.09	27	6.43
Others	80	31.25	26	21.67	12	27.27	118	28.10
Total	256	100	120	100	44	100	420	100

3.3 Similarities and differences between seaters and roamers

3.3.1 Socio-demographic characteristics

Table 12 shows similarities and differences between seaters and roamers by socio-demographic characteristics. Roamers were significantly younger than seaters (mean age: 24.8 yrs. vs. 37.3yrs.; P <0.001). Most of the roamers were single compared to seaters (80.9% vs. 25.7%; P < 0.001). Seaters had more living biological children (mean no. of children: 3 vs.1; P < 0.001) and also supported more people on their income than roamers (mean number of dependents: 4 vs. 2; P < 0.001).

Table 12: Similarities and differences by demographic characteristics

Characteristics	Seater: N (%)	Roamer: N (%)	Chi-square p value
Age (yrs.)			
16-24	13 (9.3)	231 (55.1)	< 0.001
25-34	41 (29.3)	162 (38.7)	
35-44	50 (35.7)	22 (5.3)	
≥ 45	36 (25.7)	4 (0.95)	
Mean age	37.3	24.8	<0.001
Marital status			
Single	36 (25.71)	339 (80.91)	< 0.001
Married	2 (1.43)	3 (0.72)	
Separated/Divorced/Widowed	102 (72.86)	77 (18.38)	

Number of living biological children			
None	11 (7.86)	158 (37.71)	< 0.001
1	29 (20.71)	150 (35.80)	
2	28 (20.00)	60 (14.32)	
≥ 3	72 (51.43)	51 (12.17)	
Mean number of living biological children	3	1	< 0.001
Number of people supported			
None	3 (2.14)	72 (17.18)	< 0.001
1	6 (4.29)	81 (19.33)	
2	20 (14.29)	82 (19.57)	
3	26 (18.57)	89 (21.24)	
> 3	85 (60.71)	95 (22.67)	
Mean no of dependents supported	4	2	< 0.001

3.3.2 Sexual behaviours

Table 13 shows the similarities and differences between seaters and roamers by sexual behaviours. Roamers had an earlier sexual debut than seaters (mean age of sexual debut: 15.9 yrs. vs. 18.1 yrs., P < 0.001). Roamers also transacted sex for money or a gift for the first time at an earlier age compared to seaters (mean age first time transacted sex: 19.6 yrs. vs. 31.6 yrs.; P < 0.001). On average seaters were in the sex work business for 5.7 years (mean age 37.3 – mean age first time transacted sex 31.6) and roamers were in sex work business for 5.2 years (mean age 24.8 – mean age first time transacted sex 19.6); thus, on average seaters were in the sex business five months longer than roamers.

Roamers reported a greater number of one or more non-paying partners than seaters (59.9% vs. 34.3%; P < 0.001) and also reported a higher frequency of sex with non-paying partners on weekly basis (87.3% vs.74.5%; P=0.023).

Table 13: Similarities and differences by sexual behaviour

Characteristics	Seater: N (%)	Roamer: N (%)	Chi-square p value
Age first had sex (yrs.)			
< 16	21 (15)	184 (43.91)	< 0.001
16-17	26 (18.57)	123 (29.36)	
18-24	88 (62.86)	111 (26.49)	
≥25	5 (3.57)	1 (0.24)	
Mean age first had sex (yrs.)	18.1	15.9	< 0.001
Age first time transacted sex			
< 16	2 (1.43)	65 (15.51)	< 0.001
16-17	2 (1.43)	86 (20.53)	
18-24	29 (20.71)	211 (50.36)	
25-34	58 (41.43)	52 (12.41)	
≥35	49 (35.00)	5 (1.19)	
Mean age first time transacted sex (yrs.)	31.6	19.6	<0.001

Number of non-paying partners currently have			
None	92 (65.71)	168 (40.10)	< 0.001
≥1	48 (34.29)	251 (59.90)	
Mean number of non-paying partners	0	1	< 0.001
Frequency of sex with non-paying partners			
At least once weekly	35 (74.47%)	213 (87.30%)	0.023
At least once monthly	12 (25.53%)	31 (12.70%)	

3.3.3 Condom use and purchase and perception of how often condom should be used

Table 14 shows similarities and differences between seaters and roamers by condom use, condom purchase and their perception of how often condoms should be used when having sex with any one. About 90% of the respondents did not use condoms during their sexual debut, with no significant difference between seaters and roamers (P = 0.11). Compared to seaters, the proportion of roamers who did not always have or carry condom was significantly higher (5.73% vs. 0.0%; P<0.004).

Roamers and seaters were significantly different in their consistent condom use with clients, with roamers more likely to be inconsistent condom users (11.5% vs. 5.0%; P=0.026). There was neither significant difference between the two groups in their consistent condom use with non-paying partners (P = 0.057) nor in their perception of how often condoms should be used when having sex with any one (P = 0.927).

Table 14: Similarities and difference by condom use, condom purchase and perception

Characteristics	Seater: N (%)	Roamer: N (%)	Chi-square p value
Condom use at first time had sex			
Yes	10 (7.14)	51 (12.20)	0.111
No	130 (92.9)	368 (87.80)	
Condom availability when at work			
Always have/carry condoms when at work	140 (100)	395 (94.27)	0.004
Do not always have/carry condoms when at work	0 (0.0)	24 (5.73)	
Amount of condoms usually bought buy at a time			
One or more boxes of condoms (100-144 pcs)	135 (97.12)	298 (71.81)	< 0.001
Half/quarter box (25-72 pcs)	3 (2.16)	62 (14.94)	
Pieces	1 (0.72)	55 (13.25)	
Consistent condom use with non-paying partners			
Yes	16 (34.04)	120 (49.18)	0.057
No	31 (65.96)	124 (50.82)	
Consistent condom use with clients three months before interview			
Yes	133 (95.00)	371 (88.54)	0.026
No	7 (5.00)	48 (11.46)	
Perception of how often condom should be used when having sex with anyone			
Every time	114 (81.43)	341 (81.77)	0.927
Otherwise	26 (18.57)	76 (18.23)	

3.3.4 Income, intention to stop sex work and type of assistance required

Table 15 shows similarities and differences between seaters and roamers by income, intention to stop sex work and type of assistance required to stop sex work. Approximately 66% of roamers reported earning more than GH¢75.00 per week from sex work only compared to 48% of seaters. On the last day worked, seaters had on average more clients than roamers (mean no. of clients: 4 vs. 3; P =0.012) but earned on average less than roamers (mean income on last day worked: Ghc 34.30 vs. GHc 76.90; P<0.001). The proportion of seaters who reported an intention to stop sex work was significantly higher than roamers (97.86% vs. 89.02%, P=0.001). The proportion of seaters who cited the need for financial assistance to stop sex work was also significantly higher than roamers (93.57 vs. 79.00, P <0.001)

Table 15: Similarities and differences by income, intention to stop sex work and type of assistance required.

Characteristics	Seater: N (%)	Roamer: N (%)	Chi-square p value
Weekly income from sex work only (GHc)			
< 25	3 (2.14)	3 (0.72)	<0.001
25 -75	70 (50.0)	139 (33.17)	
≥75	67 (47.86)	277 (66.11)	
Number of clients had last day worked			
≤ 4	83 (59.29)	310 (73.99)	0.001
> 4	57 (40.71)	109 (26.01)	
Mean number of clients had on the last day worked	4	3	0.012
Income earned from sex work on the last day worked (GHc)			
< 25	61 (43.47)	70 (16.71)	< 0.001
25 -74	69 (49.29)	208 (49.64)	
75- 154	8 (5.71)	100(23.87)	
≥155	2 (1.43)	41 (9.79)	
Mean income on last day worked GHc)	34.3	76.9	< 0.001
Intention to stop sex work			
Yes	137 (97.86)	373 (89.02)	0.001
No/Do not know	3 (2.14)	46 (10.98)	
Kind of help needed to stop sex work			
Financial assistance	131 (93.57)	331 (79.00)	< 0.001
Employment skills	6 (4.29)	76 (18.14)	
Others	3 (2.14)	12 (2.86)	

3.3.5 Nationality and mobility

The similarities and differences between seaters and roamers according to nationality and mobility characteristics are shown in Table 16. About 90% of the respondents were born in Ghana and were Ghanaians. There were no significant differences between the seaters and the roamers in their place of birth (P= 0.16) nor in their nationality (P=0.24).

Roamers and seaters were significantly different in their travel frequency (P < 0.001) with roamers travelling more frequent than seaters. About 24% of the seaters and 53% of the roamers travelled during the three months preceding the interview for the purposes of sex work. Among the seaters, 7% travelled once every month and 11% travelled once in three months. Among the roamers, 7.6% travelled more than once every week, 11.5% travelled once every week and 14.8% travelled once every month.

The difference in the frequency of travels is reflected in the differences in the number of cities/towns visited during the three months preceding the interview. Seaters and roamers were significantly different (P<0.001) in the numbers of cities/towns visited with roamers visiting more cities than seaters. Among seaters, 15.7% visited one city/town and 8.5% visited at least two cities/towns. Among the roamers, 25.8% visited one city/town, 16.5% visited two cities/towns and 10.7% visited at least three cities/towns.

Table 16: Similarities and differences by nationality and mobility

Characteristics	Seater: N (%)	Roamer: N (%)	Chi-square P- value
County of birth			
Ghana	132 (94.3%)	379 (90.5%)	0.161
Other countries	8 (5.7%)	40 (9.5%	
Nationality			
Ghanaians	132 (94.3%)	375 (89.5%)	0.24
Non-Ghanaians	8 (5.7%)	44 (10.5)	
Frequency of travel from one city/town to another in the past three months			
Did not travel	107 (76.4%)	196 (46.8%)	< 0.001
Once every week	0 (0%)	48 (11.5%)	
More than once every week	0 (0%)	32 (7.6%)	
Once every month	10 (7.1%)	62 (14.8%)	
More than once every month	7 (5.0%)	31 (7.4%)	
Once in the past 3 months	16 (11.4%)	50 (11.9%)	
Number of towns/cities worked in the past three months			
0	107 (76.4%)	196 (46.8%)	< 0.001
1	22 (15.7%)	108 (25.8%)	
2	9 (6.4%)	69 (16.5%)	
3	3 (2.1%)	37 (8.8%)	
4	0 (0%)	7 (1.7%)	
5	0 (0%)	1 (0.24%)	

3.4 *Risk factors for inconsistent condom use with clients*

Inconsistent condom use was significantly associated with carrying or having condoms when at work (χ^2: 91.29, P <0.001), perception of how often condom should be used when having sex with anyone (χ^2: 35.58, P <0.001), FSW type (χ^2: 4.93, P =0.026), number of non-paying partners (χ^2: 6.00, P =0.050), number of clients respondents had on the last day worked (χ^2: 3.80, P =0.051) and study site (.χ^2: 24.74, P <0.001).

Table 17 shows the risk factors for inconsistent condom use with clients during the three months period before the interviews. Respondents who did not always have or carry condoms when at work had 25 times greater odds of inconsistent condom use compared to those who always had or carried condoms when at work (OR 25.44, 95% CI: 9.41-68.78, P < 0.001). Those who perceived that condoms

should not be used every time when having sex with any one had five times greater odds of inconsistent condom use compared to those who perceived condoms should be used every time (OR 5.23, 95% CI:2.84-9.57, < 0.001).

Roamers had more than two times greater odds of inconsistent condom use compared to seaters (OR 2.46; 95% CI: 1.10-5.59, P = 0.027). There was linear relationship between inconsistent condom use and number of non-paying partners. For every one non-paying partner increase (from zero to two or more partners), the odds of inconsistent condom use increased by 1.57 (95% CI: 1.10-2.27; P=0.017). The number of clients respondents had on the last day worked was not significantly associated with inconsistent condom use when those who had four clients or more were compared with those who had less (OR 0.57; 95% CI: 0.32-1.01, P= 0.052).

Compared to Kintampo, the odds of inconsistent condom use was higher in Tema (OR 11.31, 95% CI: 1.46-87.41, P = 0.020), Nkawkaw (OR 10.5, 95% CI: 1.28-86.32; P= 0.029) and Bolgatanga/Paga (OR 9.80, 95% CI: 1.21-79.47, P=0.033)

Table 17: Risk factors for inconsistent condom use with clients during three months before the interview (Mantel-Haenszel Odds ratios)

Risk factor	OR (95% CI)	P-Value
Condom availability when at work		
Always have/carry condoms	1	
Do not always have/carry condoms	25.44 (9.41-68.78)	< 0.001
Perception of how often condom should be used when having sex with any one		
Every time	1	
Not every time	5.23 (2.84-9.57)	< 0.001
FSW type		
Seater	1	
Roamer	2.46 (1.10-5.59)	0.027
No. of non-paying partners had		
None	1	
1	1.43 (0.74-2.75)	
≥2	2.39 (1.17-4.89)	
Test for linear trend	1.57 (1.10-2.27)	0.017
Test for departure from linear trend (likelihood ratio test)		0.785
Number of clients had last day worked		
< 4	1	
≥ 4	0.57 (0.32-1.01)	0.052
Study site		
Kintampo	1	
Tema	11.31 (1.46-87.41)	0.02
Nkawkaw	10.5 (1.28-86.32)	0.029
Bolgatanga/paga	9.80 (1.21-79.47)	0.033
Others	2.92 (0.38-22.47)	0.303
Test for linear trend	1.04 (0.90-1.22)	0.577
Test for departure from linear trend (likelihood ratio test)		< 0.001

Table 19 shows the results of forward logistic regression analyses. Independent risk factors for inconsistent condom use were the behaviour of carrying or having condoms when at work and the perception of how often condoms should be used when having sex with anyone. Those who did not always carry or have condoms when at work had 20 times greater odds of inconsistent condom use compared to those who always carried or had condoms while at work (adjusted OR 20.52; 95% CI: 7.88-53.43; P <0.001). Those who perceived that condoms should be not be used every time when having sex with anyone had four times greater odds compared to those who perceived condoms should be used every time (adjusted OR 4.23; 95% CI: 2.22-8.07, P < 0.001). The type of FSW (roamers vs. seater), number of non-paying partners and location of study site were not independent risk factors for inconsistent condom use.

Table 18: Odds ratios for inconsistent condom use with clients three months before the interview (logistic regression)

Risk factors	Crude OR (95% CI)	P- value	Adjusted OR [a] (95% CI)	P-value
Condom availability when at work				
Do not always have/carry condoms vs. Always have/carry	25.44 (9.41-68.78)	< 0.001	20.52 (7.88-53.43)	< 0.001
Perception of how often condoms should be used when having sex with any one				
Not every time vs. every time	5.23 (2.84-9.57) [b]	< 0.001	4.23 (2.22-8.07)	< 0.001
FSW type				
Roamers vs. Seaters	2.46 (1.10-5.59)	0.0265	1.74 (0.74-4.09)	0.208
No. of non-paying partners				
For every one partner increase from 0 to ≥ 2	1.57 (1.10-2.27)	0.017	1.41 (0.91- 2.17)	0.122
Study site				
Tema vs. Kintampo	11.31 (1.46-87.41)	0.020	7.00 (0.84-58.10)	0.071
Nkawkaw vs. Kintampo	10.5 (1.28-86.32)	0.029	6.07 (0.66- 55.76)	0.111
Bolgatanga/Paga vs. Kintampo	9.80 (1.21-79.47)	0.033	5.30 (0.59 – 47.64)	0.137
Others vs. Kintampo	2.92 (0.38-22.47)	0.303	2.08 (0.25- 17.00)	0.494

[a] Adjusted for condom availability when at work and perception on how often condom should be used when having sex with any one

[b] Two individuals have missing data

4 DISCUSSION

4.1 Main findings

Of the total 559 participants interviewed, 55 reported inconsistent condom use with clients during the three months prior to the interviews, giving an overall prevalence of inconsistent condom use of 9.84% (95% CI: 7.50-12.61). The prevalence of inconsistent condom use among roamers and seaters were 11.46% (95% CI: 8.57- 14.90) and 5.0% (95% CI 2.03-10.03) respectively

Risk factors for inconsistent condom use with clients during the three months prior to the interviews were being a roamer (OR 2.46; 95% CI: 1.10-5.59, P = 0.027), not always carrying or having condoms when at work (OR 25.44, 95% CI: 9.41-68.78, P < 0.001), having one or more non-paying partners (OR for linear trend 1.57 ; 95% CI: 1.10-2.27; P=0.017), perception that condoms should not be used every time when having sex with any one (OR 5.23, 95% CI:2.84-9.57, < 0.001) and place of work at the time of interview: Tema (OR 11.31, 95% CI: 1.46-87.41, P = 0.020); Nkawkaw (OR 10.5, 95% CI: 1.28-86.32; P= 0.029) and Bolgatanga/Paga (OR 9.80, 95% CI: 1.21-79.47, P=0.033).

Independent risk factors for inconsistent condom use were not always carrying or having condoms when at work (adjusted OR 20.52, 95% CI: 7.88 – 53.43, P <0.001) and the perception that condoms should not be used every time when having sex with anyone (adjusted OR 4.23, 95% CI: 2.22 – 8.07, P<0.001).

4.2 Interpretation of the findings

A minority group among the FSWs operating along the Tema-Paga transport corridor are vulnerable to HIV infection, if not already infected. The study findings indicate that, behaviour wise, roamers are more vulnerable to HIV infection than seaters. Roamers travel more frequently than seaters to maximize their sex business opportunities and in the process meet different clients and establish multiple non-paying partnerships. The frequent movements of roamers may partly explain why they reported to earn more income from sex work on a weekly basis, on average earned more income on the last day worked and had more non-paying partners than seaters.

It was not surprising to find that not always carrying or having condoms when at work, was an independent risk factor for inconsistent condom use with clients. The reasons for not always carrying or having condoms were not fully explored in this study. However, upon examination of the reasons for inconsistent condom use, it is clear there were risks associated with not always carrying or having condoms when at work. Among the inconsistent condom users, 12.7% cited lack of time/delay (in getting condoms) as the reason for being inconsistent condom users and 18.9% cited condoms were not readily available (at the time of need).

Seaters and roamers are not significantly different in their perception on how often condom should be used when having sex with anyone. The association between inconsistent condom use with clients and the perception on how often condom should be used when having sex with any one, can be explained by the relationship FSWs had with their non-paying partners. Among the respondents who had partners, 42.67% were in a relationship with the intention to marry and 15.4% were cohabiting with their partners. The most common reasons given for inconsistently using condoms with non-paying partners were “I love/trust my partner” (63.6%) and “my partner objects to use of condoms” (26.0 %).

The association between inconsistent condom use and study sites (Tema, Nkawkaw and Bolgatanga/Paga) were not clear from this study but could be linked with population mobility and the interaction between mobile and sedentary populations. Tema is an industrial city as well as a port. It is a rest spot for long distance drivers as they wait for the loading of trucks; hence, there is interaction between mobile population, port workers and the resident population. Nkawkaw is situated on the highway between Accra and Kumasi and is connected by road to Koforidua and Konongo. It is one of the major towns of the Kwahu Mountains and is a transit point for those who travel in and out of the Kwahu areas for festivities and funerals. Additionally, there are mining activities around Nkawkaw. Bolgatanga is the capital city of the Upper East Region and a growing town with illegal mining activities. Paga is a border town and an active centre of cross-border commercial activities. It is a major rest stop for long distance truck drivers as they wait for custom clearance, which often takes one or more days. Paga is also known for its crocodile ponds which attract tourists.

4.3 Findings in comparison with literature

Poverty has been described as a common factor that drives young girls and women into sex work.[14,16,29,30,31] Similar to this study, other studies have observed that mobile FSWs are more inconsistent condom users than non-mobile FSWs.[26,27,28] Some of the reasons for inconsistent condom use cited by FSWs include the desire to earn more money, clients insisting on not using condoms and violence from clients.[5,28,32,33]

Even though roamers are more inconsistent condom users than seaters, in Ghana, roamers have a lower HIV prevalence than seaters (6.6% vs. 21.4%).[5] The reason for higher prevalence of HIV infection among seaters may be due to combination of a number of risk factors such as age, duration of sex work and number of clients. Other studies have determined that the prevalence of HIV infection among FSWs increased with age[9] and seaters were on average 9 years older than roamers[5] and had a higher mean number of clients.[11] In this study, seaters were on average 12.5 years older than roamers, had more clients on the last day worked before the interview and on average, had been in the sex work business five months longer than roamers.

Despite consistent condom use was high with clients (90.2%), the majority of the respondents (53.3%) in this study were inconsistent condom users with their non-paying partners. This finding is consistent with a study conducted among FSWs in Greater Accra and Kumasi.[11]

4.4 *Limitations of the study*

The findings of this study are limited to the Tema-Paga Transport Corridor and may not be applicable to other transport corridors. Study sites were purposively selected and the respondents were recruited from known FSWs operation sites; hence, the investigations may have been influenced by selection bias. Information bias may have also influenced the study findings. Reporting bias may have occurred if inconsistent condom users provided responses to the questions with a different degree of accuracy than consistent condom users (recall bias). Observer bias may have occurred if the accuracy of the data (risk factors) recorded by investigators systematically differed between seaters and roamers.

Like all cross-sectional studies, both the exposures of interest (risk factors) and the outcome of interest (inconsistent condom use with clients) were collected at the same time; therefore, the temporal association between the exposures and the outcome cannot be determined.

5 CONCLUSION AND RECOMMENDATIONS

Marginalization of Most at Risk Populations due to stigma and discrimination is one of the determinants of HIV spread in Ghana.[35] The Ghana National Strategic Plan for MARP 2011-2015 has articulated the goal of reaching 80% of all identified MARP by 2015 with a comprehensive evidence based intervention package of HIV prevention, protection, treatment, care and support**.**

Non-governmental organizations (NGOs) play a great role in providing services to FSWs. Two approaches are used in reaching FSWs: prevention services based on peer-group interventions and curative health services implemented in partnership with Ghana Health Service. Prevention services include: information on HIV prevention, promotion of condom and lubricant use and HIV testing. Baking as an income generating activity has been implemented for some FSWs of low socio-economic status in Greater Accra.[36]

In this study, with respect to behaviour, roamers were more vulnerable to HIV infection than seaters because of their mobility, concurrent multiple non-paying partnerships and not always carrying or having condoms while at work. Seaters were older, less mobile, had more dependents and earned less income from sex work than roamers. A greater proportion of seaters than roamers indicated the intention to quit sex work if supported financially..

The following are some recommendations for HIV intervention programmes for FSWs:

1. **Roamers:** Roamers, behaviour wise, are more vulnerable to HIV infection than seaters, form majority of FSWs population (90%) and have lower HIV prevalence (6.6%). In view of the UNAIDS global drive towards zero new HIV infections, innovative and integrated approaches are required to simultaneously target roamers, their partners and clients with behaviour change communications. Places of contact and interaction between FSWs, their partners and clients could be optimal points of interventions.

2. **Seaters:** Seaters form a minority of FSW population (10%), live in fairly well-defined communities or locations, easier to reach, have higher HIV prevalence (21.4%) and have more dependents. A greater proportion of seaters than roamers indicated intention to quit sex work and cited the need for financial assistance. Further exploration and /or scale up of special HIV prevention services such as income generating activities should be considered.

6 BIBLIOGRAPHY

1. UNAIDS. World AIDS Day Report, 2011.
2. UNAIDS. Globa Report Fact Sheet, Sub-Sahara Africa, 2010.
3. Stefan Baral, Chris Beyrer, Kathryn Muessig, Tonia Poteat, Andrea L Wirtz, Michele R Decker, et al. Burden of HIV among female sex workers in low-income and middle-income countries: a systematic review and meta-analysis. Lancet Infect Dis; 2012; 12: 538–49.
4. Ghana Statistical Service. 2010 Population and Housing Census, Summary Report of Final Results.
5. Ghana AIDS Commission. Ghana Country AIDS Progress Report, 2011.
6. WAPCAS. Behavioural and Biological Surveillance Survey HIV and Sexually Transmitted Infections among Female Sex Workers and their Clients in Accra and Kumasi, Ghana, 2005.
7. World Bank. Ghana HIV/AIDS Epidemiology and Response Synthesis, Characterisation of the HIV Epidemic and Response in Ghana and Implications for Prevention, Country Report, November 2008.
8. Ghana AIDS Commission. Mapping and Popluation Size Estimation of Female Sex Workers in Ghana, Preliminary findings, 2011.
9. Ghana AIDS Commission. Intergrated Bio-Behavioural Survey, Preliminary Findings, 2012.
10. Anne-Marie Coˆ te´, François Sobelaa, Agnes Dzokotod, Khonde Nzambia, Comfort Asamoah-Aduc, Annie-Claude Labbe´e, et al. Transactional sex is the driving force in the dynamics of HIV in Accra, Ghana. AIDS 2004; 18:917–925.
11. Clement Ahiadeke, John K. Anarfi, William Ampofo and Kwesi Addo. Female Sex Workers Behavioural Surveillance Survey in Accra and Kumasi, Ghana: An Evaluation Report, September, 2010.
12. IOM. Emerging Good Practices In Migration and HIV Programming in Southern Africa, March 2011.
13. Kevin D. Deane, Justin O. Parkhurst and Deborah Johnston. Linking migration, mobility and HIV. Tropical Medicine and International Health; volume 15 no 12 pp 1458–1463, December 2010.
14. UNDP. Mobility, Migration and HIV Vulnerability of Population Along the Ports of the Red Sea and Gulf of Aden, Situation and Response Analysis, 2011.
15. Family Health International. Protecting People on the Move: Applying Lessons Learned in Asia to Improve HIV/AIDS Interventions for Mobile People, 2006.
16. Nadine Sauvé, Agnes Dzokoto, Bernard Opare, Edmund Ekow Kaitoo, Nzambi Khonde, Myrto Mondor, et al. The Price of Development: HIV Infection in a Semi-urban Community of Ghana. JAIDS Journal of Acquired Immune Deficiency Syndromes, 29 (4):402-408, April 1, 2002.
17. John K. Anarfi. Sexuality, migration and AIDS in Ghana - A socio-behavioural study. Health Transition Review; volume 3 Supplementary Issue, 1993.
18. John K. Anarfia, Ernest N. Appiaha and Kofi Awusabo-Asareb. Livelihood and the risk of HIV/AIDS infection in Ghana: the case of female itinerant traders. Health Transition Review; Supplement to volume 7 pp 225-242, 1997.
19. UNFPA. Investigating the Kayayei Phenomenon, a study report from Malata, Agbobloshie and Makola markets, November, 2008.
20. National Population Council (NPC). Tourism, Sexual Violence & HIV and AIDS in Selected Communities in Ghana, 2011.

21. IOM. Mobility and HIV vulnerability factors in four sites along transport corridors in Namibia, 2005.
22. IOM. Mapping HIV vulnerability along Northern Maputo and Nacala transport corridor in Mozambique, June 2006.
23. IOM. A Response Analysis of HIV/AIDS Programming Along Transport Corridors in Uganda, July 2009.
24. IOM and UNAIDS. HIV and Mobile Workers: A Review of Risks and Programmes Among Truckers in West Africa, September 2005.
25. SHARP Ghana. Behavioral and HIV Biomarker Study - Commercial Drivers in the Accra -Tema Metropolitan Area, SHARP Report, Preliminary Findings, June 2007.
26. Karnataka Health Promotion Trust (KHPT) and Population Council. Patterns of Migration/Mobility and HIV Riskamong Female Sex Workers: Karnataka. Bangalore: KHPT, 2008.
27. Population Council. Patterns of Mobility and HIV Risk among Female Sex Workers: Andhra Pradesh. PopulationCouncil: New Delh, 2008.
28. Reed E, Gupta J, Biradavolu M, Blankenship KM. Migration/mobility and risk factors for HIV among female sex workers in Andhra Pradesh, India: implications for HIV prevention. Int J STD AIDS; 23(4):e7-e13, April 2012.
29. Saggurti N, Verma RK, Halli SS, Swain SN, Singh R, Modugu HR, et al. Motivations for entry into sex work and HIV risk among mobile female sex workers in India. J Biosoc Sci; 43(5):535-54, September 2011 Sep, E-pub 10 June 2011.
30. World Bank. West Africa HIV/AIDS Epidemiology and Response Synthesis for Characterisation of the HIV epidemic and response in West Africa, 2008.
31. Family Health International (FHI). Mapping and Census of Female Sex Workers in Addis Ababa, Ethiopia, 2002.
32. Ahmed Adu-Oppong, Richard M. Grimes, Michael W. Ross, Jan Risser, Gladstone Kessie. Social and Behavioral Determinants of Consistent Condom Use Among Female Commercial Sex Workers in Ghana. AIDS Education and Prevention; 19:160–172, 2007.
33. Chipamaunga S, Muula AS, Mataya R. An assessment of sex work in Swaziland: barriers to and opportunities for HIV prevention among sex workers. SAHARA J;7(3):44-50, October 2010.
34. UNAIDS. Getting to Zero: 2011–2015 Strategy.
35. Ghana AIDS Commission. National Strategic Plan 2011-2015
36. Ghana AIDS Commission. Multi-Sectoral HIV & AIDS Program (MSHAP) Status Report 2010

7 ANNEXES

7.1 *Sample size calculation*

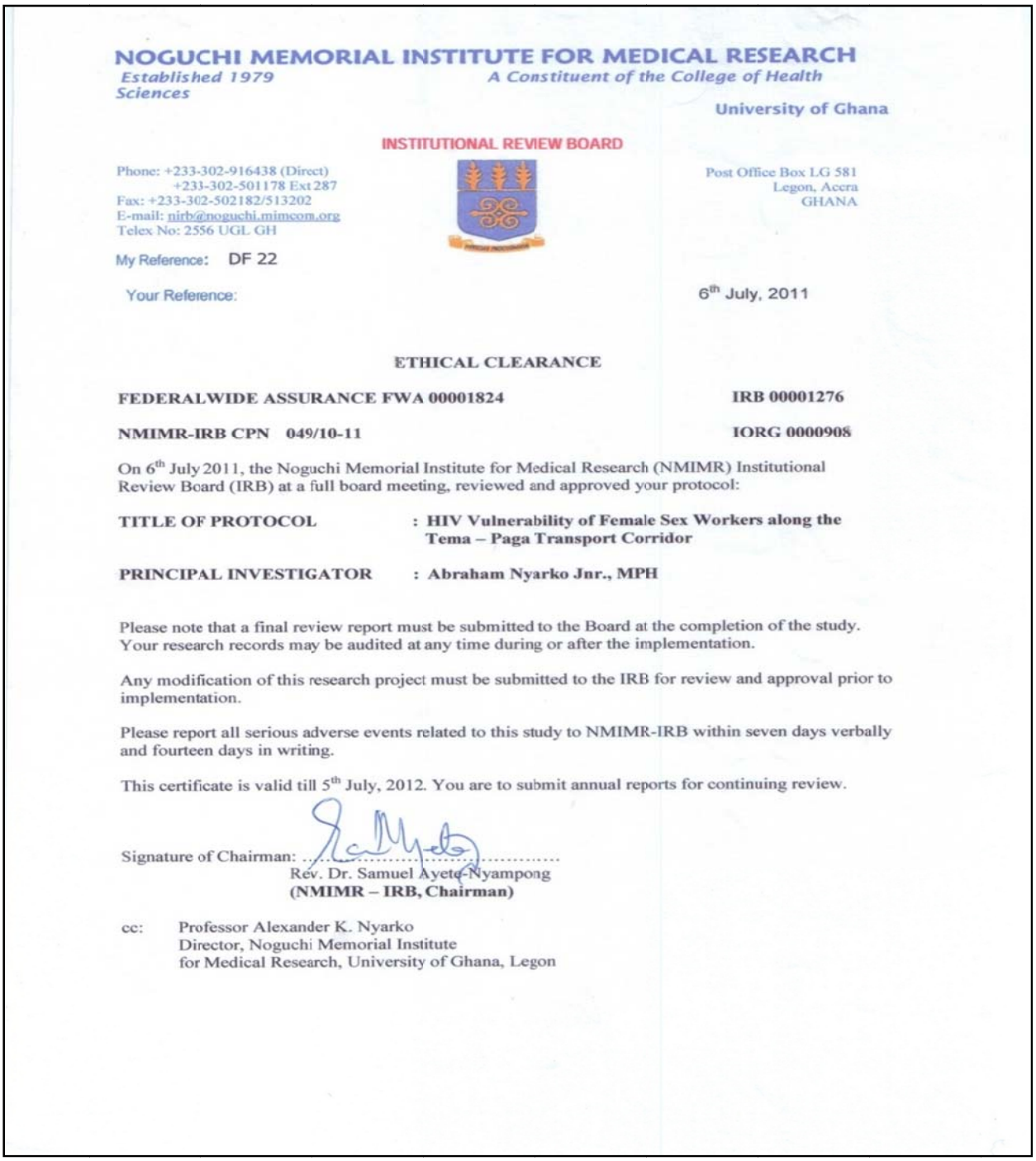
Table 19: Estimated distribution of FSWs in the selected study sites

City/Town	Population (2000)	Population estimate 2010	Female Population Estimate 2010	Proportion of Female population per location	Proportionate Estimate of No of FSWs per location
Tema	141479	190,431	99,024	0.0386	271
Nkawkaw	43703	53,842	27,998	0.0109	77
Kumasi	1170270	1,530,713	795,971	0.3105	2,179
Techiman	56187	70,627	34,607	0.0135	95
Kintampo	28276	35,543	17,416	0.0068	48
Tamale	202317	274,342	139,914	0.0546	383
Bolgatanga	49162	55,111	28,658	0.0112	78
Paga	7819	8,765	4,558	0.0018	12
Total	1,699,213	2,219,374	1,148,146	0.4479	3,143

Table 20: Desired sample size for each of the selected study sites

Code	City/ Town	R	f	t	h	p	n'
1	Tema	0.75	1.203	0.030	2.5	3.09	**100**
2	Nkawkaw	0.76	0.886	0.026	2.5	2.60	**50**
3	Kumasi	0.73	0.911	0.028	2.5	3.09	**150**
4	Techiman	0.75	0.703	0.018	2.5	2.30	**85**
5	Kintampo	0.76	0.703	0.018	2.5	2.30	**50**
6	Tamale	0.76	0.886	0.026	2.5	2.70	**70**
7	Bolgatanga/Paga	0.74	1.156	0.019	2.5	3.09	**55**
	NATIONAL	0.750	1.000	0.020	2.5	3.09	**-**
Total							**560**

7.2 *Ethical clearance certificate*



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ETHICAL CLEARANCE

FEDERALWIDE ASSURANCE FWA 00001824 **IRB 00001276**

NMIMR-IRB CPN 049/10-11 **IORG 0000908**

On 6th July 2011, the Noguchi Memorial Institute for Medical Research (NMIMR) Institutional Review Board (IRB) at a full board meeting, reviewed and approved your protocol:

TITLE OF PROTOCOL : **HIV Vulnerability of Female Sex Workers along the Tema – Paga Transport Corridor**

PRINCIPAL INVESTIGATOR : **Abraham Nyarko Jnr., MPH**

Please note that a final review report must be submitted to the Board at the completion of the study. Your research records may be audited at any time during or after the implementation.

Any modification of this research project must be submitted to the IRB for review and approval prior to implementation.

Please report all serious adverse events related to this study to NMIMR-IRB within seven days verbally and fourteen days in writing.

This certificate is valid till 5th July, 2012. You are to submit annual reports for continuing review.

Signature of Chairman: .....
Rev. Dr. Samuel Ayete-Nyampong
(NMIMR – IRB, Chairman)

cc: Professor Alexander K. Nyarko
Director, Noguchi Memorial Institute
for Medical Research, University of Ghana, Legon

7.3 *Research Questionnaire*

BEHAVIOURAL STUDY

HIV VULNERABILITY AMONG FEMALE SEX WORKERS IN GHANA

ALONG THE TEMA – PAGA TRANSPORT CORRIDOR

<table>
<tr><th colspan="2">INFORMATION PANEL</th><th>SECTION 1</th></tr>
<tr><td colspan="2">**SEC1Q1**. Name and number of Recruitment Site: ___ ___
_____</td><td>**SEC1Q2**. FSW Number: ___ ___ ___</td></tr>
<tr><td colspan="2">**SEC1Q3**. Interviewer name and number: ___ ___
_____</td><td>**SEC1Q4**. Supervisor name and number: ___ ___
_____</td></tr>
<tr><td colspan="2">**SEC1Q5**. Date of interview:
(DD/ MM / YYYY) ___ ___ / ___ ___ /2011</td><td>**SEC1Q6**. FSW Type
Seater 1
Roamer……..…….. 2</td></tr>
<tr><td>**SEC1Q7**. AREA: Cluster-Type
Urban…….1
Rural……..2</td><td>**SEC1Q8**. Region ___</td><td>**SEC1Q9**. Cluster ___</td></tr>
<tr><td colspan="2">**SEC1Q10**: Contact No. of SEC1Q3:</td><td>**SEC1Q11**: Contact No of SEC1Q4:</td></tr>
</table>

Introduction: Hello, my name is (……..) and I am working for West African Program to Combat AIDS and STI (WAPCAS). The International Organization for Migration (IOM) in partnership with WAPCAS and the Management Strategies for Africa (MSA) is conducting a research on HIV/AIDS. I would like to interview some women here in (name of city, or site) to find out their HIV/AIDS knowledge, attitude and practices and other behaviours. This research has been ethically approved by the Noguchi Memorial Institute for Medical Research (NMIMR) and endorsed by the Ghana AIDS Commission (GAC). Have you been interviewed in the past 2 to 4weeks for this study? IF THE RESPONDENT HAS BEEN INTERVIEWD FOR THIS STUDY, DO NOT INTERVIEW THIS PERSON AGAIN. Tell them you cannot interview them for the second time, thank them, and end the interview. If they have not been interviewed for this study, continue:

Screening questions: I am only interviewing women aged 16 years and above and who have had sex in exchange for money or gift during the past one month. How old are you now? If less than 16 years, thank and end the interview, if aged 16 years and above, continue. Have you exchanged sex for money or gift during the past one month? Yes/No/No response. If no/no response thank and end the interview, if yes, continue.

Confidentiality, Compensation and Consent: "I am going to ask you some very personal questions that you may find too intimate to answer or feel psychologically/ socially uncomfortable. This study will not have any additional implicit or explicit cost apart from responding to the questions and the time spent in doing so. You have the right not to answer any question that you do not want to answer, and you may end the interview at any time you want to if you feel psychologically or socially distressed or if you simply decide to end the interview. However, if you decide to participate, your honest answers to the questions will help us understand what some women know, think and practice in the context of HIV/AIDS. This will help improve HIV/AIDS programmes in Ghana. Your name will not appear on any document connected to this study. All your responses to the questions

will be completely anonymous and confidential.

After successfully completing the face-to-face interview, you will receive a token of Ten Ghana cedis (GH ¢10.00) to compensate for your time. Should you decide to end the interview after commencement, you have the right to receive half token of Five Ghana cedis (GH ¢5.00) to compensate for your time. If you have any questions about your rights as a research participant you can contact the NMIMR office between the hours of 8am-5pm through the landline 0302916438. The interview will take about 30 minutes to complete. I would greatly appreciate your help in responding to this survey. Are you willing to participate?"

SEC1Q12. ☐ **Yes**

☐ **No**

If yes, Signature or Thumbprint of interviewee: ---------- Date: ----------

Signature of interviewer: ----------Date: ----------

Language used to interview: ----------

Checked by supervisor: Signature: ----------Date: ----------

SEC1Q13 Start Time: ___ ___:___ ___ AM/ PM **(Circle one)**

DEMOGRAPHIC PROFILE		**SECTION 2**
SEC2Q1. How old were you at your last birthday?	___ ___	
SEC2Q2 What is the highest level of schooling (formal education) you completed?	Primary.... 1 Secondary... 2 Higher ... 3 None…. 4	
SEC2Q3 Are you currently a student?	Yes fulltime ... 1 Yes Part-time ... 2 Yes Vocational ... 3 No … 4	
SEC2Q4 A What is your marital status now?	Single ... 1 Married ... 2 Separated ... 3 Divorced ... 4 Widowed ... 5	
SEC2Q4 B What other sexual relationship do you have?	None…1 Non-paying partner (boyfriend, fiancée, etc)...2	
SEC2Q5 What is your nationality? *(Nationality means respondent's accepted nationality- by her own definition of nationality).*	Ghanaian....01 Togolese.... 02 Ivorian ... 03 Malian.... 04 Burkinabe.... 05 Nigerien (from Niger).... 06	

	Nigerian....07 Beninois.... 08 Liberian.... 09 Other (specify)_____....10 No response…11	
SEC2Q6 To which ethnic group do you belong?	Akan...01 Ewe...02 Ga...03 Adangbme...04 Hausa...05 Mole-Dagbani…06 Grusi...07 Gruma...08 Guan...09 Mande...10 Other Ghanaian [specify] _____...11	
SEC2Q7 What is your religious denomination or faith denomination?	Catholic...1 Protestant...2 Charismatic/spiritual/Pentecostal...3 Jehovah witness/Deeper life/SDA...4 Other Christian...5 Islam/Moslem...6 Traditional religion...7 No religion (not affiliated to any religion)..8 Other religion (specify)_____..9	

WORK AND FAMILY — SECTION 3

NOW I WOULD LIKE TO ASK YOU ABOUT YOUR WORK AND FAMILY

SEC3Q1 What are your first two main sources of income and livelihood?	Unemployed...01 Homemaker...02 Unskilled labour...03 Skilled labour...04 Trade/Business...05 Agricultural activities (farming-plants &.0.. animals, fishing)...06	1ST ☐ 2ND ☐

	Teacher...07 Retired (voluntary)...08 Bar attendant...09 Club escort...10 Office work...11 Sex work...12 Other (Specify)...13	
SEC3Q2A How much income do you earn in **a week** from sex work only? **SEC3Q2B** And how much income do you earn from all other sources of income and livelihood?	None...1 Less than GH ¢ 25...2 Between GH ¢ 25 and GH ¢ 75...3 More than GH ¢ 75...4	SEX WO... ALL OTHERS
SEC3Q3 Currently how many **biological** children do you have who are alive?	*Sons* ☐☐ *Daughters* ☐☐	
SEC3Q4 How many people rely solely or mostly on support from your income?	Males ☐☐ Female ☐☐	
SEC3Q5 Which of these family best describes the family within which you grew up?**(read the options**)	Rich family...1 Average living standard family...2 Poor family...3 Very poor...4 No response...5	
SEC3Q6 How many siblings (brothers and sisters) did you have?	Brothers ☐☐ Sisters ☐☐	
SEC3Q7 From your childhood, have you ever suffered any form of abuse? *Multiple responses allowed.* *Watch out for change of mood,* ***do not ignore change of mood, skip question if respondent is reluctant,*** *and allow at least few seconds before next section. DO NOT say sorry. Instead ask "is it okay to move on to the next section?"*	*Respondent reacts or changes mood*…A None...B Verbal abuse...C Physical abuse...D Molestation / Sexual abuse...E Neglect (basic needs not taken care of e.g.... school, clothing, shelter, food etc.)...F Other (specify)_____...G	A⇨ SEC4Q1

DEMOGRAPHIC PROFILE OF PARTNERS AND CLIENTS **SECTION 4**

PARTNERS*: I will like to get information about your partner e.g. boyfriend, fiancée or husband with whom you have sexual relations*

SEC4Q1 ***Check SEC2Q4A & SEC2Q4B:*** ***Response is 2 ⇨Continue***

	☐ ***Any other response ⇨Go to SEC4Q6***	
SEC4Q2 Currently, what is your partner's main occupation?	Unemployed...01 Truck driver...02 Truck driver assistant...03 Homemaker...04 Unskilled labour...05 Skilled labour...06 Trade/Business...07 Farming and/ Fishing...08 Teacher...09 Retired (voluntary)...10 Bar attendant...11 Club escort...12 Office work...13 Other (Specify)_____14	
SEC4Q3 What is the nationality of your partner?	Ghanaian...1 Togolese...2 Ivorian...3 Malian...4 Burkinabe...5 Nigerien (from Niger)...6 Nigerian...7 Beninois...8 Other (specify)_____9	
SEC4Q4 Where does your partner usually live?	Inside this city/town...1 Outside this city/ town...2 Outside Ghana...3 Other (specify)_____4	
SEC4Q5 In the last 12 months how many other partners have you had apart from this partner?	__ __	
CLIENTS: ***Now I would like to ask you questions about clients who are not your partner (boyfriend, fiancée, husband), they are people who give you money or gift in exchange for sex.***		
SEC4Q6 What are the Nationalities of your clients? *Are they Ghanaians, non-Ghanaians or both?*	Ghanaians only…1 Non-Ghanaians only...2 Both Ghanaians and non-Ghanaians...3	1 ⇨ SEC5

SEC4Q7 Can you mention the non-Ghanaian nationalities of your clients over the past 12 months as far as you can remember?	Togolese...A Ivorian...B Malian...C Burkinabe...D Nigerien (from Niger)...E Nigerian...F Beninois...G Liberians...H (Eg Briton, Germany, etc.) Europeans...I Americans...J (Chinese, Korean, Japanese) Asians...K Other (specify)_____L	

MIGRATION CHARACTERISTICS **SECTION 5**

I would like us now to discuss your journey or movements inside and outside Ghana.

SEC5Q1 In which village /Town /City were you born? And in which region *If born outside Ghana, ask.* In which country were you?	_____Town (Urban)...1 _____ Village (rural)...2 _____Region...3 _____ Country...4	
SEC5Q1B In which village/Town/City were you brought up? And in which region *If brought up outside Ghana, ask.* In which country were you born or brought up?	_____Town (Urban)...1 _____ Village (rural)...2 _____Region...3 _____ Country...4	
SEC5Q2 Where do you consider as your usual place of residence (home)? *Probe for town or village*	_____Town (Urban)...1 _____ Village (rural)...2 _____Region...3 _____Country...4	
SEC5Q3 Where are you currently residing? *(probe for where the respondent slept yesterday)*	_____Inside this city/town ...1 _____Outside this city/town...2	1 ⇨ SEC5Q5
SEC5Q4 How long have you been residing in your current residence?	Less than 1 month...1 1month to 6 months...2 More than 6 months...3	
SEC5Q5 How many **other homes** of residence do you have (excluding those	One other home...1 Two other homes...2	

mentioned above)?	More than 2 other homes...3 None...4	
SEC5Q6 *Check SEC5Q1and SEC5Q3* ☐ ***CURRENT PLACE OF RESIDENCE SAME AS PLACE OF BIRTH ⇨GO TO SEC5Q10*** ☐ ***CURRENT PLACE OF RESIDENCE DIFFERENT FROM PLACE OF BIRTH ⇨CONTINUE***		
SEC5Q7 Which village/town/city or country were you staying before you moved to stay in (*name of village town/city) -SEC5Q3?*	_____Another place within Ghana...01 Togo...02 Ivory Coast...03 Mali...04 Burkina Faso...05 Niger...06 Nigeria...07 Benin...08 Guinea...09 Europe...10 Asia...11 America...12 Other (specify)_____13 No response...14	
SEC5Q8 Why did you move from your previous residence to this place? -*SEC5Q3*	Seeking to work (searching for a job)...1 Seeking for better work...2 For more clients...3 For more rewarding clients...4 Refugee...5 visit relative...6 visit partner...7 Trading...8 Other (specify)_____...9	
SEC5Q9 Who did you come with?	Alone...1 Relative(s)...2 My Child (ren)...3 Colleague (other sex workers)...4 Friends...5 Partner...6 Others (specify) _____...7	

SEC5Q10 In the past **3** months, how often did you travel from one city/ town to another city/ town for purposes of your work? *(read the options)*		I did not travel...1 Once every week...2 More than once every week...3 Once every month...4 More than once every month...5 Once in the past 3 months...6 Other (specify)_____...7	
SEC5Q11 How many villages/towns/cities have you planned to travel to for work in the next **3** months? *(Multiple Response)*		None...A __ __ Within Ghana...B __ __ Outside Ghana...C	A ⇨ SEC5Q13
SEC5Q12 What are the names of the cities/towns have you planned to travel to for work in the next **3** months?	1st Visit 2nd Visit 3rd Visit 4th Visit 5th Visit	Within Ghana _____ _____ _____ _____ _____	Outside Ghana _____ _____ _____ _____ _____

SEC5Q13- SEC5Q18

SEC5Q13 How many villages/towns/cities have you worked in the past 3 months excluding this town/city? ***(Multiple Response)***	Number Within Ghana...A Number Outside Ghana...B	___ ___ ___ ___	*IF NOT TRAVELLED GO TO **SEC6Q1***	
SEC5Q14 **What are the names of the cities/ towns you have worked in the past 3 months excluding this town/city?**	**SEC5Q15** **When did you make this movement/ journey?** Within last week...1 Within the last two weeks...2 Within last month...3 Within Last 3 months...4	**SEC5Q16** **Duration: how long did you stay here(mention name)** Within a week...1 Within the two weeks...2 Within a month...3 Within 3 months...4	**SEC5Q17** **Who did you travel with (name the location) ?** Alone...1 Relatives...2 child (ren)...3 Colleagues (sex workers)...4 Friends...5 Partner...6 Clients...7	**SEC5Q18** **Why did you travel to there (mention name of town/city)?** Seeking to work (searching for a job)...1 Seeking for better work...2 For more clients...3 For more rewarding clients...4 Refugee...5 visit relative...6 visit partner...7 Trading...8 Accompanied a client...9 Accompanied a partner...10 Other (specify)_____...11

Order of visit	Names Within Ghana	Names Outside Ghana				
Last visit (most resent)						
2nd to last						
3rd to last						
4th to last						

SEXUAL BEHAVIOUR		SECTION 6
Now I would like to ask you some rather more personal questions. Like I said at the beginning, I can assure you that everything we discuss will not be linked to you in any way and is highly confidential. Now let me describe or explain the terminology to you one on one? *For the purpose of this interview 'sex' means a penis in a vagina, anus or mouth. I would like you to feel comfortable talking to me about this and related issues and help me understand the situation.*		
SEC6Q1 In every community, people become sexually active at a certain age. How old were you the first time you had sex?	——	
SEC6Q2 How old where you the first time you received money or gift in exchange for sex?	——	
SEC6Q3 Who introduced you to sex work?	Mother...1 Father...2 Siblings (bother/sister)...3 Friend...4 Guardian...5 Employer or person working for...6 Other (specify)_____.. .7	
SEC6Q 4 Can you describe the situation that led you to exchanging sex for gift or money **for the first time**?	_____ _____ _____ _____	
SEC6Q5 Why are you continuing to do this work? I mean exchanging sex for gift or money? *Multiple responses allowed*	Economic hardship...A Peer pressure...B Unemployment...C Have pay for debt...D Have no other job...E	

Probe and ask any other?	Forced to continue...F Do not know why...G It pays well...H Cannot stop/used to it...I Broken home…J Other (specify) _____...K	
SEC6Q6 Which days do you usually work (exchange sex for money or gift)?	Every day...1 Week days...2 Weekends (Friday, Saturday, Sunday)...3 Market days...4 Others (specify)_____....5	
SEC6Q7 There are certain days that people work most, or that business boom, when is yours? *Probe for specific details*	Every day...1 Week days(Monday to Thursday)...2 Weekends (Friday, Saturday, Sunday)..3 Market days...4 Others (specify)_____...5	
SEC6Q8 What time of the day or night do you get most clients	Mornings (6am to 11:59am)...1 Afternoons (12pm to 4pm)...2 Evenings (after 4pm to 8pm)...3 Before mid- night (after 8pm to 12 mid-night)...4 After mid-night (after 12mid-night to 6 am)...5	

	Other (specify)_____...6	
SEC6Q9 On the **last day** you worked, how many clients (*people who gave you money or gift in exchange for sex*) did you have?	__ __	
SEC6Q10 The **last day** you worked how much money did you get/earn?	GH¢___ __ __ __	
SEC6Q11 The last day you worked, how many clients did you have sex with and you did not use a condom?	__ __	
SEC6Q12 What type of services do you usually provide? *Read the options. Multiple responses allowed*	Short time service only...A Whole night service only...B Whole day, whole night service only...C Mixed service (short time\whole day \whole night)...D	
SEC6Q13 People use various ways of contacting their clients. What ways do you contact your clients and vice versa? *Read the options. Multiple responses allowed*	Friends…A Internet…B Mobile call/text…C Hotel/Bar contacting me…D Walk-in…E Other (specify) _____F	
SEC6Q14 The last day you exchange sex for money or gift where exactly did you meet your clients? *Multiple responses allowed*	Home...A Workplace...B Truck/lorry station...C Hotels/lodge/guesthouse...D Bar...E Night club...F Brothel...G	

	On the street...H Under trucks...I In trucks or cars...J Other(specify)_____...K	
SEC6Q15 The last day you transacted sex for money or gift where exactly did you provide the service (sexual intercourse). *Multiple responses allowed*	Home...A Workplace...B Truck/lorry station...C Hotels/lodge/guesthouse...D Bar...E Night club...F Brothel...G On the street...H Under trucks...I In trucks or cars...J Other(specify)_____...K	
SEC6Q16 How many partners do you have at the moment? I mean boyfriends, husbands etc.	___	1 ⇨ SEC6Q22
SEC6Q17 In all how many other partners/wives does your partner(s) have beside you?	1 don't know…99 ___	
SEC6Q18 What **type of relationship** do you have with your partner/partners? Multiple responses allowed.	Relationship with an intention to marry...A Marital...B Consensual /Co-habiting partner...C Casual/Boyfriend...D Other (specify)_____...E	
SEC6Q19 How often do you have sex with your partner(s)?	At least once every week...1 More than once every week...2	

	Once every month...3 Other (specify)_____...4	
SEC6Q20 Do you **always** use condom when having sex with your partner?	Yes...1 No...2	1 ⇨ SEC6Q22
SEC6Q21 Why do you or your partner not always use a condom?	Sometimes condoms are not available...1 Condoms are expensive...2 Partner objects to use of condoms...3 I don't like condoms...4 1 use contraceptives...5 Love / I trust my partner...6 Other (specify) _____...7	
ROUTES OF SEXUAL INTERCOURSE ***: Now I would like to get information about the various route of sexual intercourse***		
SEC6Q22 What routes of sexual intercourse have you ever practiced? *Read the options. Multiple responses allowed*	Anal sex...A Vaginal sex...B Oral sex...C	
SEC6Q23 The last day you exchange sex for money or gift, which route of sexual intercourse did you practice? *(read the option and select only one response)*	Anal sex only...1 Vaginal sex only...2 Oral sex only...3 Mixed (more than one route)...4 No response...5	
SEC6Q24 Do you have sex with males only, females only or both?	Males only...1 Females only...2 Both males and females...3	

Some people have sex in groups, **SEC6Q25** Have you ever involved in or practiced group sex? For example, two or more ladies with one man or more; or; two or more men with one lady.	Yes...1 No...2 No response...3	2⇨ SEC7Q1 3 ⇨ SEC7Q1
SEC6Q26 Within the last three months have you had or involved in group sex?	Yes...1 No...2 No response...3	2⇨ SEC7Q1 3 ⇨ SEC7Q1
SEC6Q27 During the group sex, was condom used consistently by everybody in the group?	Yes...1 No...2 No response...3	1⇨ SEC7Q1 3 ⇨ SEC7Q1
SEC6Q28 Why did you or the group member (s) not use condom consistently?	Not available...1 Too expensive...2 Partner(s) objected...3 Don't like them...4 Use contraceptives...5 Trusted my partners...6 Other (specify) _____...7	

CONDOM / LUBRICANT/ GEL USE **SECTION 7**

Now I would like us talk about condom and lubricant/ Gel use

SEC7Q1 The first time you had sex, did you use Condom?	Yes...1 No...2	
CHECK SEC6Q16, ☐ **IF RESPONSE = 00 ⇨GO TO SEC7Q5 .** ☐ **IF ANY OTHER RESPONSE CONTONUE** ⇩		
SEC7Q2 How often do you use **condom with**	Never...1	

Lubricant/ Gels with your partner(s)? *Probe for applying additional lubricant/ Gel/ Gel to the condoms.*	Every time...2 Often...3 Sometimes...4 Rarely...5	
SEC7Q3 What might lead you not to use condoms with lubricant/ Gel with partner(s)? *Do not read the options, tick as many as are described by the respondent*	Lack of time/ delays sexual intercourse...1 Condom not readily availability...2 Condom is expensive...3 Some partners insist on not using condoms...4 Cultural reasons...5 Religious belief...6 other (specify)_____..7	**IF SEC7Q2=1 ⇨ SEC7Q5**
SEC7Q4 The last time you had sex with your partner, whose decision was it to use condom/lubricant/ Gel?	Condom was not used...1 Self...2 Partner...3 Joint decision...4	
SEC7Q5A How often do you use condom with Lubricant/ Gels with your clients?	Never...1 Every time...2 Often...3 Sometimes...4 Rarely...5	
SEC7Q5 B What might lead you not to use condom with clients? *Do not read the options, tick as many as are described by the respondent*	Lack of time/ delays sexual intercourse...A Condom not readily availability...B Condom is expensive...C Some clients insist on not using condoms...D	IF SEC 7Q5A=2 ⇨ SEC7Q8

	Cultural reasons...E Religious belief...F To earn more money...G Other (specify)_____...H	
SEC7Q6 Do you always request for condom use with your clients?	Yes...1 No...2	IF SEC 7Q5A=1 ⇨ SEC7Q9
SEC7Q7 How consistent have you used condoms with your clients in **the past 3 months** that you had sex with clients?	Very consistent...1 Somewhat consistent...2 Rarely consistent...3 Never used...4	4 ⇨ SEC7Q9
SEC7Q8 Who usually provides condom when you are having sex with clients?	Self...1 Client...2 Other…3	
SEC7Q9 How do you feel when buying condoms and or lubricant/ Gel? *Do not read the options, tick as many as are described by the respondent.*	Feel comfortable...A Feel uncomfortable...B I feel shy...C I feel others are judging me...D I feel embarrassed...E Other (specify)_____.. .F	
SEC7Q10 Is female condom easy to use (user friendly)?	Yes...1 No...2 Never used one...3	
CONDOM AVAILABILITY		**SECTION 8**
Now I would like to ask you about how you obtain condoms		

SEC8Q1 Do you always carry condoms or have on you anytime you work? Could you please show it to me?	Yes always, condom seen...1 Yes always, condom not seen...2 Yes sometimes, condom seen...3 Yes sometimes, condom not seen...4 No ...5 Never carry condoms...6	1 ⇨ SEC8Q3 2 ⇨ SEC8Q3 6⇨ SEC9Q1
SEC8Q2 Why is it that you do not always carry condoms or have on you anytime you work?	Shortage at sales point...1 Running out of condoms when with clients...2 Condom is always available in the room...3 Clients always carry some...4 Others (specify)_____ _4	
SEC8Q3 Which type(s) of condom do you usually use?	Male condom only...1 Female condom only...2 Both male and female condom...3	
SEC8Q4 Where do you usually buy/get condoms?	General hospital/Clinic/health Centres...1 Pharmacy/Chemist shops...2 Shop/kiosk/store...3 WAPCAS…4 Other NGO...5 Street vendors...6	
SEC8Q5 Each time you buy condom how many condoms do you usually buy?	A box (of about 144 or 100 pieces)...1 Half a box (b/n 50 to 72 pieces)...2 Quarter of a box (25-36 pieces)...3	

	6-10 pieces...4 3-5 pieces...5 Other (specify) _____6	
SEC8Q6 Is condom available to you any time you need it?	Yes…1 No…2	
SUBSTANCE MISUSE		**SECTION 9**
Let us now talk about the use of cigarette, drugs and alcohol		
SEC9Q1 Do you currently smoke cigarette?	Yes always...1 Yes sometimes...2 No not at all ...3	3⇨ SEC9Q4
SEC9Q2 Why do you smoke cigarette?	It is part of the fashion/style of this trade...1 Client like those who smoke...2 Puts me in the mood...3 I enjoy smoking...4 Depression/ stress…5 Other (specify)_____...6	
SEC9Q3 Are you aware of the dangers associated with smoking?	Yes...1 No...2	
SEC9Q4 Which of the following substances/drugs have you ever used? *Read the options. Multiple responses allowed.*	I have never used substances/drugs before...A Marijuana...B Cocaine...C Heroine...D Valium / Diazepam...E Glue...F Other	A⇨ SEC9Q10

	(specify)_____...G No response...H	H⇨ SEC9Q8
SEC9Q5 On the last day you worked (had sex with partner/clients) which drug did you use? *Read the options. Multiple responses allowed*	None...A Marijuana...B Cocaine...C Heroine...D Valium/ Diazepam...E Glue...F Other (specify)_____...G No response...H	
SEC9Q6? Do you use drugs alone, in a group or both?	Alone...1 In group...2 Both (alone and in group)...3	
SEC9Q7 Have you ever injected drugs? *If yes, probe for kind of drug.*	_____ Yes...1 No...2 No response	
SEC9Q8 Have you ever shared needles / syringes or other injecting equipment with other people?	Yes...1 No...2 No response...3	2⇨ SEC9Q10
SEC9Q9 The last day you worked (had sex with clients/partners) did you share needle /syringes with them /other people?	Yes...1 No...2 No response...3	
SEC9Q10 Have you ever used drugs or alcohol to the extent that your judgment was impaired and you had sex with your clients/partner without using condom	Yes...1 No...2 No response...3	2⇨ SEC10Q1
SEC9Q11 During the past 12 months how many times have you used drugs or alcohol to the extent that your judgment was impaired and you had sex with clients/partner without using condoms?	Once...1 Twice...2 Trice...3 More than 3 times...4	

	No response...5	
HIV RISK PERCEPTION, TESTING AND MODE OF TRANSMISSION		**SECTION10**
Thank you for your patience so far. Now I will ask you some questions on HIV and AIDS.		
SEC10Q1 Have you ever heard of an illness called HIV/AIDS?	Yes...1 No...2	2⇨ SEC10Q15
SEC10Q2 Do you consider yourself at no risk, small risk, moderate or great risk of becoming infected with HIV/AIDS?	No risk...1 Small...2 Moderate...3 Great/high...4 Don't know...5 No response...6	5⇨ SEC10Q4 6⇨ SEC10Q4
SEC10Q3 Why do you think you have that level of risk?	_____ _____ _____ _____	
SEC10Q4 How often should you use condom when having sex with anyone. (Partner, client, others)?	Every time...1 Often...2 Sometimes...3 Rarely...4 Never...5	
SEC10Q5 Can people reduce their chances of getting the AIDS virus by having just one uninfected sex partner who has no other sex partners?	Yes...1 No...2 Don't Know...3	
SEC10Q6 Can people get the AIDS virus from mosquito bites?	Yes...1 No...2 Don't Know...3	
SEC10Q7 Can people get the AIDS virus by sharing	Yes...1	

food with a person who has AIDS?	No...2 Don't Know...3	
SEC10Q8 Can people get infected with the AIDS virus because of witchcraft or other supernatural means?	Yes...1 No...2 Don't Know...3	
SEC10Q9 Can people get the AIDS virus by sharing sharp objects like blades and knives?	Yes...1 No...2 Don't Know...3	
SEC10Q10 Is it possible for healthy-looking person to have the AIDS virus?	Yes...1 No...2 Don't Know...3	
SEC10Q11 Have you heard about special antiretroviral drugs that people infected with the AIDS virus can get from a doctor or a nurse to help them live longer?	Yes...1 No...2 Don't Know...3	
SEC10Q12A I don't want to know the results, but have you ever been tested to see if you have the HIV?	Yes...1 No...2	2⇨ SEC10Q13
SEC10Q12B I don't want to know the results, but have you been tested to see if you have the AIDS virus in the past 12 months?	Yes...1 No...2	1⇨ SEC10Q14
SEC10Q13 **For Q12A** Why have you never had an HIV test in the past 12 months? **For Q12B** Why have you NOT had an HIV test in the past 12 months?	I don't engage in any risk behaviours...1 I am not sick...2 I have no access to CT services...3 I don't know where I can access CT services...4 I don't want to know my status...5 Other	

	specify_____6	
SEC10Q14 Has your partner had an HIV test?	Do not have partner...1 Yes...2 No...3 I don't know...4	
SEC10Q15 Have you ever shared razor blade or safety pins in the saloon/home/workplace etc. (e.g. for trimming eye brow, or nails).	Yes...1 No...2	
SEC10Q16A The saloon that you attend for the services of manicure and pedicure do they sterilize the equipment used for these services?	Yes...2 No...3 I don't know...4	
SEC10Q16B Have you ever used the services of roaming manicure and pedicure service providers and their tools?	Yes...1 No...2	
SEC10Q17 Can the Virus that causes AIDS be transmitted from a mother to her baby?	Yes...1 No...2 Don't Know...3	
SEC10Q18 Are there any special drugs that a doctor or a nurse can give to a woman infected with the AIDS virus to reduce the risk of transmission of HIV to her baby?	Yes...1 No...2 Don't Know...3	
STI SYMPTOMS & TREATMENT SEEKING BEHAVIOUR		**SECTION 11**
SEC11Q1 Which of the following symptoms have you experienced during the past 12 months? *Read the options. Multiple response allowed*	Unusual/ foul smelling genital discharge...A Unusual genital itching...B Genital ulcers/Sores...C Pain/ burning while urinating...D Lower abdominal pain...E	

	Swellings on Groin Area...F None...G	G⇨ SEC11Q4
SEC11Q2 When you had 'symptoms' where did you seek treatment? *Multiple responses allowed*	Public hospital/ clinic...A Traditional healer...B Spiritual church for Healing…C Private clinic...D Did not seek treatment...E Pharmacy...F Other (specify)_____ _G	
SEC11Q3 How long after first experiencing symptoms did you seek treatment/assistance?	1 week or less...1 More than one week but less than a month...2 One month or more...3 Don't remember...4	**SKIP TO SEC 12Q1**
SEC11Q4 If **NEVER had symptoms**, should you experience any of the above Symptoms what would you do?	Sought advice/ treatment from a clinic/hospital...01 Sought advice/medicine from pharmacy/chemist shop...02 Visit a traditional healer/ use herbal medicine...03 Seek Spiritual Healing…04 Take medicine that I have...05 Tell my sexual partner about the symptom...06 Use condom during all sex acts...07 Nothing/ take no action...08 Other (specify)_____	

	09 I do not know...10	
PREFERRED HIV IEC METHODS		**SECTION 12**
(Information, Education& Communication)		
SEC12Q1 Every person has a preference or means by which information could reach him/her faster, what is your preferred IEC method?	Discussion...1 TV/Radio...2 Newspaper...3 Leaflets...4 Drama...5 Mobile Text…6 Internet…7 Other (specify)_____8	
EXIT INFORMATION		**SECTION 13**
SEC13Q1 Are you intending to leave sex work?	Yes...1 No...2 Don't Know...3	
SEC13Q2 What will be some of the reasons that will make you leave sex work?	Sex work makes me vulnerable...1 When it's time to move on...2 When I find a better job...3 When I become skilled to do other jobs...4 When I get enough money...5 When I'm old...6 When I return to my country...7 Other...8 (specify)_____ 9	1ST ☐ 2ND ☐ 3RD ☐
SEC13Q3 What kind of help do you need to leave sex work?	Financial assistance...A Employment skills...B	

Do not read options, tick as she response. *Multiple responses allowed*	Health insurance/health related needs…D Life coach...E Other (specify)……F	
SEC 13Q4 END TIME:___ ___: ___ ___ AM/___PM **(CIRCLE ONE)**		