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SCHOOL OF PUBLIC HEALTH, FACULTY OF HEALTH SCIENCES, UNIVERSITY OF THE WITWATERSRAND



Risk Factors for Inconsistent Condom Use Among Female Commercial Sex Workers in Three Malawian Districts in 2011

A research report submitted to the School of Public Health, University of the Witwatersrand in partial fulfillment of the requirements for the degree of Master of Public Health (MPH).

14th August 2015

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Declaration

I, Ken Limwame, declare that this research report is my original work. It is submitted in partial fulfillment of the requirements for the degree of Master of Public Health, in the field of Social and Behavior Change Communication, in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination to this or any other university.



14/08/2015

Abstract

Objective:

At 71%, HIV prevalence is disproportionately high among Malawi's female commercial sex workers (FCSWs) (NSO and Macro, 2011) (NAC, 2006). Yet little is known about FCSWs risk behaviors. This study sought to determine the risk factors for inconsistent condom use among FCSWs in three Malawi districts in 2011.

Methods:

This was a secondary analysis of a cross-sectional primary study that collected data in October 2011 of FCSWs in Malawi's three southern districts of Blantyre, Mwanza and Zomba to inform a behavior change intervention. The primary study used respondent driven sampling to recruit 198 FCSWs. Data from all the participants of the primary study were included in the secondary analysis. A structured questionnaire was used to collect information on socio-demographics; sex and sexual history; and condom use with different partner types. The dichotomous outcome variable "inconsistent condom use" was generated from a composite of variables: condom use with last sex and condom use in the last 30 days – which were measured across partner types. Descriptive analysis was performed and categorical data were reported as proportions and frequencies while continuous data as means or median. Chi square analysis was used to detect associations in cross tabulations and two multivariate logistic regression models were built for inconsistent condom use - across all partners and clients.

Results:

Overall, slightly less than half of FCSWs (45.92%) used condoms consistently (n=196). FCSWs with secondary school education were 2.18 times more likely than FCSWs with primary school education to be inconsistent condom users (across all partners). FCSWs who first had sex between the ages of 15 to 19 years were .39 times less likely to be inconsistent condom users (across all partners) than FCSWs who first had sex under 15 years of age. FCSWs who had residence in the area for more than four years were 7.2 times more likely to be inconsistent condom users than the reference group (FCSWs who had stayed in the area for one year or less). An increase in number of paying partners by one partner is associated with decreased likelihood of inconsistent condom use by 31% (0.69 times) (AOR .69, .52 – .92).

Conclusions:

FCSWs remain a key population in the HIV epidemic. All efforts should promote 100% condom use across all partner types of FCSWs with particular focus on the regular, intimate partner.

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Acronyms

AIDS: Acquired Immunodeficiency Syndrome

ARVs: Anti-retroviral (drugs)

CDC: Centers for Disease Control and Prevention

DHS: Demographic and Health Survey

FCSW: Female Commercial Sex Workers

FSW: Female Sex Workers

HIV: Human Immunodeficiency Virus

IHDC: Institute of Health and Development Communication

UNAIDS: Joint United Nations Programme on HIV/AIDS

WHO: World Health Organisation

Map of Malawi[1]



[1] Source: NSO & MACRO 2011. Malawi Demographic and Health Survey. Zomba, Malawi and Calverton, Maryland, USA: National Statistical Office

CHAPTER 1: INTRODUCTION

1.1 Background

HIV and AIDS Burden of disease

Globally HIV trends are diminishing, but the burden of the epidemic remains disproportionately huge in sub-Saharan Africa. Close to 35.3 million individuals were living with HIV in 2012, the majority (69%) live in sub-Saharan Africa (WHO, 2013). Sexual transmission accounts for the majority of HIV infections and heterosexual intercourse is the main mode in this region as is the case with all generalized HIV/AIDS epidemics (Lewis, 2011). Malawi shares this harsh reality with a generalized epidemic of 11% national HIV prevalence for adults (NSO and Macro, 2011) - one of the highest in the world.

Definitions of commercial sex and sex work

It is important to define commercial sex work for operationalization in this study and comparability with other studies. Commercial sex is the trading of money or valuable goods for sex between a client and a sexual worker and most times with a third party (Baral et al., 2012). Commercial sex workers are people (women, men and transgendered) who accept money or valuable goods as payment for sex regardless of whether they take sex work as their occupation or not (Overs, 2003). Self-identification and community identification of someone as a sex worker is important as this differentiates it from transactional and survival sex which is common in Africa (WHO, 2011). This study uses the term “female commercial sex worker (FCSWs)” as it focuses on women who self-identify as commercial sex workers. Other studies have used the term ‘female sex workers’ for females who fit the above FCSWs definitions (Alary et al., 2013, Baral et al., 2012, Mooney et al., 2013a, Ngugi et al., 2012b). In reference and review, I use the term FCSW for uniformity.

Prevalence of HIV among Female Commercial Sex Workers (FCSWs)

Female commercial sex workers in Malawi are disproportionately burdened with a sevenfold higher HIV prevalence of 71% compared to the general population with a prevalence of 11% (NSO and

Macro, 2011). This is consistent with the general World Health Organization's (WHO) observation that HIV prevalence among sex workers is 10 to 20 times higher than the general population (WHO, 2011). Sex workers are at higher risk for HIV because of their multiple and frequent sexual encounters, often unprotected, which magnify transmission rates to more than 100 times than among other people living with HIV (WHO, 2011).

Female commercial sex workers in Malawi

The magnitude of commercial sex work in Malawi has recently been studied. A 2011 report estimated that there were 19,295 sex workers, the majority were female, and were based in Blantyre (3614), the commercial centre of the country, and in Lilongwe (3409), the capital city (Chizimba and Malera, 2011). These estimates of population count help in understanding the extent of HIV burden on this population in Malawi.

Malawian FCSWs do not work in the same way. The country's FCSWs are generally in three groups: bar-based FCSWs: who are hired by bars as "bar-maids" but also pick up clients, and those who get into bars to pick up clients; migrant sex workers: who pick up clients in drinking places, hotel bars, and other "high class" clubs (these could include locals as well); street-corner FCSWs: who pick up clients at entrance and other popular entertainment venues where they wait by the roadside (NAC, 2006). This categorization reflects the harmful occupational environments that typify Malawian FCSWs.

Social context of FCSWs in sub-Saharan Africa

Arguably, the risk of HIV infection among sub-Saharan Africa FCSWs is to a great extent socially determined. The FCSWs high level of biomedical risk for HIV reflect their vulnerability, socially and economically, which results in high-risk sexual behaviors like low condom use (WHO, 2011). The social risk factors impacting FCSWs vulnerability to HIV infection include: violence; inadequate or even harmful legislation and policies; hazardous use of alcohol; childhood abuse, gender-based inequalities; limited access to - health, social and legal services, and information and HIV prevention commodities, stigmatization and marginalization; and population mobility (WHO, 2011,

Scorgie et al., 2013). *Several of these factors are explored below, and in the next chapter (Literature review) their linkages to condom use has been discussed.*

Physical and sexual violence is pervasive in sub-Saharan Africa's commercial sex work. In a Kenya study, 17% of FCSWs reported assault in the previous night and 35% reported rape (Ngugi et al., 2012a). A qualitative study in that country stated that what underscores the violence are pressing financial needs of FCSWs, gender-power differentials, illegality of trading in sex and cultural subscriptions to men's entitlement for sex (Okal et al., 2011). The police and the clients have been identified as usual perpetrators of violence against FCSWs (Mbonye et al., 2012) (Southern Africa Litigation Centre and Centre for Human Rights Education, 2003). In Malawi the criminalization of sex work related activities adds to the ability of the police to abuse FCSWs (Southern Africa Litigation Centre and Centre for Human Rights Education, 2003).

Legal frameworks adversely shape commercial sex work in sub-Saharan Africa. There are two distinct types of legal frameworks in Africa: i) sex work is illegal, ii) sex work is not criminalized but procurement of sex in public places is illegal – Malawi belongs to this type (Southern Africa Litigation Centre and Centre for Human Rights Education, 2003). Senegal is the only country with 100% decriminalized sex work (Ngugi et al., 2012b). Therefore, FCSWs work in a context where their work is hampered by unfavorable legal frameworks.

Alcohol and drug abuse is another notable factor that contributes to HIV infection risk among FCSWs. This may be environmental as some FCSWs meet their clients in places where there is also alcohol use (Ngugi et al., 2012a). In a Malawi study, 40.5% of FCSWs self-reported that they were heavy drinkers of alcohol (NAC, 2006). Qualitative data from Kenya show that FCSWs take alcohol in order to withstand the night chill. The resultant insobriety determines their condom use decisions (Mbonye et al., 2012). Results from a study in western Kenya showed that consumption of alcohol in the previous night was a predictor of unprotected sex (Vandenhoudt et al., 2013).

FCSWs and HIV prevention

Condom promotion among sex workers is at the core of HIV prevention efforts among this population. Joint United Nations Programme on HIV/AIDS (UNAIDS) position is that prevention is the mainstay of the response to HIV and AIDS and that condoms are a critical element of the comprehensive, effective and sustainable approach to HIV prevention and treatment (UNAIDS, 2004). Evidence from heterosexual couples, where one is infected with HIV, has shown that correct and consistent condom use is effective in preventing HIV transmission from woman to man and man to woman (UNAIDS, 2004). The use of condoms in Thailand's commercial sex work was successful in curbing HIV infection rates which had increased from 14 to 94% between 1989 and 1993, and cases of five major sexually transmitted diseases decreased by 79% in men (Wand and Ramjee, 2012). As such, condom use interventions have been effective in reducing infection rates among commercial sex workers.

HIV prevention interventions in sub-Saharan Africa have encountered several challenges. Structurally, African FCSWs are not uniformly organized unlike Brazil and India (Ngugi et al., 2012b), thereby possibly restricting the effective design of relevant programmes. Also, as previously stated, the legal framework and stigma that exists among FCSWs sub-Saharan Africa makes it harder to implement HIV interventions among this population (WHO, 2011). Effective HIV programming among FCSWs would require addressing the existing structural challenges that make sex work so dangerous in sub-Saharan Africa, including Malawi.

1.2 Problem statement

> *"An estimated fifteen percent of HIV in the general female adult population is attributable to (unsafe) female sex work. The region with the highest attributable fraction is Sub Saharan Africa, but the burden is also substantial for the Caribbean, Latin America and South and Southeast Asia. We estimate 106,000 deaths from HIV are a result of female sex work globally, 98,000 of which occur in Sub-Saharan Africa. If HIV prevalence in other population groups originating from sexual contact with FSWs had been considered, the overall attributable burden would probably be much larger*"(Pruss-Ustun et al., 2013)

Malawi's FCSWs carry a heavy burden of HIV epidemic and their risk behaviors are not fully understood. More than two-thirds (71%) of FCSW in Malawi are estimated to be HIV positive. The disproportionately high HIV prevalence among FCSWs has been linked with global observations that there is low and inconsistent condom use among FCSWs (UNAIDS., 2010). Studies have indicated that condom use by FCSWs is determined by clients willingness, women's level of sobriety, price and partner type (if they are considered regular then condom use may be inconsistent) (Mbonye et al., 2013, Mooney et al., 2013a). There have not been many studies in sub-Saharan Africa and none in Malawi that have assessed risk factors for inconsistent condom use among FCSWs and various partner types. Evidence points out that FCSWs have different partner types (see discussion under "inconsistent condom use" in the next chapter: Literature review). There is also a lack of optimal understanding regarding how Malawi's FCSWs' high levels of correct knowledge on HIV transmission and rejection of major misconceptions have not translated into consistent condom use (NAC, 2006).

1.3 Justification of the Study

This study contributes to the evidence base for FCSWs interventions in general, and to Malawi and sub-Saharan Africa in particular. Given the current high HIV prevalence among FCSWs, there is need to gain more understanding on matters that can prevent new infections and reinfection (or super-infection) among the FCSWs, their partners and their partners other partners. The promotion of safer sexual behavior among sexual workers, their partners and clients is part of UNAIDS effective strategy (WHO, 2011). Gaining more understanding may also increase FCSWs

access to HIV programmes (including condom use interventions), because, globally, less than 50% of FCSWs have such (Ngugi et al., 2012b). And as observed in Thailand, increased condom use among sex workers curbs HIV infection rates (WHO, 2011). Therefore, this study will be useful in further informing how HIV prevention interventions respond to the specific needs of FCSWs.

Additionally, this study furthers the human rights cause of FSCWs. As everyone else, FCSWs have the right to the highest attainable standards of health and health care (UNAIDS, 2012). More understanding on the risk factors for HIV transmission and associated behaviors like inconsistent condom use will contribute to the protection of these human rights.

1.4 Study Aim and Objectives

The overall aim of the study was to determine the relationships between socio-demographic and behavioral risk factors and inconsistent condom use among female commercial sex workers in three districts of Malawi in 2011.

The specific objectives were:

1. To describe socio-demographic characteristics.
2. To assess HIV knowledge
3. To measure sex and sex work behavior.
4. To describe prevalence of STI and HIV testing.
5. To describe the proportion of FCSWS on HIV treatment.
6. To examine condom use behaviors.
7. To determine drivers of inconsistent condom use.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter discusses recent literature on inconsistent condom use among female commercial sex workers in sub Saharan Africa, with particular interest to Malawi. Data sources included relevant electronic databases Pub Med (Medline), JSTOR and EMBASE, websites of reputable international organizations; Malawi government instituted documents; documents from Malawian NGOs working in sex work; and hand searched research reports.

2.2 Inconsistent Condom Use in Sub-Saharan Africa

Socio-demographics of FCSWs

The majority of FCSWs in sub Saharan Africa are between 20 and 29 years old. In a study in Kisumu, Kenya, 64.1% were between 20 and 29 years (Vandenhoudt et al., 2013); and in national study in Swaziland, 50% of FCSWs were 21 to 29 years of age (Yam et al., 2013a); in a study of three South African provinces, 21 to 25 years made up 20.51% of the participants while 26 to 30 years old FCSWs constituted 34.16% (Savva, 2011); in a study of ten Malawian districts, 20 to 24 year old FCSWs composed 38% of the study population, while 25 and 29 years olds made 21% (Chizimba and Malera, 2011); in a Ugandan study, the majority of FCSWs (58.3%) were between the ages of 20 and 29 years (Matovu and Ssebadduka, 2012). Measures of central tendency for ages of FCWS in the studies reviewed here were above 25 years: the mean age of was 29.7 years in a South African study (Richter et al., 2013); and in two studies in Nigeria (in Enugu and Kano) the mean age was about 26 years in both (Onyeneho, 2009) (Lawan et al., 2012). In a Ugandan study, the median age was 26 years (Bukenya et al., 2013) and it was 30 years in a Kenyan study (Gallo et al., 2011). However in other studies, the mean age among FCSWs was lower, for example it was 21.5 years in Ethiopia (Mooney et al., 2013b). Therefore from above, it has been shown that most FCSWs in sub-Saharan Africa are young women.

Literature shows FCSWs education attainment to be generally low, mostly not further than primary school (Mbonye et al., 2013). In Uganda, only 50% had completed primary school (Bukenya et al., 2013); in Malawi, it was 73.1 % in one study (NAC, 2006) and 60.3% in another (Chizimba and Malera, 2011). In Somaliland, Somalia, as many as 86.6% had never attended school at all (Kriitmaa et al., 2010). However, in other studies, the majority of FCSWs went beyond primary school, for example in Swaziland, 55% had some form of secondary education even though only 12% reported to have completed it (Yam et al., 2013a); in South Africa 57.98% had secondary education (Savva, 2011). In Kenya, 53% attained secondary school and above (Nyagero et al., 2012); in Kano, Nigeria, 51.7% had at least secondary education (Lawan et al., 2012). FCSWs with more education have been shown to be likely to change behavior than those with lower education. A study in Kenya showed that FCSWs with secondary school education were 2.23 times likely to change behavior than those without (Nyagero et al., 2012). Education attainment is a proxy measure of socio economic status as shown in the Malawi DHS (NSO and Macro, 201), and the low levels of it among FCSWs reflect the poor conditions in which they work in.

In Africa, FCSWs are generally characterized by marriages that have failed (Scorgie et al., 2012). For example, in Kenya, 60% had once been married (Nyagero et al., 2012) and in another Kenyan study 73% were cohabiting, divorced, or widowed (Gallo et al., 2011); in Uganda 44.8% (the greatest proportion) were divorced or separated (Matovu and Ssebadduka, 2012); in Malawi a study indicated that 34.4% were divorced/widowed/separated (NAC, 2006), and another Malawi study showed that 51.2% were separated (Chizimba and Malera, 2011). However, this scenario is not the same all over, in a Swaziland study, 90% reported to have never married and had never cohabited (Yam et al., 2013a).

FCSWs are burdened further by the dependents they support. Studies indicate that generally FCSWs are characterized by having many dependents (Scorgie et al., 2012), for example a study in South Africa reported that 51.2% of FCSWs were responsible for four adult and/or child dependents (Richter et al., 2013).

Despite being in great economic need, a majority of FCSWs do not have any other occupation and commercial sex work is their main source of income. In Somaliland, Somalia, results showed that 95.7% of the study participants reported no other source of income (Kriitmaa et al., 2010). In Ethiopia, 98% mentioned sex work as their main occupation (Mooney et al., 2013b). Having limited economic choices exacerbates FCSWs vulnerability and end up accepting risky choices like non-condom use (Ngugi et al., 2012b).

The amount of money paid for commercial sex work has been reported variedly in different sub Saharan countries. In Ethiopia the mean monthly income was $105 (Mooney et al., 2013b). In Swaziland, in the previous month, 34% of respondents had earned less than US$70, and 32% had earned $70–140 (Yam et al., 2013a); in Kenya, the majority (46.3%) earned between $1.3 to $6.7 from last client (Vandenhoudt et al., 2013); in South Africa, the average fee per client was $24.48 (Savva, 2011). In Malawi, the amount of money determined whether a condom should be used or not and whether the client wants “full time”(overnight sex) or “short time” (episodic) (Chizimba and Malera, 2011). Many studies indicate that offer of more money is a common reason why FCSWs may opt for non-condom use with clients, furthering their vulnerability to HIV (Scorgie et al., 2012).

Migration has been recognized as a risk factor among sex workers. One reason is that migrants have lower health service contact (Savva, 2011). This might lead to lowered access to condom use promotion opportunities. Migration is a factor because there is a lot of flux in commercial sex work. A study in three South African cities showed that most FCSWs were migrants -(of which 39.0% were internal and 46.3% were cross-border, making a combined total of 85.3% of the respondents (Savva, 2011).

Sexual behavior and practices

Evidence shows that sex work has high turn-over of FCSWs, with duration of sex work typically around three years (Scorgie et al., 2012). In Kenya, 48% of FCSWs were in sex work for less than 5 years, and 34 were in sex work for five to nine years (Vandenhoudt et al., 2013). In another Kenya

study, 57% of FCSWs were in sex work for less than 5 years (Nyagero et al., 2012). In Kano, Nigeria, the mean duration of commercial sex workers in the sex business was 3.9 ± 3.4 years (Lawan et al., 2012).

Typically, FCSWs have several partner types. Multiple studies indicate that apart from the paying clients, FCSWs have non-client partners, who may be regular or intimate (boyfriend/husband) (Aho et al., 2013, Ngugi et al., 2012a, Yam et al., 2013b). This could be a way of exercising control over clients by barring them from intimacy, so as to separate work and pleasure (Deering et al., 2011). The number of regular clients may outnumber new clients. For instance, in Swaziland, on average in the previous month, FCSWs reported more regular clients (mean 8.4) than new clients (mean, 5.3) and 52.9% reported to have one non-commercial partner in the past month (Yam et al., 2013b).

The availability and dynamics of having either or both types of partners influences the sexual behavior of FCSWs and expands FCSWs vulnerability. This is because FCSWs are less likely to use condoms with non-client partners (Ngugi et al., 2012a, Yam et al., 2013b). Furthermore, these non-client, regular partners may facilitate HIV transmission to their non-sex work female partners, thereby acting as bridge populations (Deering et al., 2011). However, non-client romantic relationships may have an effect of reducing number of FCSWs clients. In Kenya, having an intimate partner was shown to be significantly associated with lesser sexual partners per unit time as compared to not having an intimate partner (Ngugi et al., 2012a).

There are several factors associated with FCSWs condom use with these two partner types. A study in Swaziland showed that the social capital construct of social participation was associated with using condoms with non-paying partners (Fonner et al., 2014). Social capital is the networks, norms, and social trust that facilitate cooperation for mutual benefit, and it is of two types i) bonding (for intra-group relationship) ii) bridging (for intergroup interaction) (Fonner et al., 2014). Social participation belongs to the bridging type and is defined as the engagement of community groups outside sex work relationships, manifesting their inclusion in the larger society (Fonner et al., 2014).

There are several factors that can predict condom use among FCSWs. A Kenyan study showed that FCSW condom use with a client could be predicted with age of over 29 years, higher price paid by last client and ever having been tested for HIV (Vandenhoudt et al., 2013). Conversely, the same study found out that unprotected sex with a client could be determined by having sex during menstruation and HIV treatment in the past year (Fonner et al., 2014).

Generally, studies show that the non-commercial/non-client sexual partnerships are a barrier to safer sex as many women have reported difficulty in negotiating for condom use in these relationships (McClelland et al., 2011). These overlapping relationships between client and non-client partner types is also linked to other HIV risk behaviors such as multiple and concurrent partnerships (Scorgie et al., 2012). Another distinction made is between regular clients and new clients even though there is an occasional blur between regular client and partner/boyfriend (Scorgie et al., 2012). Therefore, studies seem to agree that FCSWs sexual behavior varies according to the type of partner.

Inconsistent condom use

Inconsistent condom use (or its converse – consistent condom use) among FCSWs has been measured in different but similar ways in various studies. In Swaziland, FCSWs were classified as consistent condom users if they reported that they had always used condoms in the past month with each type of partner ("new client", "regular client" and "noncommercial partners") (Yam et al., 2013b). In Uganda, FCSWs that responded they had used condoms all the time during the preceding past month of the interview were regarded to be consistent users (Matovu and Ssebadduka, 2012). In a case-crossover analysis study in Kenya and Uganda, consistent condom use was defined as use of a condom during all episodes of sexual intercourse in the prior two weeks as reported by participants during study visits (Gallo et al., 2011). A Malawi survey measured consistent condom use by categorizing all who reported to have been "always" using condoms in the previous 12 months (NAC, 2006).

The extent of consistent condom use (across all partner types) among FCSWs has been different in various studies. A study in Swaziland, it was 16% used condoms consistently (Yam et al., 2013a) and 23.5% did in another study in that country (Yam et al., 2013b); consistent condom use was 26.8% in Kenya (Gallo et al., 2011); 45% in Uganda (Matovu and Ssebadduka, 2012) and 18.9 % in another Uganda study (Gallo et al., 2011). The studies above show the variance in condom use consistency among FCSWs in Africa.

Inconsistent condom use *(or its converse consistent condom use)* among FCSWs varies by partner type in that FCSWs tend to use condom inconsistently more with regular sexual partners or non-commercial partners than consistently with clients. In Guinea, inconsistent condom use was frequent with the regular and non-commercial partners but rare with the clients (80.4% vs. 1.3%) (Aho et al., 2013). In Kenya 21.1% used condoms inconsistently with non-regular clients and 24.5% with regular and 11.3% said never used condoms with regular partners (Ngugi et al., 2012b). In a study in Swaziland, consistent condom use was 33.5% with non-commercial partners, 48.2% with regular partners and 74% with new clients (Yam et al., 2013b). In Uganda, consistent condom use with casual partners in the past 30 days was 72.1%; it was 40.8% with regular partners and 6.3% was with spouse (Matovu and Ssebadduka, 2012). In a Malawian survey the proportions of those that always used condoms in the last 12 months were: 27% (spouse/live in partner), 49.5% (live-in boyfriend) 76.5% (commercial sex partner) and 76.3% (casual acquaintance) (NAC, 2006). Clearly, FCSWs have inconsistent condom use depending on the partner type.

Several studies have reported predictors of inconsistent condom use among FCSWs across these partner types. A study in Ethiopia found that experiences of work related violence was positively associated with inconsistent condom use with regular and non-paying partners (Mooney et al., 2013a). This was work related violence – physical, emotional, threats or forced sex. Work-related violence was statistically significantly associated with unprotected sex with regular, non-paying partners among those who abused alcohol and among those who did not. In Swaziland, social cohesion was associated with consistent condom use in the past week of the survey (Fonner et al., 2014). Social cohesion was defined as mutual aid, trust, and solidarity present among sex workers

(Fonner et al., 2014). In Kenya, FCSWs were less likely to use condom with partners who they had 10 or more coital acts (Gallo et al., 2011). In Swaziland, having no noncommercial partners in the previous month was associated with consistent condom use compared to having a two or more such partners (39% vs. 3%)(Yam et al., 2013a). Indeed, several factors determine consistent condom use across FCSWs partner types.

Related to the foregoing, there are several factors that have been identified as associated with consistent condom use with clients (paying partners). In Uganda, consistent condom use was associated with i) sex work not being the sole source of income, ii) sexual debut before 14 years, iii) consumption of alcohol and iv) being currently pregnant was associated with FCSWs (Bukenya et al., 2013). These four variables had a positive association with consistent condom use while a higher number of sexual partners per month were associated with a lower risk of inconsistent condom use (Bukenya et al., 2013). In Kenya, an inverse relationship was noted between consistent condom use among all clients and delay payment with recent partner (Gallo et al., 2011) - meaning as delay payment increases, consistent condom use would decrease and the other way round. As the above have shown, condom use among FCSWs clients has several determinants.

2.3 Summary of chapter

The literature reviewed points out that inconsistent condom use in female commercial sex work varies by partner type, with less reported with regular or non-commercial partners. Several predictors were noted for this – violence, social cohesion, number of coital acts and having no non-commercial partners in the previous month.

CHAPTER 3: METHODS

3.1 Introduction

This chapter discusses the methods used to answer the study's objectives. The original study's methods have been described to provide the background for this secondary data analysis. Thereafter, I explain how data was transformed in preparation of this study's analysis. Lastly, data management and data analysis processes are presented.

3.2 Study design

This study is a secondary data analysis of a cross-sectional study that was conducted in October 2011 (data collection) of female commercial sex workers in Malawi's three southern region districts: Blantyre, Mwanza and Zomba (Pakachere, 2012) that was commissioned by a Malawian NGO (Pakachere IHDC) with the aim of investigating the knowledge, attitudes and practices among female commercial sex workers in the three southern Malawian districts to inform a communication intervention among FCSWs.

3.3 Study Sites

The three sites, Blantyre, Zomba and Mwanza, were chosen because of their relatively high activity in sex work and they were the start-up areas for the intervention. Blantyre and Zomba are the major cities in the region; the former is the country's commercial hub while the latter is the old capital but is the country's military stronghold and is the home of University of Malawi's biggest college. Mwanza is an important border district that has a lot commercial activity (Pakachere, 2012).

3.4 Study Population

The study population for the primary study was female commercial sex workers in the three aforementioned southern region districts of Malawi in 2011. Participants were identified by their

colleagues and self as a sex worker. All sex workers were included in the study regardless of nationality. A FCSW was defined as any female who identifies herself as providing sexual services in exchange for money or goods (Pakachere, 2012, Overs, 2003). It was not established in the study if they were any transgendered female commercial sex workers.

3.5 Study Sample

Data were collected from 198 FCSWs. The sample size of 198 in the primary intervention study was powered to assess a 30% difference in comprehensive knowledge about HIV prevention and transmission among FCSWs between the baseline and the follow up study in the targeted areas (Pakachere, 2012).

Respondent driven sampling (RDS) was used to recruit 66 FCSWs from each study site. RDS is used where traditional probabilistic sampling methods do not work well, like with hard to reach populations. In the case of FCSWs RDS is useful because it limits participants from being driven underground because of moral disapproval and criminalization of the sex industry making them a hard-to-reach community (Wechsberg et al., 2006).

In a RDS design, respondents at each wave “drive" the next sampling wave by selecting other members of the study’s population (Pakachere, 2012). Therefore, social networks linking the FCSWs in the targeted areas were used to facilitate sampling. To implement this, recruitment coupons were distributed by the respondents to other FCSWs in the targeted areas. The initial contact was a ‘queen mother’ who was an older FCSW and an authoritative figure among the FCSWs and were mainly found during the daytime at rented houses situated near bars (Pakachere, 2012). Each selected seed distributed six coupons to other members of the target population. Therefore, at each wave the sampled respondents were those that had received coupons from respondents in the previous wave. Then they would bring back the coupon to the researchers at the survey center. This ensured that there is confidentiality in the sampling, which is important for hard to reach, stigmatized target populations (Pakachere, 2012).

In the secondary analysis the entire sample was used. Thus, all 198 records were included from the baseline of the primary dataset.

3.6 Data collection of the primary study

The primary study questionnaire was pretested in Blantyre a week before the main data collection. The participants were recruited through a FCSWs NGO and they were excluded from the main study. The pretesting ensured the adequacy and understandability of the items in the questionnaire (Pakachere, 2012).

Data collection was done over a two-week period during October 2011. The research assistants were experienced enumerators who were thoroughly briefed on the research objectives and methodology. Trained research assistants administered the questionnaire in Chichewa, Malawi's national language ((Pakachere, 2012) .

Under the guidance of an experienced team leader, the fieldworkers followed the study's sampling method to approach potential participants. Each of the participants had to give consent to participate in the study. The interviewers also assured the potential participants of confidentiality of the results and that their personal identities will be kept anonymous (Pakachere, 2012). The objectives of the study were explained and that they had the right to stop the interview at any point if they wished so. Administering one questionnaire took approximately 30 minutes (Pakachere, 2012).

3.7 Variable definition

A questionnaire (appendix 1) was used that included open and close-ended questions designed to collect information on socio-demographics; sex and sexual history; type of partners; condoms, knowledge, opinions and attitudes on HIV.

The primary study questionnaire included questions on the following categories:

- *Socio-demographic characteristics:* Items measured age, marital status, number of dependents, education attainment, other occupation, age at first sex
- *Sexual and sex work history:* Items measured the number of partners in the last seven days, amount paid by last client
- *STI testing:* item measured whether respondents have ever been tested for STIs
- *HIV testing:* item measured whether respondents have ever been tested for HIV
- *HIV treatment:* item measured whether respondents are on ARVs
- *Condom use:* Items measured condom use by partner type in the last seven days and in the last 30 days, condom use with last client condom use, who suggested condom use, reasons for non-condom use
- *Knowledge, opinions and attitudes on HIV:* This included items to deal with the participants' opinions and views towards HIV transmission and prevention.

3.8 Data transformation for analysis

As shown in the Table 3.8, in this study, some of the variables were transformed in preparation for the data analysis. All continuous variables were categorized and the outcome variable condom use was transformed into three variants (all partners, paying partners (clients) and non-paying partners).

Table 3.8: Data transformation for analysis

Objectives	Variables	Transformations
1) To describe socio-demographic characteristics of FCSWs in three districts of Malawi in 2011.	Age (years) (*continuous)* • < 20 • 21 - 25 • 26 - 30 • > 31	Continuous; transformed to be categorical
	Marital status *(categorical)* • Single • Married/cohabiting • Widowed • Divorced/separated	The category 'widowed' only had several values, these combined in the 'divorced/widowed' group.
	Education *(categorical)* • Primary • Secondary • Higher	The 'higher' category only had one value and this was put in the 'secondary' level category.
	Dependents (*categorical*) • Yes • No	
	Other Occupation (*categorical*) • Yes • No	
	Residence duration *(years) (categorical)* • <One • Two • Three • >Four	Continuous; transformed to be categorical

2) To assess HIV knowledge among FCSWS in three districts of Malawi in 2011.	HIV knowledge (*categorical*) • Low • High	The knowledge score was generated by combining question item on knowledge of HIV prevention by condom use and knowledge of HIV prevention by faithfulness[2]

Table 3.8: Data Transformation for Analysis *(continued)*

Objectives	**Variables**	**Transformations**
3) To measure sex and sex work behavior among FCSWS in three districts of Malawi in 2011.	Age of first sex (years)(*continuous*) • <14 • 15-19 • 20-24 • >25	Continuous; transformed to be categorical
	Age of First Paid Sex (years) (*continuous*) • <14 • 15-19 • 20-24 • >25	
	Number of Sex Partners in the Last Seven Days *continuous; transformed to be categorical* • None • 1 - 2 • 3 – 4 • 5	
	Number of Paying Sexual Partners (Clients) in the Last Seven Days *(continuous)* • None • 1 – 3 • 4 • >8	
	Number of Non-Paying Sexual Partners in the Last Seven Days (clients) *(continuous)* • None • 1	Continuous; transformed to be categorical

[2] Q603: Can people protect themselves from contracting HIV and AIDS by using condoms correctly every time they have sex? Q604: Can people protect themselves from contracting HIV and AIDS by have one faithful uninfected partner?

- 2
- >3

Table 3.8: Data Transformation for Analysis *(continued)*

Objectives	Variables	Transformations
	Reported having Paying and / or Non-Paying Sexual Partners in the Last Seven Days (*categorical, nominal*) • Paying only • Non-paying only • Paying and Non-paying	
	Amount Paid by Last Client (US Dollars) (*continuous)* • Less than 6.00 • 6.01-12.00 • 12.01-18.00 • 18.01-more	Continuous transformed to be categorical Local currency was converted to US dollars by comparing the exchange rate during the data collection month sourced from http://treasury.un.org
4) To describe prevalence of STI and HIV testing among FCSWS in three districts of Malawi in 2011.	STI testing (*categorical*) • No • Yes HIV testing (*categorical*) • No • Yes	
5) To describe the proportion of FCSWS on HIV treatment in three districts of Malawi in 2011.	HIV treatment (*categorical*) • No • Yes	
6) To examine condom use behaviors among FCSWs in three districts of Malawi in 2011	Condom Use With Last Client (Paying Partners) (categorical) • Yes • No Condom Use with Paying Partner (Clients) in the Last 30 Days)*(categorical)* • Always • Sometimes Condom Use with Non-Paying in the Last 30 Days) *(categorical)* • Always • Sometimes • Never Who Initiated Condom Use at Last Sex *(categorical)* • Self suggested • Partner suggested • Joint Suggestion	

Table 3.8: Data Transformation for Analysis *(continued)*

Objectives	Variables	Transformations
7) To determine drivers of inconsistent condom use among FCSWs in three districts of Malawi in 2011.	Inconsistent condom use (across all partners; paying partners; non-paying partners)" *(categorical, nominal)* • No (Consistent users) • Yes (Inconsistent users)	This was generated from the following questions and their corresponding responses which assessed condom use: q307) Did you use a condom with your last client? (Yes/No); q400) How often have you used a condom with your sexual partners in the last 30 days? (Always/Sometimes/Never); q402) The last time you has sex with this non-paying partner, did you use a condom? (Yes/No); q405) How often have you used a condom with non-paying clients in the last 30 days? (Always/Sometimes/Never). Participants who answered "yes" in (q307) and (q402); and "always" in (q400) and (q405) were considered consistent condom users; and the rest were considered inconsistent condom users. The 'never' category had only 2%, therefore they were combined to be in the 'inconsistent' condom users category

3.9 Data processing methods and data analysis

3.9.1 Data management and cleaning

The primary study's data entry was from a pre-coded questionnaire that was double entered and verified in Microsoft Access (Pakachere, 2012). STATA, version 13 was used for analysis. To check that the data were useful, consistent, complete and meaningful - missing data, data entry errors, incongruent values and outliers were checked through graphical displays and 'inspect' command in STATA. Few inconsistencies were discovered and these were remedied accordingly. Missing data that was a result of skip patterns (for example partners who reported to have no non-paying partners) was noted. The data is largely categorical and most variables are normally distributed. Any changes to the dataset were saved and recorded and explained in a do-file that was used for the entire analysis.

3.9.2 Data analysis

Descriptive statistical analyses were conducted for all variables and cross tabulations were conducted with inconsistent condom use (across all partners; paying partners; non-paying partners). Continuous data was reported using median/means and range and categorical data as frequencies and proportions.

For objectives 1 to 6: Categorical data was reported as frequencies and proportions.
To measure association between the outcome variables (condom use) and the exposure variables (socio demographic characteristics), chi square test was used. Fisher's test was used if the cell frequencies were less than 5.

For objective 7 (To assess drivers of inconsistent condom use among FCSWs in three districts of Malawi in 2011): Stepwise backward multivariate procedure was used to include theoretically relevant and/or significant independent predictor variables in the multivariate logistic model. Non-significant ($p=<0.05$) variables were removed at each step. Likelihood ratios and CIs were also used note significant changes. The associations in the model were reported using adjusted odds ratios (aOR) and 95% confidence intervals (CIs).

3.10 Ethics

For this secondary analysis, the protocol was submitted to the Human Research Ethics Committee of University of the Witwatersrand for consideration and ethics approval was obtained (M131146) (Appendix 3). Permission to use data was given by Pakachere IHDC (appendix 4).

3.11 Summary of chapter

In this chapter, the methods used in answering the study objectives were presented. The secondary analysis included all the variables from the primary study. New variables were generated for analysis. Descriptive analysis was performed and categorical data were reported as proportions and

frequencies while continuous data as median. Logistic regression modeling was conducted to predict factors influencing inconsistent condom use among FCSWs.

CHAPTER 4: RESULTS

4.1 Introduction

In this chapter the results of the data analysis are presented in four sections: A – univariate analyses; B, C, D – bivariate analyses between exposure variable and condom use with all partners, with clients and with non-paying partners respectively; and E- multivariate regression modeling for inconsistent condom use.

SECTION A: RESULTS OF UNIVARIATE ANALYSIS

4.2 Socio-demographic characteristics

The socio-demographic characteristics of FCSWs who participated in the study are described in Table 4.2. The mean age of FCSWs was 23.75 years with a standard deviation of 4.70. This shows that there was not much variation in the ages of the participants in the study and that the majority of the FCSWs under study were young women. Almost two thirds of them (59.60%) were between 21 to 25 years. While the majority of the FCSWs were young women, 11.1% were over 31 years old.

Just over half of the participants reported that they were single (55.33%) while a third (33.50%) reported that they were divorced or separated. Most had some primary school education (62.84%) while the rest (36.61%) reached secondary school level. The majority, 84.38%, indicated that they had dependents and that they did not have any other occupation apart from sex work (67.17%). More than a third of the participants reported to have stayed in the area of their sex work for less than a year (37.88%), however there was a wide variation (with a range of 0-31 years) with a third (33.33%) reported to have stayed in their area for over four years.

Table 4.2: Socio-demographic characteristics among FCSWs in three Malawian districts, 2011

Characteristics	Frequency	Percentage (%)
Age (years)		
< 20	29	14.65
21 – 25	118	59.6
26 – 30	29	14.65
> 31	22	11.11
Total	*198*	*100%*
Median	*23*	
Marital Status		
Single	109	55.33
Married/cohabiting	15	7.61
Widowed	7	3.55
Divorced/Separated	66	33.5
Total	*197*	*100%*
Education Attainment		
Primary	115	62.84
Secondary and higher	68	37.16
Total	*183*	*100%*
Dependents		
Yes	162	84.38
No	30	15.63
Total	*192*	*100%*
Other Occupation		
None	133	67.17
Other	65	32.83
Total	*198*	*100%*
Residence Duration		
<One	75	37.88
Two	36	18.18
Three	21	10.61
>Four	66	33.33
Total	*198*	*100%*
Median	*1*	

4.3 HIV Knowledge

The results as shown in Table 4.3 below were that the most of the respondents (63.92%) had high knowledge; and the rest (36.08%) had low knowledge[3].

Table 4.3: HIV Knowledge among FCSWs in three Malawian districts, 2011

Characteristic	Frequency	Percentage (%)
HIV Knowledge		
Low	75	37.88
High	36	18.18
Total	*198*	*100%*
Median	*1*	

4.4 Sexual and Sex Work History, and Partner Types

Sexual and sex work history is shown in Table 4.4 and some of the results are as follows:

The respondents' median age of first sex was 16 years and the majority (75%) had their first sex between 15 and 19 years. One in 10 (10.61%) had their first sex at over 21 years of age. A similar proportion (13.64%) reported first sex at 14 years or below – an indication of child sexual abuse.

The median age of first paid sex was 19 years. Over half of the respondents (54.98%) were first paid for sex between 15 to 19 years.

The median for number of total number of sex partners in the last seven days prior to the interview was 4 with a range of 0 to 20.

For the paying partners (clients) only, the median was 3 with a range of 0 to18; while for non-paying partners (including husbands and boyfriends) had a comparatively lower median of 1 with a range from 0-6.

Further analysis on the partner types shows that more than half of the study participants (52.91%) had sex with both paying and non-paying partners in the last seven days prior to the interview.

[3] Refer to the Methods section on how HIV knowledge was generated

Under half of the participants (41.27%) had sex with paying partners only while 11.00% had sex with non-paying partners in the previous seven days.

Nearly half of the participants (44.10%) had received between US$ 6.01- US$ 12.00 in their last sex with a client. The median was US$ 9.09 while the mean was US$10.26 with a range from US$ 1.21 to US$ 60.61.

Table 4.4: Sexual and Sex Work History, and Partner Types among FCSWs in three Malawian districts, 2011

Characteristics	Frequency	Percentage (%)
Age of First Sex (years)		
<14	26	13.64
15-19	141	75.00
20-24	16	8.51
>25	5	2.06
Total	*188*	*100%*
Median	*16*	
Age at First Paid Sex (years)		
<14	6	3.19
15-19	103	54.98
20-24	61	32.45
>25	18	9.57
Total	*188*	*100%*
Median	*19*	
Number of Sex Partners in the Last Seven Days		
None	10	5.05
1 – 2	50	25.25
3 – 4	58	29.29
5 – 6	29	14.65
7 – 8	29	14.65
>9	22	11.11
Total	*198*	*100%*
Median	*4*	
Number of Paying Sexual Partners (Clients) in the Last Seven Days		
None	20	10.1
1 – 3	91	45.96
4 – 7	68	34.34
>8	19	9.6
Total	*198*	*100%*
Median	*4*	
Number of Non-Paying Sexual Partners in the Last Seven Days		
None	87	45.31
1	87	45.31
2	11	5.73
>3	7	3.65
Total	*192*	*100%*
Median	*1*	

Table 4.4: Sexual and Sex Work History, and Partner Types among FCSWs in three Malawian districts, 2011 *(continued)*

Characteristic	Frequency	Percentage (%)
Reported having Paying and / or Non-Paying Sexual Partners in the Last Seven Days		
Paying only	78	41.27
Non-paying only	11	5.82
Paying and Non-paying	100	52.91
Total	*189*	*100%*
Amount Paid by Last Client (US Dollars)		
Less than 6.00	48	24.62
6.01-12.00	86	44.10
12.01-18.00	33	16.92
18.01-more	28	14.36
Total	*195*	*100%*

4.5 STI testing; HIV testing; and HIV treatment

As is shown in Table 4.5 below, the majority, 83.76% of FSCWs, reported ever testing for STIs. Similarly, as many as 89.80% of FCSWs, reported ever being tested for HIV. The majority (46.30%) reported to have received their HIV test results. Most FCSWs who had ever tested (46.30%) reported to be going to testing once in every quarter. However, few FCSWs are on HIV treatment. Only 16% report that they are currently on ARV treatment.

Table 4.5: STI, HIV testing and treatment among FCSWs in three Malawian districts, 2011

Characteristic	Frequency	Percentage (%)
STI testing *(n=197)*		
No	32	16.24
Yes	165	83.76
Total	*197*	*100*
HIV testing (*n=196)*		
No	20	10.20
Yes	176	89.80
Total	*196*	*100*
Frequency of HIV Testing (*n=162)*		
Every month	25	15.43
Once in a quarter	75	46.30
Once in a half year	20	12.35
Once in a year	42	25.93
Total	*162*	*100*
HIV Testing Place (*n=159)*		
Hospital/Clinic/Dispensary	149	93.71
Macro	8	5.03
Lighthouse	0	0
Mobile VCT	2	1.26
Total	*159*	*100*
Received HIV Results (*n=196)*		
No	7	3.93
Yes	171	96.07
Total	*196*	*100*
HIV treatment *(n=196)*		
No	*164*	*83.67*
Yes	*32*	*16.33*
Total	*196*	*100*

4.6 Condom Use

A majority of the participants (90.26%) used condoms with their last client; and about two-thirds (66.84%) indicated that they had always used condoms in the last 30 days with paying partners.

Condom use with non-paying partners at last sex was lower; more than half of the participants (55.41%) reported that they had used a condom at last sex. In the last 30 days 50.00% reported

that they had always used a condom with their non-paying partners, and 26.35% reported they sometimes used a condom and 23.65% indicated they never used a condom with a non-paying partner.

More than two-thirds of the participants (69.49%) reported that they initiated condom use at last sex with a client. Condom use patterns and prevalence is shown in Table 4.6 below.

Table 4.6 Condom use among FCSWs in three Malawian districts, 2011

Characteristics	Frequency	Percentage (%)
Condom Use With Last Client (Paying Partners) (*n= 195)*		
Yes	176	90.26
No	19	9.74
Total	*195*	*100%*
Condom Use with Paying Partner (Clients) in the Last 30 Days (*n=196)*		
Always	131	66.84
Sometimes	65	33.16
Total	*196*	*100%*
Condom Use with Non-Paying Partner Last Sex *(n=148)*		
Yes	82	55.41
No	66	44.59
Total	*148*	*100%*
Condom Use with Non-Paying in the Last 30 Days *(n=148)*		
Always	74	50.00
Sometimes	39	26.35
Never	35	23.65
Total	*148*	*100%*
Who Initiated Condom Use at Last Sex (*n=177)*		
Self-suggested	123	69.49
Partner suggested	9	5.08
Joint Suggestion	45	25.42
Total	*177*	*100%*
Ever Purchased a Male Condom *(n=198)*		
No	6	3.03
Yes	192	96.97
Total	*198*	*100*

Table 4.6 Condom Use among FCSWs in three Malawian districts, 2011 *(continued)*

Characteristics	Frequency	Percentage (%)
Number of Male Condoms in Currently in Possession *(n=198)*		
0	10	5.05
1-10	107	54.04
11-20	11	5.56
Over 20	70	35.35
Total	*198*	*100*
Know of a Place or Person Where you Find Male Condom *(n=193)*		
No	3	1.55
Yes	190	98.45
Total	*193*	*100*
Length of Time to Find a Condom *(n=193)*		
Under 15 mins	*167*	*86.53*
5 to 30 mins	*20*	*10.36*
30 to 60 mins	*2*	*1.04*
More than 60 mins	*4*	*2.07*
Total	*193*	*100*
Preference of access to condoms *(n=143)*		
Through the hospital	86	60.14
Through community clubs	9	6.29
Through outlets in the area	48	33.57
Total	*143*	*100*

4.7 Condom Use by partner type among FCSWs

As shown in Table 4.7 inconsistent condom use[4] was higher with non-paying partners (55.86%) and lower among paying partners (32.20%). Across both partner types, slightly more participants had used condom consistently (54.08%) compared with those that had used them inconsistently (45.92%).

[4] Refer to the methods section for the definition of Consistent Condom Sue variable

Table 4.7: Condom Use among FCSWs by partner type among FCSWs in three Malawian districts, 2011 [5]

Condom use consistency by partner type	Frequency	Percentage
Condom use (all partners)*(n=196)*		
Consistent	106	54.08
Inconsistent	90	45.92
Total	*196*	*100*
Condom use (clients) *(n=193)*		
Consistent	175	9.33
Inconsistent	18	90.67
Total	*193*	*100*
Condom use (non-paying partners)*(n=145)*		
Consistent	64	44.14
Inconsistent	81	55.86
Total	*145*	*100*

[5] How condom use consistency was generated is explained the methods chapter

SECTION B: RESULTS OF BIVARIATE ANALYSES - EXPOSURE VARIABLES AND CONDOM USE (ALL PARTNERS)

In this section, results are presented for the measurement of association between condom use (all partners) and the exposure variables under socio-demographic characteristics, HIV knowledge, sexual and sex history, STI and HIV testing, and HIV treatment.

4.8 Associations between Socio-demographic Characteristics and Condom Use (all partners)

The results are shown in Table 4.8 below. Married FCSWs reported more inconsistent condom use (66.67%) than single FCSWs (42.06%) and Widowed/ Divorced/Separated FCSWs (47.95%). FCSWs who had secondary education reported lesser inconsistent condom users when compared to participants who had only a primary school education. Participants who reported having another occupation reported more consistent condom use. There were no statistically significant associations between any of the socio-demographic characteristics that were observed in this study and the outcome of interest: inconsistent condom use. However, both educational attainment (p=0.07) and other occupation (p=0.08) were marginally associated.

Table 4.8: Associations between Socio-demographic Characteristics and by Condom Use (all partners) among FSWs in three districts of Malawi, 2011

Characteristics	Inconsistent Condom Use *n (%)*	Consistent Condom Use *n (%)*	Total	P- Value
Age (Years) *n= 196*				
<20	13 (46.43))	15 (53.57)	28 (100)	0.5
21-25	50 (42.74)	67 (57.26)	117 (100)	
26-30	17 (58.62)	12 (41.38)	29 (100)	
>30	10 (45.45)	12 (54.55)	22 (100)	
Total	*90 (45.92)*	*106 (54.08)*	*196* (100)	
Marital Status *n=195*				
Single	45 (42.06)	62 (57.94)	107 (100)	0.19
Married/Cohabiting	10 (66.67)	5 (33.33)	15 (100)	
Widowed/ Divorced/Separated	35 (47.95)	38 (52.05)	73 (100)	
Total	90 (46.15)	105 (53.85)	195	
Education Attainment *n=181*				
Primary	43 (37.39)	72 (62.61)	115 (100)	0.07
Secondary	35 (53.03)	31 (46.97)	66 (100)	
Total	78 (43.09)	103 (56.91)	181 (100)	
Dependents *n=190*				
Yes	76 (47.20)	85 (52.80)	161 (100)	0.36
No	11 (37.93)	18 (62.07)	29 (100)	
Total	*87 (45.79)*	*103 (54.21)*	*190 (100)*	
Other Occupation *n=196*				
None	66 (50.38)	65 (49.62)	131 (100)	0.08
Other	24 (36.92)	41 (63.08)	65 (100)	
Total	*90 (45.92)*	*106 (54.08)*	*169 (100)*	
Residence in the Area (Years) *n=196*				
<One	32 (42.67)	43 (57.33)	75 (100)	0.49
Two	15 (41.67)	21 (58.33)	36 (100)	
Three	10 (41.67)	14 (58.33)	24 (100)	
>Four	33 (54.10)	28 (45.90)	61 (100)	
Total	*90 (45.92)*	*106 (54.08)*	*196 (100)*	

4.9 Associations between HIV knowledge; and Condom Use (all partners)

As shown in Table 4.9 HIV knowledge was inversely associated with condom use (p=0.04). More FCSWs (64%) among those with low knowledge reported consistent condom use than FCSWs with high knowledge (48%).

Table 4.9: Associations between HIV knowledge; and Condom Use (all partners)

Characteristic	Inconsistent Condom Use	Consistent Condom Use	Total	P values
HIV knowledge				
Low knowledge	25 (36.23)	44 (63.77)	69 (100.00)	0.04
High knowledge	64 (52.03)	59 (47.97)	123 (100.00)	
Total	*89 (46.35)*	*103 (53.65)*	*192 (100.00)*	

4.10 Associations between Sexual and Sex Work History; Partner Types; and Condom Use (all partners)

There were no statistically significant associations between sexual and sex work history and condom use (all partners). FCSWs between 15 – 19 years of age reported more consistent condom use (55.40%) while FCSWs between 20 - 24 years reported lesser consistent condom use (37.50%). FCSWs who were paid most by last client ($18.01 or more) reported more inconsistent condom use (60.71%) while the rest of the categories that received lower amounts, reported more consistent condom use. See Table 4.10 below.

Table 4.10: Associations between Sexual and Sex Work History; Partner Types; and Condom Use (all partners)

Characteristics	Inconsistent Condom Use *n (%)*	Consistent Condom Use *n (%)*	Total	P-Value
Age of First Sex (Years) *n=196*				
<14	16 (59.26)	11 (40.74)	27 (100)	0.65
15-19	62 (40.60)	77 (55.40)	139 (100)	
20-24	10 (62.50)	6 (37.50)	16 (100)	
>25	6 (20.00)	12 (66.67)	18 (100)	
Total	*86 (46.24)*	*100 (53.76)*	*186 (100)*	
Age of First Paid Sex (Years) *n=186*				
<14	2 (33.33)	4 (66.67)	6 (100)	0.65
15-19	49 (48.51)	52 (51.49)	101 (100)	
20-24	29 (47.54	32 (52.46)	61 (100)	
>25	0 (0)	4 (100)	4 (100)	
Total	*86 (46.24)*	*100 (53.76)*	*186 (100)*	
Number of Sex Partners in the Last Seven Days *n=196*				
None	6 (66.67)	3 (33.33)	9 (100)	0.85
1 – 2	22 (44.90)	27 (55.10)	49 (100)	
3 – 4	27 (46.55)	31 (53.45)	58 (100)	
5 – 6	14 (48.28)	15 (51.72	29 (100)	
7 – 8	12 (41.38)	17 (58.62)	29 (100)	
>9	9 (40.91)	13 (59.09)	22 (100)	
Total	*90 (45.92)*	*106 (54.08)*	*196 (100)*	
Number of Paying Sexual Partners (Clients) in the Last Seven Days *n=196*				
None	9 (47.37)	10 (52.63)	19 (100)	0.67
1 – 3	45 (50.00)	45 (50.00)	90 (100)	
4 – 7	29 (42.65)	39 (57.35)	68 (100)	
>8	7 (36.84)	12 (63.16)	19 (100)	
Total	*90 (45.92)*	*106 (54.08)*	*196 (100)*	
Number of non-paying sexual partners *n=190*				
None	34 (40.00)	51 (60.00)	85	0.14
1	47 (54.02)	40 (45.58)	87	
2	4 (36.36)	7 (63.64)	11	
>3	5 (71.43)	2 (28.57)	7	
Total	*90 (47.37)*	*100 (52.63)*	*190 (100)*	
Type of partners *n=188*				
Paying Only	29 (37.66)	48 (62.34)	77 (100)	0.14
Non-paying only	4 (36.36)	7 (63.64)	11 (100)	
Paying and Non-paying	52 (52.00)	48 (48.00)	100 (100)	
Total	*85 (85.21)*	*103 (54.79)*	*188 (100)*	

Table 4.10: Associations between Sexual and Sex Work History; Partner Types; and Condom Use (all partners) (continued)

Characteristics	Inconsistent Condom Use *n (%)*	Consistent Condom Use *n (%)*	Total	P-Value
Amount Paid by Last Client (US Dollars) *n=193*				
< 6.00	22 (46.81)	25 (53.19)	47	0.32
6.01-12.00	36 (42.35)	49 (57.65)	85	
12.01-18.00	13 (39.39)	20 (60.61)	33	
>18.01-more	17 (60.71)	11 (39.29)	28	
Total	*88 (45.60)*	*105 (54.40)*	*193*	

4.11 Associations between STI and HIV testing; and HIV treatment and Condom Use (all partners)

As shown in Table 4.11 below, proportionally more FCSWs who went for STI testing reported more consistent condom use (59.38). Similarly more FCSWs who reported to have ever attended HIV testing reported more consistent condom use (54.64%). Again more FCSWs who were on HIV treatment reported more consistent condom use (54.64%). However, these relationships were not statistically significant.

Table 4.11: Associations between STI and HIV testing; HIV treatment and Condom Use (all partners)

Characteristics	Inconsistent Condom Use *n (%)*	Consistent Condom Use *n (%)*	Total	P-Value
STI Testing				
No	76 (46.63)	87 (53.37)	163 (100.00)	0.53
Yes	13 (40.63)	19 (59.38)	32 (100.00)	
Total	*89 (45.64)*	*106 (54.36)*	*195 (100.00)*	
HIV Testing				
No	10 (50.00)	10 (50.00)	20 (100.00)	0.66
Yes	78 (44.83)	96 (55.17)	174 (100.00)	
Total	*88 (45.36)*	*106 (54.64)*	*194 (100)*	
HIV Treatment				
No	74 (45.68)	88 (54.32)	162 (100.00)	0.59
Yes	14 (43.75)	18 (56.25)	32 (100.00)	
Total	*88 (45.36)*	*106 (54.64)*	*194 (100.00)*	

SECTION C: RESULTS OF BIVARIATE ANALYSES - EXPOSURE VARIABLES AND CONDOM USE (CLIENTS)

In this section, results are presented for the measurement of association between condom use (all partners) and the exposure variables under socio-demographic characteristics, HIV knowledge, sexual and sex history, STI and HIV testing, and HIV treatment.

4.12 Associations between Socio-demographics and Condom Use (clients)

As shown in Table 4.12, proportionally more married/cohabiting FCSWs (13.13%) were inconsistent condom users than single FCSWs (8.57%) and widowed/divorced/separated (9.72%). However, the only socio-demographic variable that was statistically associated with condom use (clients) was 'residence in the area' (p=0.04).

Table 4.12: Associations between Socio-demographics and Condom Use (clients)

Characteristic	Inconsistent Condom Use	Consistent Condom Use	Total	P value
Age (years)				
<20	2 (7.41)	25 (92.59)	27 (100.00)	0.31
21-25	8 (6.96)	107 (93.04)	115 (100.00)	
26-30	4 (13.79)	25 (86.21)	29 (100.00)	
>31	4 (18.18)	18 (81.82)	22 (100.00)	
Total	*18 (9.33)*	*175 (90.67)*	*193 (100.00)*	
Marital status				
Single	9 (8.57)	96 (91.43)	105 (100.00)	0.83
Married/Cohabiting	2 (13.13)	13 (86.67)	15 (100.00)	
Widowed/ Divorced/Separated	7 (9.72)	65 (90.28)	72 (100.00)	
Total	*18 (9.38)*	*174 (90.63)*	*192 (100.00)*	
Education Attainment				
Primary School	8 (7.08)	105 (92.92)	113 (100.00)	0.88
Secondary and higher	5 (7.69)	60 (92.31)	65 (100.00)	
Total	13 (7.30)	165 (92.70)	178 (100.00)	
Dependents				
No	1 (3.45)	28 (96.55)	29 (100.00)	0.29
Yes	15 (9.49)	143 (90.51)	158 (100.00)	
Total	*16 (8.56)*	*171 (91.44)*	*187 (100.00)*	
Other occupation				
No	12 (9.38)	116 (90.63)	128 (100.00)	0.97
Yes	6 (9.23)	59 (90.77)	65 (100.00)	
Total	*18 (9.33)*	*175 (90.67)*	*193 (100.00)*	
Residence in the area (years)				
<One	2 (2.70)	72 (97.30)	74 (100.00)	0.04
Two	3 (8.33)	33 (91.67)	36 (100.00)	
Three	3 (13.04)	20 (86.96)	23 (100.00)	
>Four	10 (16.67)	50 (83.33)	60 (100.00)	
Total	*18 (9.33)*	*175(90.67)*	*193 (100.00)*	

4.13 Associations between HIV Knowledge and Condom Use (clients)

FCSWs who had high HIV knowledge reported more inconsistent use (11.57%) than those with low knowledge (5.88%). However, this relationship was not statistically significant. See Table 4.13 below.

Table 4.13: Associations between HIV Knowledge and inconsistent condom use (clients)

Characteristic	Inconsistent Condom Use	Consistent Condom Use	Total	P values
HIV knowledge				
Low	4 (5.88)	64 (94.12)	68 (100.00)	0.20
High	14 (11.57)	107 (88.43)	121 (100.00)	
Total	*18 (9.52)*	*171 (90.48)*	*189 (100.00)*	

4.14 Sexual Exposure and Practices and Condom Use (clients)

Among clients, all age categories of FCSWs reported more consistent condom use than inconsistent. There was a statistically significant association between “number of clients in the last seven days” and “condom use (clients)” (p=0.03), all categories reported more consistent condom use than inconsistent. See Table 4.14 below.

Table 4.14: Associations between Sexual and Sex Work History and Condom Use (Clients)

Characteristic	Inconsistent Condom Use	Consistent Condom Use	Total	P values
Age of sexual debut (years)				
<14	1 (3.85)	25 (96.15)	26 (100.00)	0.78
15-19	16 (11.68)	121 (88.32)	137 (100.00)	
20-24	1 (6.25)	15 (93.75)	16 (100.00)	
>25	0 (0.00)	5 (100.00)	22 (100.00)	
Total	*66 (34.20)*	*127 (65.80)*	*193 (100.00)*	
Number of sexual partners in the last seven days				
None	3 (33.33)	6 (66.67)	9 (100.00)	0.07
1 – 2	7 (14.29)	42 (85.17)	49 (100.00)	
3 – 4	3 (5.36)	53 (94.64)	56 (100.00)	
5 – 6	3 (10.34)	26 (89.66)	29 (100.00)	
7 – 8	1 (3.57)	27 (96.43)	28 (100.00)	
>9	1 (4.55)	21 (95.45	22 (100.00)	
Total	18 (9.33)	175 (90.67)	193 (100.00)	
Age of first paid sex				
<14	0 (0)	6 (100)	6 (100.00)	0.10
15-19	14 (14.00)	86 (86.00)	100 (100.00)	
20-24	2 (3.33)	58 (96.67)	60 (100.00)	
>25	1 (5.56)	17 (94.44)	18 (100.00)	
Total	*17 (9.24)*	*167 (66.30)*	*184 (100.00)*	
Number of clients in the last seven days				
None	5 (26.32)	14 (73.68)	19 (100.00)	0.03
1-3	8 (9.09)	80 (90.91)	88 (100.00)	
4-7	5 (7.46)	62 (92.54)	67 (100.00)	
>8	0 (0)	19 (100.00)	19 (100.00)	
Total	*18 (9.33)*	*175 (90.67)*	*193 (100.00)*	
Last amount paid by client (USD)				
<6.00	8 (16.33)	41 (83.67)	49 (100.00)	0.19
6.01-12.00	6 (7.14)	78 (92.86)	84 (100.00)	
12.01-18.00	1 (3.13)	31 (96.88)	32 (100.00)	
>18.01	3 (10.71)	25 (89.29)	28 (100.00)	
Total	*18 (9.33)*	*175 (90.67)*	*193 (100.00)*	

4.15 Associations between STI Testing, HIV Testing, HIV Treatment and Condom Use (clients)

Among clients, FCSWs who did and did not report STI testing, HIV testing and being on HIV treatment - all reported more consistent condom use than inconsistent. None of these relationships was statistically significant.

Table 4.15: Associations between STI testing and condom use (clients)

Characteristic	Consistent Condom Use	Consistent Condom Use	Total	P Values
STI Testing *(n=192)*				
No	5 (16.13)	26 (83.87)	31 (100.00)	0.16
Yes	13 (8.07)	148 (91.93)	161 (100.00)	
Total	*18 (9.38)*	*174 (90.63)*	*192 (100.00)*	
HIV Testing *(n=191)*				
No	1(5.00)	19 (95.00)	20 (100.00)	0.47
Yes	17(9.94)	154 (90.06)	171 (100.00)	
Total	*18 (9.42)*	*173 (90.58)*	*191 (100.00)*	
HIV Treatment *(n=191)*				
No	15 (9.38)	145 (90.63)	160 (100.00)	0.60
Yes	2 (6.45)	29 (93.55)	31(100.00)	
Total	*17 (8.90)*	*174 (91.10)*	*191(100.00)*	

SECTION C: BIVARIATE ANALYSIS – EXPOSURE VARIABLES AND CONDOM USE (NON-PAYING PARTNERS)

In this section, results are presented for the measurement of association between the exposure variables under socio-demographic characteristics, HIV knowledge, sexual and sex history, STI and HIV testing, and HIV treatment.

4.16 Association between Socio-demographic Characteristics and Condom Use (non-paying partners)

Across all age categories, FCSWs reported more inconsistent condom use among non-paying partners. Relatively, FCSWs who were widowed, divorced or separated reported more inconsistent condom use proportionally among non-paying partners. Proportionally, FCSWs who did not have dependents reported more consistent condom use than those who had (58.63% vs 41.88). However, all these relationships were not statistically significant. See Table 4.17 below.

Table 4.16: Associations between Socio-demographic Characteristics and Condom Use (non-paying partners)

Characteristic	Inconsistent Condom Use	Consistent Condom Use	Total	P values
Age (years)				
<20	12 (52.17)	11 (47.83)	23 (100.00)	0.79
21-25	45 (53.57)	39 (46.43)	84 (100.00)	
26-30	15 (62.50)	9 (37.50)	24 (100.00)	
>30	9 (64.29)	5 (35.71)	14 (100.00)	
Total	*81 (55.86)*	*64 (44.14)*	*145 (100.00)*	
Marital status				
Single	38 (50.00)	38 (50.00)	76 (100.00)	0.27
Married/Cohabiting	9 (60.00)	6 (40.00)	15 (100.00)	
Widowed/ Divorced/Separated	34 (64.15)	19 (35.85)	72 (100.00)	
Total	*81 (56.25)*	*63 (43.75)*	*144 (100.00)*	
Educational attainment				
Primary School	42 (49.41)	43 (50.59)	85 (100.00)	0.38
Secondary and higher	27 (36.92)	20 (63.08)	47 (100.00)	
Total	*69 (52.57)*	*63 (47.73)*	*132 (100.00)*	
Dependents				
No	10 (41.67)	14 (58.63)	24 (100.00)	0.14
Yes	68 (58.12)	49 (41.88)	117 (100.00)	
Total	*78 (55.32)*	*63 (44.68)*	*141 (100.00)*	
Other occupation				
No	57 (57.58)	42 (42.42)	99 (100.00)	0.54
Yes	24 (52.17)	22 (47.83)	46 (100.00)	
Total	*81 (55.86)*	*64 (44.14)*	*145 (100.00)*	
Residence in the area (years)				
<One	31 (56.36)	24 (43.64)	55 (100.00)	0.96
Two	15 (57.69)	11 (42.31)	26 (100.00)	
Three	9 (50.00)	9 (50.00)	18 (100.00)	
>Four	26 (56.52)	20 (43.48)	46 (100.00)	
Total	*81 (55.86)*	*64 (44.14)*	*145 (100.00)*	

4.17 Associations between HIV Knowledge and Condom Use (non-paying partners)

Among non-paying partners FCSWs who had low knowledge reported more consistent condom use than those with high knowledge (51.06% vs 41.24%). However this association was not statistically significant. See Table 4.17 below.

Table 4.17: Associations between HIV Knowledge and Condom Use (non-paying partners)

Characteristic	Inconsistent Condom Use	Consistent Condom Use	Total	P value
HIV knowledge				
Low	23 (48.94)	24 (51.06)	47 (100.00)	0.27
High	57 (58.76)	40 (41.24)	97 (100.00)	
Total	*80 (55.56)*	*64 (44.44)*	*144 (100.00)*	

4.18 Associations between Sexual and sex work history and Condom Use (non-paying partners)

All categories of age of first sex and age of first paid sex reported more inconsistent condom than consistent. However these associations were not statistically significant. See Table 4.18 below.

Table 4.18 Associations between Sexual and sex work history and Condom Use (non-paying partners)

Characteristic	Inconsistent Condom Use	Consistent Condom Use	Total	P values
Age of first sex (years)				
<14	15 (65.22)	8 (34.78)	23 (100.00)	0.57
15-19	53 (51.96)	49 (8.04)	102 (100.00)	
20-24	10 (83.33)	2 (16.67)	12 (100.00)	
>25	2 (100.00)	0 (0.00)	15 (100.00)	
Total	*80 (57.55)*	*59 (42.45)*	*139 (100.00)*	
Number of sexual partners in the last seven days				
None	5 (71.43)	2 (28.57)	7 (100.00)	0.54
1 – 2	15 (45.45)	18 (54.55)	33 (100.00)	
3 – 4	27 (60.00)	18 (40.00)	45 (100.00)	
5 – 6	16 (66.67)	8 (33.33)	24 (100.00)	
7 – 8	10 (52.63)	9 (47.37)	19 (100.00)	
>9	81 (47.06)	9 (52.94)	17 (100.00)	
Total	*81 (55.86)*	*64 (44.14)*	*145 (100.00)*	
Age of first paid sex				
<14	2 (50.00)	2 (50.00)	4 (100.00)	0.92
15-19	43 (53.75)	3 (46.25)	80 (100.00)	
20-24	26 (59.09)	18 (40.91)	44 (100.00)	
>25	6 (60.00)	4 (40.00)	10 (100.00)	
Total	*77 (55.80)*	*61 (44.20)*	*138 (100.00)*	

4.19 Associations between STI testing, HIV testing, and HIV treatment and Condom Use (non-paying partners)

Among non-paying partners, FCSWs who did and did not report STI testing, HIV testing and being on HIV treatment - all reported more consistent condom use than inconsistent. None of these relationships was statistically significant. See Table 4.19 below.

Table 4.19: Associations between STI testing and Condom Use (non-paying partners)

Characteristic	Inconsistent Condom Use	Consistent Condom Use	Total	P value
HIV Treatment				
No	70 (56.45	54 (43.55)	124 (100.00)	0.59
Yes	10 (50.00)	10 (50.00)	20 (100.00)	
Total	*80 (55.56)*	*64 (44.44)*	*144 (100.00)*	
STI Testing				
No	66 (53.66)	57 (46.34)	123 (100.00)	0.27
Yes	14 (66.67)	7 (33.33)	21 (100.00)	
Total	*80 (55.56)*	*64 (44.44)*	*144 (100.00)*	
HIV testing				
No	9 (64.29)	5 (35.71)	14 (100.00)	0.48
Yes	70 (54.26)	59 (45.74)	129 (100.00)	
Total	*79 (55.24)*	*64 (44.76)*	*143 (100.00)*	

Section E: Multivariate Logistic Regression Modeling

4.20 Multivariate Logistic Regression Modeling of Inconsistent condom use (All partners)

The final results of a multiple regression model for inconsistent condom use (all partners) are shown in Table 4.20 below (*n=192*, p = < 0.05).

FCSWs with secondary school educational attainment were 2.18 times more likely to be inconsistent condom users (across all partners). This was statistically significant.

FCSWs who first had sex between the ages of 15 to 19 years were .39 times less likely to be inconsistent condom users (across all partners) than those who had when 14 years and younger . This was also statistically significant.

Table 4.20: Multivariate Regression Analysis for Predictors of Inconsistent Condom Use (all partners), n= 192, p= <.05

Characteristics	AOR	P Value	95% CI
Education Attainment			
Primary school (ref)			
Secondary school or higher	2.18	.02	1.52 – .92
Age of first sex			
<14 (ref)			
15-19	.39	0.03	.16 – .93
20-24	1.13	0.87	.29 – 4.42
>25	.10	0.06	.00 – 1.11

4.21 Multivariate Regression Analysis for Predictors of Inconsistent Condom Use (Clients) among FCSWs

The final results of a multiple regression model for inconsistent condom use (clients) are shown in in Table 4.21 below. The independent variables “residence duration” and “number of clients in the last seven days” are associated with the outcome variable “inconsistent condom use (clients)”.

FCSWs who had stayed in the residence area for more than four years were 7.2 times more likely to be inconsistent condom users than the reference group (FCSWs who had stayed in the area for once year or less).

The number of sexual partners in the last seven days is negatively associated with “inconsistent condom use (clients)”.

An increase in number of paying partners by one partner is associated with decreased likelihood of inconsistent condom use by 31% (0.69 times) (AOR .69, .52 – .92).

Table 4.21: Multivariate Regression Analysis for Predictors of Inconsistent Condom Use (Clients), n= 193, p= <.05

Characteristics	AOR	P Value	95% CI
Residence duration			
< 1 year *(ref)*			
Two years	3.5	.19	.54 – 22.38
Three years	6.1	.06	.92 – 41.23
Four years or more	7.2	.02	1.48 – 35.40
Number of clients in last seven days	.69	.01	.52 – .92

CHAPTER 5: DISCUSSION

5.1 Introduction

In this chapter, the results of this study will be engaged in drawing meanings, interpretations and implications in the light of related knowledge on the subject matter. Suggestions for future research are also drawn.

5.2 Education attainment as predictor for inconsistent condom use among all partners

In this study, FCSWs with secondary school education were more likely to be inconsistent condom users. This is not entirely surprising because education attainment has been shown to be both a protective factor and a risk factor. A study in Osogbo, southwestern Nigeria involving HIV Counseling and Testing (HCT) centre clients, higher education attainment was associated with non-condom use (Olowookere et al., 2013). In rural Uganda, a study showed a bivariate association between higher educational levels and HIV seroprevalence (Smith et al., 1999); in Kenya, FCSWs educated to secondary school level were 2.23 times more likely to change behavior than those without (Nyagero et al., 2012). In a longitudinal, population based study in South Africa, in multivariable survival analysis, one added year of education decreased the hazard of acquiring HIV by 7% (Bärnighausen et al., 2007). Therefore studies appear to present seemingly contradictory effects of attaining higher education as regards to HIV related outcomes. More educated FCSWs are likely to adopt more desirable behaviors than less educated FCSWs, this may be attributed to increased economic opportunities, and better HIV knowledge and attitudes. However, attaining more education does not automatically entail that an individual will have had acquired appropriate HIV related skills and knowledge. Hence education alone may not lead to positive behaviours unless it is infused with HIV prevention messages; even highly educated people may engage in risky behaviors (Zuilkowski and Jukes, 2012) .

5.3 Sexual debut as a predictor for inconsistent condom use among all partners

This study shows that FCSWs who delayed their sexual debut were less likely to be inconsistent condom users (across all partners). Various studies show that delayed sexual debut is positively is associated with consistent condom use among FCSWs and other young women in Africa. A study among FCSWs in Uganda showed that early sexual debut is associated with inconsistent condom use (Bukenya et al., 2013). In a Cameroun study, among adolescents with negative or unknown HIV status, older age at sexual debut was associated with a decreased risk for inconsistent condom use (Morris et al., 2009). Clearly, early sexual debut is associated with inconsistent among young women in sub-Saharan Africa.

Apart from inconsistent condom use, the findings support other observations that early sexual debut increases a range of adverse HIV related outcomes. For instance, a cohort study among women in Durban, South Africa which set out to ascertain the relationship between age of sexual debut and HIV seroprevalence showed that the highest seroconversion rate was observed among women who had reported to have had sex 15 years or younger (Wand and Ramjee, 2012). Early sexual debut has also been shown to be associated with risk of STIs and pregnancy among young people (Wand and Ramjee, 2012). Delaying sexual debut is therefore also protective for other behavioral outcomes.

The FCSWs who had early sexual debut in this study were can be inferred to have been sexually abused and this may have affected their sexual behaviors including inconsistent condom use. More than a third of the FCSWs (36%) in the study had their first sex under 15 years; and just under quarter (22%) constituted the reference group (first sex at 14 years or younger). This finding is collaborated by (DHS) (NSO and Macro, 2011) in which 14% of 15-24 years aged women has sexual debut before 15 years (NSO and Macro, 2011). The United Nations Convention on the Rights of the Child, defined children as persons up to the age of 18 years (Unicef, 2011) but in the Malawian constitution (section 23) the cut –off is at a lower age of 16 years (The Republic of Malawi, 2006).

The term “sexual abuse” means the actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions”(United Nations).

Some early sexual debut is part of sexual abuse or may happen because of sexual abuse and this may set precedence for future behaviors (Pettifor et al., 2009). A study in South Africa, Tanzania and Zambia showed that childhood sexual abuse is associated with early sexual debut, not using condom with recent partners and sexuality development and sexual preoccupation among women (Richter et al., 2007). In Malawi’s DHS, adolescent women’s early sexual debut was associated with high knowledge of condom sources, low educational attainment and a low wealth quintile (NSO and Macro, 2011). In a study in Tanzania, adolescent family characteristics, maternal orphan hood, peer pressure, alcohol use, parental and peer communication were key predictors of early sexual debut (Mmbaga et al., 2012). In the model of Finkelhor and Brown, child sexual abuse is conceptualised into four trauma-causing factors (called traumagenic dynamics) – traumatic sexualisation, betrayal, powerlessness, and stigmatization. What makes child sexual abuse unique is that these four conjunct in one set of circumstance (Finkelhor and Browne, 1985). The effects of childhood sexual abuse are explained as below:

> *“These dynamics alter children’s cognitive and emotional orientation to the world, and create trauma by distorting children’s self-concept, world view, and affective capacities. For example, the dynamic of stigmatization distorts children’s sense of their own value and worth. The dynamic of powerlessness distorts children’s sense of their ability to control their lives. Children’s attempts to cope with the world through these distortions may result in some of the behavioral problems that are commonly noted in victims of child sexual abuse.” (Finkelhor and Browne, 1985)*

The effects of childhood abuse may explain the predictive value of early sexual debut on inconsistent condom use.

FCSWs who delayed their sexual debut may have had different capacities to practice consistent condom use. Older adolescents may acquire the knowledge and skills to negotiate for sex (Mmbaga

et al., 2012). A qualitative inquiry in Nigeria showed that adolescents who practised abstinence possessed refusal skills to postpone sexual debut unlike their sexually active counterparts (Ankomah et al., 2011). A study in South Africa showed that delayed sexual debut participants had greater knowledge about HIV and AIDS and greater risk perception (Tenkorang and Gyimah, 2012). The effects of childhood abuse may not be well mediated among FCSWs because of the ubiquitous stigmatizing attitudes and the criminalization of sex work (WHO, 2011). The study's finding on sexual debut as a risk factor for inconsistent condom use expands our understanding on the risk behaviors' of Malawi's FCSWS.

5.4 Residence duration as a predictor of inconsistent condom use (clients)

The results show that FCSWs who had stayed in the area for over four years or more were more likely to be inconsistent condom users than those that had stayed for one year or less. This is a new finding as the studies reviewed did not have such a result. However there is a possibility that FCSWs who had stayed long in the area may have developed more stable relationships which other studies have shown to drive inconsistent condom use (Ngugi et al., 2012a, Yam et al., 2013b)- this is also collaborated by this study. The study shows that a substantial proportion of FCSWs had lived in the area four years or more (33.33%), therefore this risk factor may be true to a substantial segment of the FCSWs population. This study's finding that residence duration is a predictor of inconsistent condom use increases our knowledge on the FCSWs risk of and vulnerability to HIV infection.

5.5 Number of sexual partners in the last seven days as a predictor of FCSW inconsistent condom use (clients)

The results show that the FCSWs who had more number of sexual partners in the past seven days were less likely to be inconsistent condom users than those than had lesser numbers. This finding concurs with that of a Ugandan study where a higher number of partners in the last month was associated with lesser risk of inconsistent condom use (Bukenya et al., 2013). This does not imply

that an increase in number of sexual partners is protective because there are numerous risks linked to multiple partners. Sex workers are at higher risk for HIV because of their multiple and frequent sexual encounters, often unprotected, which magnify transmission rates to more than 100 times than among other people living with HIV (WHO, 2011). Possibly these increased partners are mostly clients' not stable boyfriends or non-paying partners - which this study and others have showed that FCSWs report more inconsistent condom use with them. Therefore this calls for the focus to be maintained on non-paying partners. This finding adds to our understanding of the dynamics of condom use among FCSWs and may help to reverse the HIV infection trends amongst FCSWs.

5.6. LIMITATIONS OF THE STUDY

Sampling bias may have occurred in the primary study due to the non-probability sampling. This may have resulted in a systematic difference between the characteristics of the people selected for a study and the characteristics of those who are not (Bonita et al., 2006). The participants who consented to be interviewed could possess some differences to those who did not. Furthermore, self-reported data may suffer from desirability bias and recall bias in the accuracy of these self-reports may be compromised because some health-risk behaviors are difficult to recall and some are so sensitive that respondents may not want to report them (Brener et al., 2003). In this study for example, the participants may not have recalled for instance the number of sexual partners in the last seven days and they may underreport condom use. And some participants may have reported more HIV knowledge due to desirability bias. Additionally, there were possible internal validity lapses as there were only two items that were used to measure HIV knowledge.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 Conclusions

High levels of inconsistent condom use and high HIV prevalence among FCSWs in Malawi and in sub-Saharan Africa necessitated this study; which sought to determine risk factors for inconsistent condom use among FCSWs in three Malawi districts in 2011. Through multivariate analysis, this study has demonstrated for the first time the independent predictors of consistent condom use among FCSWs in Malawi. Education attainment and sexual debut have been shown to predict inconsistent condom use across all partner types; while for among FCSWs clients, inconsistent condom use is predicted by residence duration and the number of sex partners in the previous seven partners. These findings enhance understanding of the burden of HIV among FCSWs in Malawi and will possibly be useful in informing commercial sex work interventions in that country and similar sub-Saharan Africa contexts.

The predictors for inconsistent condom use as shown in this study occur in a realm of heightened vulnerabilities for the risk of HIV infection among FCSWs. Having higher education attainment has protective effect because it expands the economic opportunities of FCSWs. For many FCSWS, their early age of sexual debut may infer sexual abuse – a determinant of risky behaviors in itself. The interplay of these factors in an environment of harmful legislation and policies for commercial sex work makes it harder for HIV prevention interventions to achieve a reversal of the epidemic as observed in Thailand where 100% condom use campaign for FCSWs was successful (WHO, 2011).

Curbing unsafe commercial sex work would effectively yield desirable HIV outcomes. Increase in consistent condom use would reduce the risk of HIV infection among FCSWs thereby reducing the number of deaths due to HIV among FCSWs. Increase in consistent condom use would also cut the proportion of HIV in the general female adult population that result from sex work. Therefore, FCSWs, their partners and clients, and the general population stand to benefit if consistent condom use is promoted and achieved among FCSWs in Malawi and similar sub-Saharan contexts.

To conclude, this study contributes to knowledge in public health by showing the predictors of inconsistent condom use – across partner types, in a generalized HIV/AIDS epidemic country (Malawi).

6.2 Recommendations

The recommendations from this study are set in the context of the findings and UNAIDS three pillars of an effective, evidence-informed response to HIV and sex work which are 1: Assure universal access to comprehensive HIV prevention, treatment, care and support, 2: Build supportive environments, strengthen partnerships and expand choices 3: Reduce vulnerability and address structural issues (UNAIDS, 2012). UNAIDS adopts a human rights based approach where every human being including FCSWs, is entitled to the highest attainable standard of health. The recommendations have been structured based on the socio-ecological model which suggests multilevel individual and socio-environmental factors as targets of health promotion interventions. The levels are intrapersonal, interpersonal, organizational, community and public policy (McLeroy et al., 188). The set of recommendations are theoretically informed by the social cognitive theory which posits that "human behavior is the product of the dynamic interplay of personal, behavioral, and environmental influences. Although it recognizes how environments shape behavior, this theory focuses on people's potential abilities to alter and construct environments to suit purposes they devise themselves"(McAlister et al., 2008).

Individual level recommendations

Increase awareness and risk perception among FCSWs and their partners to reduce inconsistent condom use with non-paying partners

The study has shown FCSWs are less likely to use condoms consistently if they are married or cohabiting. This is collaborated with the evidence that FCSW tend not to use condom with non-paying clients. There is need to raise awareness and risk perception among that risk population (FCSW, their partners - paying and non-paying, and general population at large) and the change

agents (policy makers, programmers, NGOs). Mass media, counseling, participation (involving the FCSW in the program planning and activities – a bottom-up approach), and tailoring (adapting the message to be specific and relevant for FCSW) are some of the methods that can achieve this recommended change objective. Commercial sex work interventions should enlighten FCSWs on the dangers of being married or having spousal partners and they should take appropriate measures to protect themselves and their partners if they are in that situation.

Organizational level recommendations

FCSWs interventions should receive more funding

Sex work interventions need increased funding to be able to have more impact on FCSWs. In 2012, only 1% of global funding for HIV prevention was being spent on HIV and sex work (UNAIDS, 2012). More funding would ensure that efforts to deal with inconsistent condom use among FCSWs are supported, and intensify solutions and scale up of efforts in sex work settings that currently no African country is doing (Okal et al., 2011).

Delayed sexual debut interventions should be encouraged

Abstinence or delayed sexual debut interventions should be maintained/strengthened/scaled up recognizing their protective benefits for vulnerable girls that may unfortunately end up in commercial sex work.

Organizations should provide microcredit and other economic opportunities for FCSW

Economic opportunities should be granted to FCSWS so as to limit their vulnerability that can lead to risky sexual behaviors like inconsistent condom use. FCSWs have to fend for their dependents and the majority of FCSWs do not have other sources of income. By providing them with economic choices in addition to sex work, micro-enterprise services may be a form of self-empowerment among FCSWs to assist them after they exit sex work or to reduce their overdependence on sex work (Matovu and Ssebadduka, 2012).

Provide FCSWs with educational and vocational choices

As shown in the current study, FCSWS have generally low education levels leading them to more risky behaviors and lack of skills that would expand their economic choices deliberate vocational skills should be accorded to earn them skills that are going to expand their economic opportunities. Chance for adult education should also be offered. As recommended by a study in Namibia (Fitzgerald-Husek et al., 2011), there are three E's : education, empowerment and economic independence' that are critical factors needed to encourage and facilitate consistent condom use to prevent HIV transmission.

Community recommendations

Increase peer support in encouraging 100% condom use particularly with non-paying clients (spouses or cohabitant)

Peer led interventions are effective among commercial sex workers. Peer mediated intervention was successful in the Sonagachi project in India where condom use was reported to have increased among FCSWs of poor background and of high risk of poor sexual health (Cornish and Campbell, 2009). Therefore, similar intervention should be implemented focusing on peer support in the FCSW communities in encouraging 100% condom use mainly with clients.

Public policy recommendations

Policy consideration for the decriminalization of sex work

It is agreed that the criminalization of sex work worsens the economic and sexual vulnerability of FSWS and has adverse impact on behaviors and consequently on their health, and by extension health of the entire population. Since this hampers their human rights and affects fight against HIV in every setting, sex work decriminalization would have extensive benefits. For a country heavily burdened by HIV, this option should be seriously considered. Numerous evidence and public health goals suggest decriminalization of sex work and empowerment of sex workers provide a context in which sex work is best approached (Chersich et al., 2013)

More focus should be given to regular non-paying partners

This study and others have shown that condom use among paying clients is much higher than the non-paying clients. HIV prevalence among them has also been shown to be twice as higher than clients. It would be very important to focus on the non-paying partners as the sub-target population since they are the bridge to the general population.

Increase the outcome expectations of policy makers to recognize that decriminalizing commercial sex will impact on the reduction of HIV infection in the country.

Policy makers must believe in the likelihood that decriminalizing commercial sex work will remove structural blocks to effective HIV prevention programming among FCSWs thereby impacting on the reduction of HIV infection due to sex work. Theoretical methods that could be used for this recommended change objective are systems change, participatory problem solving, coercion, and advocacy and lobbying.

6.3 Future research

This study has shown that there is need for further enquiry to increase understanding on HIV related behaviors among FCSWs in Malawi and sub-Saharan Africa. The following are some the areas that require further investigation:

- The nature of marriages/cohabitation among FCSWs
- The effect of education attainment on FCSWs sexual behavior
  Sexual behaviors of clients and intimate partners of FCSWs

6.4 Summary of chapter

The study has highlighted the risk factors for inconsistent condom use, an important risk behavior for an important population in HIV prevention efforts. Awareness and risk perception needs to be increase among the FCSW, their partners and the general population. The benefits of decriminalization of sex work needs to be seriously considered. More attention should be paid to the spouses and cohabiting partners of FCSWs.

APPENDICES

Appendix 1: Questionnaire

No.	Questions and filters	Coding categories	Skip to
	TIME STARTED	Hours |__|__| Minutes |__|__|	
Q 101	**How old are you?**	**Record Age in completed Years** ☐☐ Don't know 88 No Response 99	
Q102	**How long have you stayed in this area?**	Number of years ☐☐ ***Record 00 If less than 1 Year***	
Q103	**Have you ever attended school?**	Yes 1 No 2 **(Skip to>>)** No Response 99	**Q105**
Q104	**What is your highest level of education?** ***Circle one***	Primary 1 Secondary 2 Higher 3	
Q105	**What is your marital status?**	Single 1 Married/cohabiting 2 Widowed 3 Divorced/separated 4	
Q106	**What religion do you belong to?** ***Circle one***	No Religion 0 Christian 1 Muslim 2 Traditional 3 No Response 99	

Q107	**Currently, do you have any dependents?**	Yes 1 No 2 **(Skip to>>)** No Response 99	**Q109**
Q108	**How many dependents do you have?**	Number of people ☐☐ *No Response 99*	
Q109	**Do you have any other occupation apart from sex work?**	None 1 (Other- specify)_____2	

DEMOGRAPHIC CHARACTERISTICS

SEXUAL HISTORY AND TYPES OF PARTNERS

No.	Questions and filters	Coding categories	Skip to
Q301	*Now I will ask you about you and your sexual partners* **How old were you when you first had sex?**	Age in Years ☐ *Don't Remember 88* *No Response 99*	

Q302	**Of all the sexual partners that you have slept with in the past 7 days** **PAYING CLIENTS:** ***How many paid you?*** **NON-PAYING CLIENTS:** ***How many did not pay you (including your husband, main partner or boyfriend)?***	**PAYING CLIENTS** *No Response 99* ☐ **NON-PAYING PARTNERS** *No Response 99* ☐	
Q303	**How many people in total have you slept with in the last 7 days?** INCLUDE SPOUSE(S), AND LIVE-IN SEXUAL PARTNERS NOTE: *Check total numbers of partners in q302 and q303 to make sure that the numbers match.*	Number in last 7 Days ☐ *Don't know 88* *No Response 99*	

Sexual History: Paying clients

No.	Questions and Filters	Coding categories	Skip to
Q304	**How old were you when you first received payment for sex work?**	Age in Years ☐ *Don't Remember 88*	

Q305	**How many clients did you sleep with the last day you went for sex work?**	Number of clients ☐	
Q306	**How much did your last client pay you?**	MK…… None 2 No Response 99	
Q307	**Did you use a condom with your last client?**	Yes 1 No 2 **(Skip to>>)** No Response 99	**Q309**
Q308	**Who suggested condom use at your last sex?** CIRCLE ONE	Myself 1 My partner 2 **(Skip to>>)** Joint decision 3	**Q400**
Q309	**Why didn't you use a condom at your last sex>** CIRCLE"1"IFANSWERED AND CIRCLE "2" IF NOT MENTIONED	**Y N** Not available 1 2 Too expensive 1 2 Partner objected 1 2 Don't like them 1 2 Used other contraceptive 1 2 Didn't think it was necessary 1 2 Didn't think of it 1 2	
Q 400	**How often have you used a condom with your sexual partners in the last 30 days?**	Always 1 Sometimes 2 Never 3 No Response 99	

Sexual History: Non-paying partners

No.	Questions and Filters	Coding categories			Skip to
Q 401	**For your recent non-paying partner, how many times have you slept with him in the last 30 days?**	Number of times			
		Don't Remember	**88**		
		No Response	**99**		
Q 402	**The last time you has sex with this non-paying partner, did you use a condom?**	Yes	1		
		No	2 **(Skip to>>)**		**Q404**
		No Response	99		
Q403	**Who suggested condom use?**	Myself	1		
	CIRCLE ONE	My partner	2		**Q405**
		Joint decision	3		
		No Response	99		
Q404	**Why didn't you use a condom?**		**Y**	**N**	
		Not available	1	2	
		Too expensive	1	2	
	CIRCLE"1" IF ANSWERED AND CIRCLE "2" IF NOT MENTIONED	Partner objected	1	2	
		Don't like them	1	2	
		Used other contraceptive	1	2	
		Didn't think it was necessary	1	2	
		Didn't think of it	1	2	
		Could reduce the pleasure	1	2	
		Itching	1	2	
		Wanted pregnancy	1	2	
Q405	**How often have you used a condom with non-paying clients in the last 30 days?**	Always	1		
		Sometimes	2		
		Never	3		
		No Response	99		

CONDOMS

No.	Questions and Filters	Coding categories	Skip to
Q501	**Have you and you sexual partners ever used a male condom?** The respondent may not have used a condom with partners mentioned above, but may have used a condom at some other time in the past.	Yes 1 No 2 No Response 99	
Q502	**Have you ever heard of the male condom?**	Yes 1 No 2 No Response 99	
Q503	**Have you ever purchased a male condom?**	Yes 1 No 2 **(Skip to>>)**	**Q506**
Q504	**Right now, how many male condoms do you have? May I please see them?**	Number of male condoms ☐ No 88	
Q505	**Do you a place or a person where you can find male condoms?**	Yes 1 No 2 **(Skip to>>)**	**Q508**

Q506	**Where can you find a male condom?** **PROBE AND RECORD ALL ANSWERS** **Where else?**		**Y** **N**	
		Shop	1 2	
		Pharmacy	1 2	
		Market	1 2	
		Clinic	1 2	
		Hospital	1 2	
		Family planning centre	1 2	
		Bar/guesthouse/hotel	1 2	
		Peer educator	1 2	
		Other specify		
Q507	**How long can it take you to get to where you can find a condom from your house or place where you work?**	Under15 Mins	1	
		15 to 30 Mins	2	
		31 to 60 Mins	3	
		Morethan60Mins	4	
		Don't know	88	
		No Response	99	
Q508	**Have you ever heard of a female condom?**	Yes	1	
		No	2	
Q509	**Have you ever used a female condom?**	Yes	1	
		No	2	
		No Response	99	
Q510	**Right now, how many female condoms do you have or how many can you find for you to use?**	Number of female condoms	|__|	
		None	88	
		No Response	99	
Q511	**Do you a place or a person where you can find female condoms?**	Yes	1	
		No	2 **(Skip to>>)**	**Q515**
		No Response	99	

Q512	**Where else or from whom would you find female condoms??** PROBE AND RECORD ALL ANSWERS		**Y**	**N**	
		Pharmacy	1	2	
		Hair salon	1	2	
		Clinic	1	2	
		Hospital	1	2	
Q513	**How would you like to access these condoms?**	Through the hospital		1	
		Through community clubs		2	
		Through outlets in our area		3	
Q514	**How long can it take you to get to where you can find a condom from your house or place where you work?**	Under 15 Mins		1	
		15 to 30 Mins		2	
		31 to 60 Mins		3	
		More than 60 Mins		4	
		Don't know		88	
Q515	**What are the reasons why you and your sexual partners may not use a condom?**	Regular sexual partner		1	
		Client agrees to pay more money		2	
		Coerced into unprotected sex		3	
		Drunkenness		4	
		They say they are not HIV positive		5	
		Other		6	

KNOWLEDGE, OPINIONS, AND ATTITUDES

	Questions and filters	**Coding categories**		**Skip to**
Q600	**Have you ever heard of HIV and AIDS?**	Yes	1	
		No	2 **(Skip to>>)**	**Q700**
		No Response	99	
Q601	**Do you know anyone who has HIV or died because of AIDS?**	Yes	1	
		No	2 **(Skip to>>)**	**Q603**
		No Response	99	

Q602	**Do you have a close friend who has HIV or has ever died of AIDS?**	Yes a Close Relative Yes a Close Friend No No Response	1 2 3 99	
Q603	**Can people protect themselves from contracting HIV and AIDS by using condoms correctly every time they have sex?**	Yes No No Response	1 2 99	
Q604	**Can people protect themselves from contracting HIV and AIDS by have one faithful uninfected partner?**	Yes No No Response	1 2 99	

No.	Questions and Filters	Coding categories		Skip to
Q700	**Have you ever tested for STIs?**	Yes No No Response	1 2 **(Skip to>>)** 99	**Q702**
Q701	**How often do you test for STIs?**	Every month Once in a quarter Once half year Once in a year	1 2 3 4	
Q702	**In the last 12 months have you had an STI?**	Yes No	1 2	

Q703	**Sometimes people have a foul discharge from their reproductive parts, in the last 12 months did you ever get this?**	Yes 1 No 2 No Response 99	
Q704	**The time you got this foul discharge did you ask anyone for assistance or receive any assistance?**	Yes 1 No 2 No Response 99	
Q705	**Where/Who did you ask for assistance** Probe for answers. Do not read choices Multiple responses possible	Clinic/hospital/doctor 1 Traditional healer 2 Shop/pharmacy 3 Relative 4 Friend 5 Other (Specify)_____96	
Q706	**The time you had this foul discharge or soles from your reproductive organs did you do anything to protect your sexual partners?**	Yes 1 No 2 No Response 99	
Q707	**Have you ever tested for HIV?**	Yes 1 No 2 **(Skip to>>)**	**Q709**
Q708	**If they haven't tested, why haven't they?**	Fear of stigma and discrimination 1 Low perceived risk 2 Fear of testing positive 3 Other specify_____	
Q709	**How often do you go for HIV testing?**	Every month 1 Once in a quarter 2 Once half year 3 Once in a year 4	

Q710	**Where do you test for HIV?**	Hospital/Clinic/Dispensary 1 Macro 2 Lighthouse 3 Mobile VCT 4 Other (Specify)_____96	
Q711	**Did you get results?**	Yes 1 No 2	
Q712	**Did you receive counseling when you went for testing?**	Yes 1 No 2 No Response 99	
Q713	**Are you on ARVs?**	Yes 1 No 2 No Response 99	
Q714	**Why aren't you on ARVs?**	Don't know where to access it? 1 Haven't been recommended by doctor 2 Other 3	

Thank You

Time Finished----------Total time taken: _----------

Appendix 2: Letter of permission to use data

Pakachere Institute of Health & Development Communication

Delemere House, 4th Floor South Wing, Victoria Avenue. | P.O. Box 30248, Chichiri, Blantyre 3. Malawi.
Telephone: +2651 831 661 / 663 | Fax.: +265 1 831 771 | E-mail: info@pakachere.org

1 August 2013

TO WHOM IT MAY CONCERN

Dear Sir / Madam,

PERMISSION FOR USE OF DATA

We write to confirm that Ken Limwame has been permitted to use data collected during AIDSFonds funded Pakachere's HIV Prevention among Female Sex Workers project baseline study. The data was collected in October, 2011.

Ken Limwame is a second year Master of Public Heath (Social and Behaviour Change Communication) student at University of Witwatersrand student. His student number is 679875. At the time of the data collection, Ken was employed by us and was part of the original study.

The permission is granted to be used in his research project titled "Risk Factors for Inconsistent Condom Use among Female Commercial Sex Workers in Malawi" as partial fulfillment for the completion of the above mentioned degree.

Any cooperation and assistance given to him will be highly appreciated.

Sincerely

Chinthemwa Mkandawire

Finance and Administration manager

Pothera Nkhani!

Appendix 3: Ethics Approval Letter

R14/49 Mr Ken Limwame

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M131146

NAME: (Principal Investigator)	Mr Ken Limwame
DEPARTMENT:	School of Public Health Pakachere Institute,Blantyre, Malawi
PROJECT TITLE:	Risk Factors for Inconsistent Condom use among Female Commercial Sex Workers in Three Malawian Districts in 2011
DATE CONSIDERED:	29/11/2013
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Nicola Christofides
APPROVED BY:	Professor PE Cleaton-Jones, Chairperson, HREC (Medical)
DATE OF APPROVAL:	02/12/2013

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Secretary in Room 10004, 10th floor, Senate House, University.
I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. **I agree to submit a yearly progress report**.

Principal Investigator Signature Date

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

Appendix 4: Plagiarism Form

Faculty of Health Sciences, Postgraduate Office
Phillip V Tobias Building, 2nd Floor
Cnr York & Princess of Wales Terrace, Parktown 2193
Tel: (011) 717 2745 | Fax: (011) 717 2119
Email: Mathoto.senamela@wits.ac.za

PLAGIARISM DECLARATION TO BE SIGNED BY ALL HIGHER DEGREE STUDENTS

SENATE PLAGIARISM POLICY: APPENDIX ONE

I KEN LIMWAME (Student number: 679875) am a student registered for the degree of MASTER OF PUBLIC HEALTH in the academic year 2014.

I hereby declare the following:

- I am aware that plagiarism (the use of someone else's work without their permission and/or without acknowledging the original source) is wrong.
- I confirm that the work submitted for assessment for the above degree is my own unaided work except where I have explicitly indicated otherwise.
- I have followed the required conventions in referencing the thoughts and ideas of others.
- I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my own unaided work or that I have failed to acknowledge the source of the ideas or words in my writing.
- I have included as an appendix a report from "Turnitin" (or other approved plagiarism detection) software indicating the level of plagiarism in my research document.

Signature: [signature] Date: 02/09/2014

Appendix 5: Level of plagiarism ("Turnitin") report

REFERENCES

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