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Socio-demographic factors associated with retention of female sex workers in healthcare in Hillbrow and Pretoria sex worker clinics

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Socio-demographic Factors Associated with Retention of Female Sex Workers in Healthcare in Hillbrow and Pretoria Sex Worker Clinics.

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Declaration

I Rutendo Bothma, declare that this research report is my original work. It is being submitted in partial fulfilment of the requirements for the degree of Master of Public Health, in the field of Health Systems and Policy in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other University.



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Abstract

Introduction: Female sex workers (FSWs) have increased vulnerabilities to violence, STIs and HIV infection, which are often exacerbated by the social conditions of their occupation. Furthermore, there are political, social and structural factors that hinder their utilisation and retention in healthcare. The aim of this study was to understand how FSWs in two South African urban settings (Johannesburg and Pretoria) remained in care over a five-year period, and factors which shaped these patterns of retention.

Methods: This was a retrospective cohort study. It utilised secondary analysis of routine data collected on sex workers in the Wits Reproductive Health and HIV Institute (Wits RHI) sex worker programme. The study population was FSWs who were of any nationality and 18 years or older. Descriptive statistics were conducted to describe the study setting, profile of the FSWs and levels of retention. Retention was defined as having more than one clinic visit during the study period, 2013 to 2017. Bivariate analysis was performed to determine crude associations between socio-demographic and other factors and the dependent variable, retention. A multivariate logistic regression model was fitted to detect independent associations between the retention and the independent variables.

Results: Data was available for 7 624 FSWs, (5 737; 79%) accessed services in Johannesburg and (1 546, 21%) accessed services in Pretoria. The average age of FSWs accessing Wits RHI services was 29 years, with a standard deviation (SD) of 6.5. A quarter of them were between 18-24 years old. Retention in care was low, with only over a third (37%) of all FSWs accessing the clinic more than once within the study period. Independent variables that influenced retention included older age (AOR: 1.48, 95% CI: 1.13-1.93), accessing services in Pretoria (AOR: 1.78, 95% CI: 1.45-2.19), accessing services at a fixed clinic (AOR:0.70, 95% CI: 0.59-0.85), and Zimbabwe as country of birth (AOR: 1.31, 95% CI: 1.07-1.51).

Conclusion: The low retention reported in this study highlights the need for creating an enabling environment that encourages FSWs to be continuously engaged in health care when they need services. The high proportion of young, new and foreign FSWs

indicates the importance of designing programmes that are acceptable and prioritise the different needs of FSWs. The data analysed in this study indicate the need for a combination package of services to provide interventions that address biological, social, and structural determinants of poor health, tailored to the priorities, and needs of this group. Overall, the findings from this study contribute to the knowledge of factors that drive retention and the gaps programmes can address to keep FSWs engaged in healthcare services.

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This is for my daughter, Anodiwa – you attended your first Epidemiology class at just two weeks! Your resilience at just two weeks still amazes me. Every day you remind me what unconditional love is.

Thank you

ABBREVIATIONS AND ACRONYM LIST

Acronym	Meaning
AIDS	Acquired Immuno-Deficiency Syndrome
ART	Antiretroviral Therapy
CBD	Central Business District
FSWs	Female Sex Workers
GBV	Gender-Based Violence
GTI	Gastro-intestinal Tract Infection
HIV	Human Immuno-deficiency Virus
HPV	Human Papilloma Virus
Human Research Ethics Committee	HREC
HTS	HIV Testing Services
PHC	Primary Health Care
PEP	Post-Exposure Prophylaxis
PrEP	Pre-Exposure Prophylaxis
SOA	Sexual Offenses Act
SRH	Sexual and Reproductive Health
STI	Sexually Transmitted Infection
TB	Tuberculosis
UNAIDS	Joint United Nations Program on HIV/AIDS
WHO	World Health Organization
Wits RHI	Wits Reproductive Health and HIV Institute

Chapter 1: INTRODUCTION

Globally, substantial strides have been made to improve female sex workers' (FSWs) access to healthcare, such as developing a global health agenda for sex workers (1-3). However, there is limited research on what influences FSWs to take up such services and how the health system can be better equipped to retain FSWs in these services.

FSWs bear a disproportionate burden of the human immunodeficiency virus (HIV) globally and have a high prevalence of sexual and reproductive health (SRH) problems (4, 5). Establishing HIV prevalence among sex workers is challenging because they are poorly represented in HIV surveillance systems, highly stigmatised, and are often a hard to reach population (6). An estimated 37% of FSWs in Sub-Saharan Africa are living with HIV, three times the estimated global HIV prevalence among FSWs (11). According to recent studies, South African FSWs have an HIV prevalence of between 40% and 88.4% (7-9), highlighting the extreme vulnerability to HIV faced by this group.

In South Africa, sex work is criminalised and often characterised by police violence, stigma and social exclusion (10). The clandestine nature of sex work presents a challenge when attempting to determine the actual extent of the sex work industry. Nevertheless, accurate estimates of population sizes are important for planning and provision of health services to populations with specific needs. Using different size estimation methods, the FSW population in South Africa has been estimated to be 138 000, with 22% in Gauteng (7, 11). These estimates are important as they inform health and support services required for sex workers and show that FSWs cannot be ignored within the healthcare system. Furthermore, given the highly stigmatised nature of the work, it is crucial that health programmes make specific efforts to address the healthcare needs of FSWs as a vulnerable and marginalised group.

1. Literature Review

This literature review discusses the health needs of FSWs, and various FSW programmes created to address these needs, with a specific focus on low-and middle-income countries (LMIC), particularly sub-Saharan African countries. It also reviews

findings from studies assessing health service access amongst FSWs and the factors that influence access. It concludes by describing what we know about retention in healthcare among different populations, with a specific focus on FSWs.

1.1 Health vulnerabilities of FSWs

The health issues faced by FSWs are mostly discussed in current literature in the context of the HIV epidemic. However, women who are engaged in sex work often experience considerably worse reproductive, mental and physical health issues compared to women in the general population (12). Their vulnerability to these health problems is often aggravated by their occupational context, which is characterised by multiple sexual partners, associated behavioural risk factors such as alcohol and substance use, high exposure to violence, and inconsistent condom use (13, 14). FSWs are more susceptible to viral infections such as genital herpes and hepatitis, which can lead to liver failure (1, 15). In addition, pelvic inflammatory diseases, unplanned pregnancies, unsafe abortions, mother-to-child HIV transmission, and maternal mortality rates are more pronounced in this population because of their occupation (15, 16). FSWs also experience a high prevalence of other sexually transmitted infections (STIs), such as gonorrhoea, syphilis (17, 18), and Human Papilloma Virus (HPV) infection (which places them at heightened risk of cervical cancer (19)). Furthermore, their higher exposure to gender based violence (GBV), particularly sexual assault, further contributes to poor SRH outcomes, as they tend to be disempowered to negotiate safe sex practices (20).

High mobility can further contribute to poor health status amongst FSWs. A study conducted in India showed that mobile FSWs were more than twice as likely to report violence than those who were not, they were also twice as likely to be infected with HIV compared to their counterparts (21).FSWs with illegal immigrant status are often refused health care because they do not have identity documents and are targeted by xenophobia (7, 22). This also has implications on retention as they may shy away from clinical services out of fear of being reported to the police or of being treated poorly because of their foreigner status.

Despite the many health problems they experience, FSWs in South Africa encounter several barriers when accessing healthcare due to the discrimination and stigma related to their work (5, 7), which exacerbates their vulnerability and encumbers their access and retention in health services (23).

1.2 FSW health programmes

Sex work functions within a wide variety of settings, ranging from formal hotels and brothels to more informal set-ups such as street-based hotspots or homes (24-26). This heterogeneity calls for different models of health service delivery for FSWs in order to ensure that health services are accessible for all FSWs in each type of setting (27). Different approaches have been developed in Africa to reach sex workers with health services. In some places there are targeted, vertical services specific for those who identify as sex workers (25, 28, 29) . In other settings, sex worker services are integrated into mainstream health facilities for the general population. In either model, or approach, community outreach activities tend to be implemented, which often involve peer educators or peer navigators, a mobile clinic or a community clinic team (5).

Specialised FSW services in Africa started as early as the 1980s but fewer than half of the countries in the continent currently provide health services specifically for FSWs, with most services being linked to a research project (5). Zimbabwe and Kenya were among the first African countries to establish a peer educator programme among FSWs and this intervention resulted in increased adoption of safer sex practices such as condom and lubricant use (30). Programmes targeting FSWs in sub-Saharan Africa and South Asia have largely focused on HIV prevention and care. Within targeted FSW services, access to other SRH and GBV services is limited in these countries (31, 32).

In Africa, services for FSW are mostly located at sex work hotspots, for example, at truck stops, borders, ports and mining areas, with some countries also providing rural-based services on farms or near mines (25, 33, 34). Programmes combining outreach to FSWs with peer education and improved access to STI services have been described in Kinshasa (35), Nairobi and Zimbabwe (30), Tanzania (36), and elsewhere (37-39). Most of these programmes are donor funded and the package of clinical

services usually includes condom distribution, HIV testing and counselling (HCT), STI education, screening and syndromic management of STIs.

From 2010 onwards, efforts in South Africa have focused on developing, testing and scaling up health services for sex workers. Programmes funded by the Global Fund, the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) and the South African Government now reach as many as 35 000 to 40 000 sex workers (40). Some sites include basic primary health care services, cervical cancer screening, testing for HPV subtypes, and some support for structural interventions such as GBV prevention programmes (5). As in other settings on the continent, service delivery to sex workers in South Africa is predominantly donor funded, which sometimes leads to duplication of services because of poor coordination between different programmes.

1.3 FSWs accessing health care

Health care access for FSWs is a central dimension to retention. Individuals cannot be "retained in health care" unless they first access health services. As such, in practice, access and retention are interlinked. Equity is a guiding principle for the Universal Access agenda within national programmes. Hence, there has been a shift in public health systems in sub-Saharan Africa to prioritise key populations, including sex workers (41, 42). Universal access to healthcare has three elements (43-46);

1.3.1 Physical accessibility

This refers to the availability of good healthcare services within reasonable reach of the population that needs them. It also refers to opening hours of health facilities, appointment systems and other aspects of service delivery that permit people to seek health services when they need them. Due to the nature of their work, FSWs often require late closing times from health facilities. Community outreach is a cornerstone to most FSW programmes as this ensures that healthcare is within walking distance from the FSWs' place of work or residence.

1.3.2 Financial affordability

This measures the ability of people to pay for services without them becoming a financial burden. Health financing is one of the building blocks that contribute to the WHO Health System Framework, which promotes health systems strengthening (47). It aims to ensure that the cost of accessing health services does not put people at risk of financial hardship. It considers not only the price of the health services but also indirect and opportunity costs (e.g. travelling to and from facilities and of taking time away from work). Affordability is influenced by household income and by the broader health financing system (47). For most FSWs, taking time to visit a health facility means not seeing clients, which ultimately translates to loss of income. This opportunity cost could hinder FSWs from accessing health services.

1.3.3 Acceptability

This concept captures people's willingness to seek services, partly based on whether they consider these services to be appropriate. Sekhon et al (48), proposed that acceptability is a multi-component construct which includes the recipient's need for services and whether those services are suitable for their need. In the case of FSWs, studies have shown that there is often a delay or unwillingness to seek health services, attributed to a lack of knowledge of symptoms for illness, or to a denial of their ill-health status (49-51) until they are incapacitated and unable to work. In addition, predisposing factors such as moral judgement and stigma from their communities and from healthcare workers themselves can also contribute to low acceptability of health services among FSWs as they are afraid of being exposed or labelled immoral (50, 52, 53). In light of this, acceptability is not only defined by the health needs of an individual but also by whether those services are deemed appropriate and acceptable in meeting their needs.

1.4 Determinants of FSWs access to health care

1.4.1 Context and type of services

To ensure that sex workers have access to health care, South Africa developed a national sex worker HIV plan in 2016 which aims to provide a minimum package of services to all sex workers (40). This plan provides for HIV prevention, treatment,

psycho-social support, legal support and economic empowerment. Despite the existence of such a plan, sex work is still a crime in South Africa, according to the Sexual Offenses Act (SOA) (54). This criminalisation exacerbates sex workers' vulnerability to violence, harassment and abuse by clients and by law enforcement officials which impedes their access to justice services (55). When it comes to accessing health care services, criminalisation of sex work means that FSWs are often subjected to prejudice and discrimination by health care providers (56, 57). This prejudice is manifested in rejection, disapproval, and suboptimal services, prioritising of non-stigmatised groups, and delayed consultations for family members (57).

The evidence on FSW's poor access to health services begs the question of whether this access would improve if SRH and HIV services were designed to target them specifically, rather than being directed at the general population. A study conducted in three sub-Saharan African cities showed a marked increase in health service uptake for FSWs through targeted clinical services (58). Cervical cancer screening for South African FSWs in Durban increased from 0% to 5.5% when FSW-targeted outreach services were provided (58).

1.4.2 Education

Education is one socio-demographic characteristic that may influence how people access health services. In Rajahmundry, India, researchers concluded that FSWs who were illiterate were less aware of community health initiatives compared to those who were literate or had formal education (59). Literate FSWs could read about the health initiatives whereas their illiterate counterparts required face-to-face interactions with the project teams. Additionally, Sohler et al (60) determined that women from marginalised groups with low education are unaware about where and how to access health services.

1.4.3 Social support

Healthcare access may also potentially be affected by the extent to which FSWs have social support, either from family or intimate partners. Benoit et al. (61) studied the benefits and constraints of intimate partnerships for HIV positive sex workers in Kibera

in Kenya and found that some of the FSWs who had intimate partners received more health support than those who did not. This support included adherence encouragement, accessing HIV services and financial support for medical services (61), implying that if programmes draw on FSWs' main partners, they could leverage their support as a resource to improve adherence to HIV services amongst FSWs.

1.5 Retention in health care among FSW

Although South Africa has in recent times made commendable efforts to provide health care access for FSWs, these efforts could be futile if sex workers are not retained in care. If FSWs are not retained in care, they will not be able to benefit from available SRH services and support, such as contraception services, cervical cancer screening, and counselling and referral following GBV, among others. Furthermore, retention in care is pivotal in reducing treatment failures and drug resistance in HIV programmes, and also reducing unintended pregnancies and SRH morbidity (62). Tracking retention in care over time is an important aspect of understanding how FSWs are engaging with health services. Understanding the factors that affect retention in care is crucial to designing effective programmes and achieving improved health outcomes for sex workers.

While scanty, some of the literature on FSWs' retention in care deals with how they are retained across HIV treatment cascades (4). The treatment cascade refers to the different "stages" in the HIV care continuum, from HIV status awareness, to linkage to care, engagement and retention in care, antiretroviral treatment (ART) initiation, and viral load monitoring (63). In Burkina Faso, sex workers who were receiving ART initially reported adherence similar to other women enrolled in the ART programme, but due to poor retention in care, they experienced higher rates of virological failure within the first six months (20.6% vs 2.8% $p = 0.03$) (64).

A project piloted in South Africa to support integration of oral PrEP and early ART among FSWs reported an overall retention rate of 37% at 12 months, a significant decrease from the 65% reported one month after participants were enrolled (65). The study also showed that HIV-negative FSWs who were retained in care after one year remained negative, supporting the need to encourage all FSWs, regardless of HIV

status, to remain in health services (65). In addition, health services should also be designed and delivered in a way that facilitates FSWs to remain engaged in health services.

Additional research has shown how access alone is not a satisfactory marker of successful engagement of FSWs in health services. A study carried out in Zimbabwe showed that more than 80% of HIV-positive sex workers did not attend more than one clinic appointment after being referred from sex worker clinics (4). This was linked to the stigma and discrimination that the sex workers experienced when they accessed the clinics. Although these sex workers did initially access care, the health workers' attitude towards them discouraged them from returning to the clinics. Similarly, in Rwanda, FSWs receiving HIV care were more likely to be retained in care if they had a positive experience with a health care provider (66). In the Dominican Republic, FSWs who had positive perceptions of their HIV service provider had higher odds of being retained in health care compared to their counterparts who did not hold similar positive perceptions (67). These studies show that FSWs' attrition in health care is not only influenced by access to services but also by the quality and environment of the health services. If people have access to health care but they have a bad experience they are most likely going to be lost to care as they fear that they will encounter the same experience if they go back.

Additionally, FSWs also face greater challenges to retention in care than the general population because of their mobility, which is often motivated by several reasons such as avoiding harassment from clients, the police or brothel owners, as well as looking for more lucrative sites to work in (68). This mobility makes it difficult for them to remain continuously engaged in health care.

Since published literature on retention in care amongst FSWs is somewhat thin, it may also be useful to draw lessons from studies of retention in other populations. In a study that sought to quantify the effect of poor retention in care on survival amongst HIV-infected men taking ART, more deaths were reported amongst people who had poorer retention in care compared to those who remained in care (69). The study also showed that people who attended all their quarterly clinic visits within the one year of observation had the best clinic outcomes (CD4 count, viral load suppression) compared

to those who only attended one of four clinic visits (69). Although this study was only conducted amongst HIV positive men, it lays a foundation to understanding the effects of retention on health outcomes and survival, not only for HIV infection but also for other infections and chronic diseases in other vulnerable populations.

Mugavero and colleagues (70) conducted a study with predominantly men who have sex with men (MSM) at the Birmingham 1917 HIV/AIDS Clinic in the United States of America and showed similar results to the study mentioned above. They observed a two-fold increase in mortality rates for HIV patients who missed clinic visits compared to patients who attended all their clinic visits in the first year of care (70). In terms of determinants of retention, the study identified more missed clinic visits among younger, black patients who had substance abuse problems (70).

Other studies conducted in general communities have also shown that cultural and socio-demographic characteristics play a role in shaping retention in care (71, 72). Studies conducted in rural Swaziland (Shiselweni) (73), a densely populated township in South Africa (Khayelitsha) (74) and a mining area north-west of South Africa (Rustenberg) (75), reported that young age (< 30 years old) was significantly associated with disengagement in ART services. These results are important to consider in assessing FSW programmes, where socio-demographic characteristics may be similarly associated with missed visits and other indices of poor retention in care.

2. Problem Statement

FSWs and their male clients are among the core HIV transmission groups in sub-Saharan Africa, and sex work is a vital contributor to the patterns of HIV transmission in this region (76, 77). It is estimated that 6 to 20% of all heterosexual HIV transmission in South Africa is attributed to FSWs and their male clients (7).

From 2002, there have been calls to design FSW programmes to address SRH care for this group as an intervention to control the HIV epidemic (78). Despite these calls, the sex worker population on the continent has remained marginalised and overlooked by most HIV and other health services programmes. This began to change, possibly influenced by the emergence of evidence in the early 2000s, which demonstrated the

role of sex work in driving the epidemic (79). Since then, there have been reinvigorated efforts to explore ways to reach sex workers and provide them with appropriate health care services, with substantial progress made in offering health care to this largely hidden population (80).

The question remains: targeted health services for FSWs have expanded, but has there been an increase in uptake and actual utilisation of these services? Several studies have highlighted the barriers encountered by FSWs when accessing health care but there is still limited knowledge about the levels of retention and the factors associated with it (4, 57, 81, 82). The high burden of STIs and HIV among FSWs, their role in the HIV (and STIs) epidemic, together with the evidence on the health benefits of retention in care, highlight the importance of tackling this question, in order to strengthen programmes that encourage FSWs to remain in health care.

3. Aims and objectives of the study

The aim of this study was to understand how FSWs accessing targeted health services in South African urban settings remain in care over a five-year period, and what socio-demographic factors contribute to shaping retention in care.

The study objectives relate to routine, targeted health services provided to FSWs at two Wits Reproductive Health and HIV Institute (Wits RHI) sex worker clinics, between 2013 and 2017. These objectives are:

i. To describe the socio-demographic characteristics of FSWs accessing health care services in the two clinics.
ii. To describe the primary reason FSWs access healthcare at the two clinics.
iii. To describe the levels of retention among FSWs receiving healthcare services at the two clinics
iv. To identify the factors associated with retention in care amongst FSWs receiving health care services at the two clinics.

3.1 Nomenclature

This study adopted the definition of sex work as proposed by UNAIDS which is “any agreement between two or more persons in which the objective is exclusively limited to sexual act and ends with that and which involves preliminary negotiations for a price” (26). While sex workers can be men, women or transgender adults, , the study focuses solely on FSWs.

4. Conceptual Framework

Retention in health care is complex. Theoretical or mathematical models developed for healthcare include explaining health service utilisation with a focus on socioeconomics, physical access, culture, illness and belief perceptions and gender and other social determinants of health (83). The conceptual framework for retention in care used in this study was adapted from the Gelberg-Andersen’s behavioural model for vulnerable populations (84). The model describes health access as being influenced by pre-disposing characteristics (demographics, social structures and the physical environment), the existence of an enabling environment (health services, accessibility and ability to use these services) and the health need of individuals. An individual’s health need includes both their perception of their own health status (perceived health need) and how medical practitioners judge that individual’s need for care (evaluated health need) (83, 85, 86). Gelberg and Andersen expand this model by encompassing specific vulnerabilities associated with marginalised groups, such as high-risk behaviours (alcohol and substance abuse) and homelessness (84).

The Gelberg-Andersen behavioural model has not previously been used to determine factors that influence engagement in care. However, it has been adapted for this study to show the linkage between health needs, health programmes and access to care, which are central to retention in care. Considering the social context of South African FSWs and their health challenges described above, this adapted model aims to show that each of the elements are interlinked and have an ultimate relationship to the question of how FSWs are retained in healthcare.

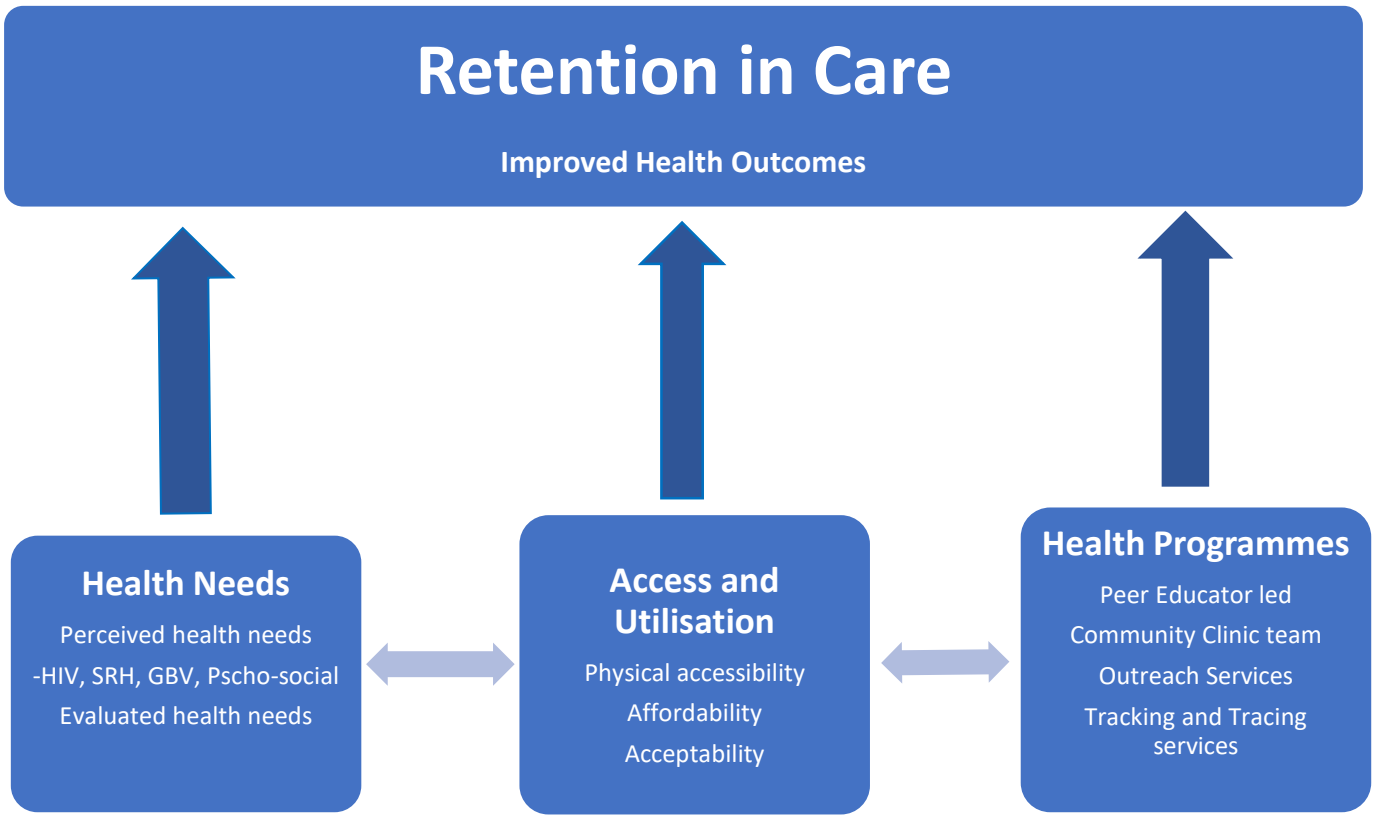

Figure 1: Conceptual Framework for Retention in Care (adapted from the Gelberg Anderson model (84)

5. Justification for the study

The UNAIDS 2020 targets aim to achieve a 90% rate of diagnosis in people living with HIV, a 90% rate of ART coverage in HIV-diagnosed individuals and a 90% rate of virological suppression in patients on ART (87). South Africa has made headway in reaching the 90% HIV diagnosis target, however progress on the last two targets remains challenging in most of the country's nine provinces (88). This suggests that there is an urgent need to understand what is happening in the HIV treatment cascade, and design strategies to decrease attrition in the continuum of care. Published studies on retention in care amongst FSWs have mostly been done in research settings or clinical trials (64, 89, 90). This makes it important to understand retention in care amongst FSWs in routine service delivery programmes, where conditions are less controlled, and to look beyond HIV to include broader SRH services for FSW. This understanding will support programme design, adaptation and implementation of more

effective targeted interventions for FSWs. Additionally, having this knowledge will support identification of a subset of more vulnerable FSWs whose cultural and socio-demographic characteristics portend poor retention in care.

Chapter 2: METHODOLOGY

2.1 Study Setting

This study is set within the context of clinics in Johannesburg and Pretoria providing healthcare services to FSWs. Hillbrow is a densely populated inner-city neighbourhood in central Johannesburg with a size estimation of 100,000 inhabitants per one square kilometre (91). It has many high-rise apartment blocks, entertainment venues, small retail “spaza” shops and informal traders, and is an area where many newcomers to Johannesburg often settle. Economic migrants from other provinces of the country, as well as refugees and immigrants from across the continent and beyond, form part of this diverse migrant population. These new migrants are often faced with regional xenophobia, and they are socially and economically marginalised, living in overcrowded and often unsafe apartments and informal housing (91).

FSW services in Hillbrow, Johannesburg, were first established in 1995 by a research organisation, Wits RHI (then named the Wits Reproductive Health Research Unit, or RHRU). Another clinic was subsequently set up by Wits RHI in 2014 in the Central Business District (CBD) of Pretoria, the capital city of South Africa. The CBD of Pretoria is located approximately 50km from Johannesburg and, like Hillbrow, is densely populated with approximately 700 000 people, accounting to 25% of the total population (92). Although Pretoria is ranked as one of the best districts socio-economically in the country, the community survey of 2007, showed unemployment rates to be 16.5%, with 27.3% of the population living in informal settlements, shacks and squatter camps (93). The CBD of Pretoria attracts these local dwellers and other foreign nationals seeking employment opportunities (94). The CBD is a hub for government buildings and sex workers are often seen on the streets or at major taxi ranks soliciting sex.

The HIV prevalence of FSWs in Johannesburg was recorded as 71.8% (95% confidence interval [CI]: 56.5%-81.2%) in 2015 (7). This high burden of HIV among FSWs indicates the need for scaling up FSW programmes which provide screening and testing for SRH, HIV, TB, and other co-morbidities in Johannesburg and surrounding cities. The sex worker programme located in Hillbrow and Pretoria CBD

offers specialised healthcare and support services to an inner-city population of sex workers (male, female, and transgender). The services include HIV counselling and testing, condom distribution, nurse-initiated and managed ART, tuberculosis and HPV screening, standard-of-care treatment for minor ailments and chronic conditions, psychosocial support, and referrals to both clinical and legal services. In both settings there are peer educators who conduct outreach services within the community and invite sex workers to access this comprehensive package of health care. On average both clinics see more than 100 FSWs a day.

The programme has three different service points from which FSWs can access healthcare, all of which provide the same services as outlined above:
a) The fixed site clinics - these are specialised, fixed clinics targeted specifically for FSWs, situated in Johannesburg, Hillbrow and Pretoria CBD, which provide a wide range of services.
b) The mobile clinic – this is a truck/van which has been equipped with consultation and counselling rooms and other services found in a primary healthcare clinic. The mobile clinic is driven out to different FSW “hotspots” around the greater Johannesburg and Pretoria areas on a daily basis. Peer educators are responsible for mobilising sex workers, screening for HIV and STI, and referring clients to a professional nurse for additional health services in the truck/van at a central location close to sex workers’ place of work.
c) Hotel/Brothel – the clinic outreach team provides health services as outlined above, in a room that is usually offered by one of the sex workers or by the hotel/brothel owner.

Routine patient data are collected for all services provided. In this study, “Wits RHI sex worker programme” refers to the targeted services provided to sex workers through all three service points in the two study settings. This is the first study to assess retention in care in this cohort.

2.2 Study Design

The study was a retrospective cohort design. It utilised secondary analysis of routine data collected on sex workers in the Wits RHI sex worker programme. A subset of the data was extracted and analysed with respect to retention in care. The baseline was

the first time a woman accessed clinic services within the study period, which was 2013 to 2017.

2.3 Study Population

The study population was defined by the following criteria:

2.3.1 Inclusion Criteria

- FSWs who accessed services from the Wits RHI sex worker programme between 2013 and 2017.

2.3.2 Exclusion Criteria

- Women who did not fit the definition of sex worker. Despite the clinics targeting sex workers only, a few women in the general population access the clinics for services and they are not turned away. At the first visit, an intake form was completed (Appendix A-B) which established whether the woman was working as a sex worker.
- Male and transgender sex workers. While these populations do access services at the clinics, the dominant client base remains FSWs and the clinics have historically been known as FSW clinics. Routine data on male and transgender sex workers is limited.

2.3.3 Sample Size

- There were no sample size calculations or sampling conducted in this study, as all FSW visits under the study period were utilised. This analysis was based on 7 624 unique FSWs, each with a varying number of visits during the study period.

2.4 Data Collection

The data analysed in this study were drawn from the demographic, behavioural and clinical data collected from individual FSWs by the Wits RHI sex worker programme staff. In both sites, routine programme data were collected using standardised tools when clients accessed health services either at the clinic or during outreach services in the catchment areas. The independent variables analysed were those collected at baseline only. The programme tools are attached in Appendices A to F. Data collected include:

- Demographic data
- Occupational (sex work history) data
- Sexual behaviours and substance use
- Reason for visit to the clinic/ outreach services
- Findings of physical examination, laboratory results and HIV status

These data were collected at first visit. Since this is a longitudinal programme, it is possible to generate the order of visit for sex worker/client using unique identifiers and date(s) of visit, which were recorded for each FSW.

2.5 Data Measurement and Key Study Variables

This section of the report describes the dependent and independent variables analysed in this study. Despite the subtle differences between them, the term dependent variable is used interchangeably with outcome variable. Also, the term independent variable is used interchangeably with explanatory variable.

2.5.1 Dependent Variable: Retention in care

There is no documented global definition for retention in care for FSWs. Retention, specifically in HIV services, has been measured in various ways, including binary measures of missed visits, counts of missed visits, proportion of visit adherence (number of 4-month-long intervals in a year during which the patient had at least one kept visit) (95). In addition, the dichotomous measure of whether 6 months elapsed in between kept visits and the Health Resources and Service Administration (HRSA) HIV/AIDS Bureau measure (dichotomous measure of whether there were at least two kept visits with a primary HIV medical provider that were at least 90 days apart within the year) (95, 96) was ruminated.

Generally, studies use a definition of retention that aligns with their research objectives or study timelines, with most defining retention as repeat visits made within a specific time period (95). For this study, ‘retention in care’ is the outcome (dependent) variable and was defined as repeat visits within the study period. Retention in this study is a binary variable. FSWs who accessed care only once within the five-year study period

were defined as “Not Retained”, while those with repeat visits were defined as “Retained”.

2.5.2 Independent Variables

Table 1 below provides a summary of key variables analysed in the study. An explanation of some of the variables follows.

Table 1: Summary of independent variables analysed

Variable	Scale of measurement
Age	Categorical: 18 to 24, 25 to 30, 31-35, > 35
Country of birth	Categorical
Marital/Partner Status	Categorical: main partner, married, single, divorced
Province of birth	Categorical
Level of Education	Categorical: Less than primary, primary completed, secondary education, tertiary education
Primary reason for visit	Categorical: reason for accessing the clinic: UTI, STI, HIV Services, PrEP, GTI and PHC
HIV status	Categorical: Negative, Positive, Unknown
Length of time in sex work industry	Categorical: </= 6 months, > 6 months – 1 year, > 1 year
Number of dependents	Numerical
Condom use with clients	Categorical: How often do you use condoms with your clients during sexual intercourse? Never, Sometimes, Always
Condom use with partner	Categorical: How often do you use condoms with your partner during sexual intercourse? Never, Sometimes, Always
Alcohol and drug use	Categorical: In the past month have you had alcohol or used other drugs during sex? Yes and No

2.5.2.1 Socio-demographic variables

- *Country of Birth*: This refers to the country in which the FSW was born. Among the residents in the areas where the clinics are located there are many non-South African migrants. The Wits RHI clinics provide services to all, and not only

to South Africans, so it is important to establish if retention is influenced by country of birth.

- *Number of dependents*: FSWs are asked to report on the number of people who depend on their income, including adults (such as parents and siblings) and children.
- *Province of birth*: This question is only asked of FSWs who were born in South Africa. This variable is important to understand if retention is influenced by internal migration.
- *Intimate Partnership:* Main partners, although they have sexual encounters with FSWs, do not pay for sex. The FSW usually has a stable relationship with this person and does not see them as a client. Main partners have intimate relationships with FSW, and they may also offer emotional support to the FSW they are involved with.

2.5.2.2 Occupational variables

- *Condom use with client:* FSWs are asked how many times they use condoms with their clients. This forms part of the risk assessment performed to establish a FSW's risk of contracting or transmitting HIV. This also informs the counselling the health practitioner conducting the assessment will give to the FSW.
- *Length of time in sex work industry:* FSWs are asked to report how long they have been doing sex work, regardless of setting.

2.5.2.3 Health

Primary reason for seeking healthcare: At every visit, FSWs in the programme are asked to provide "complaints" or the reason(s) for accessing services on that day. FSWs may present multiple reasons for a single visit. As with other data included for analysis in this study, the reasons for visit analysed was at the baseline visit only. Their reason for visit was ticked on the data collection form as one of listed categorised options. But where a FSW's reasons for visit were not in the pre-defined list, they were captured as free text. For the analysis, these open-ended responses were coded into different disease states (see Table 2, below).

Table 2: Categorising FSWs' reasons for visit provided in free text

Symptoms/Complaint written in free text	Disease state/ Reason for visit
Daily pill to prevent HIV infection for HIV negative FSWs	Pre-exposure prophylaxis (PrEP)
Contraceptives (injection, implant, intra-uterine device (IUD), daily pill) Morning after pill	Family Planning
Painful micturition Burning sensation when urinating Smelly, cloudy urine	Urinary tract infection (UTI)
HIV tests HIV treatment services ART initiation and refills, Blood samples collection for CD4 count Blood sample collection for viral load assessments Post-exposure prophylaxis (PEP)	HIV services
Upset stomach Indigestion Nausea Vomiting Gas Changes in bowel habits (e.g., diarrhoea or constipation	GTI
Abnormal vaginal discharge Vaginal itching Pain and rash inside the vagina Genital blisters or sores	Sexually Transmitted Infection (STI)
Treatment of minor and chronic ailments such as: Common colds and flu Backaches Headache Hypertension Diabetes	Primary healthcare

HIV status: HIV testing and counselling services are provided for every FSW who accesses the clinic. Those who test negative are tested every six weeks or when they return to the clinic again. Those who test positive are offered ART. Their HIV status is recorded in a file, which is kept confidential in a filing cabinet with a lock and is only accessible to the clinic staff. In June 2016, the programme began providing PrEP for HIV negative sex workers.

Alcohol and drug use: FSWs are asked to report on their alcohol and drug use in the past month. Drugs included in the data collection tool were dagga (marijuana), crack (cocaine), mandrax and tik (crystal methamphetamine) and rock (street name for cocaine that is used for smoking).

2.6 Data Management and Analysis

2.6.1 Data formats

Data were extracted from the programme database in Microsoft Excel format and exported to STATA 15 for analysis. All data cleaning, management and statistical analysis were conducted using STATA statistical software version (Statacorp, Texas Station, USA).

2.6.2 Data management

Datasets were appended and merged as the data were captured in different tables for different sites. Appending was done to combine Pretoria and Johannesburg datasets into one dataset. Merging was done by means of a unique identifier to combine all variables for an individual into one dataset. Data cleaning was conducted to assess for strange values or implausible outliers.

2.6.3 Statistical analysis

Appropriate statistical analyses were conducted to answer the research questions and meet the study objectives. These analyses ranged from descriptive to multivariable inferential statistics. Table 3 summarises the study measurements and the statistical analysis applied.

2.6.3.1 Descriptive statistics

Descriptive statistics were conducted to describe the study setting and profile of programme beneficiaries. Outcome variables were also described to present the distribution of retention. Measures of central tendency and dispersion were used to summarise numerical data, with the choice of mean or median depending the distribution of the data. Means (and standard deviations) were used if the data were

normally distributed, while median (and interquartile range IQR) were used where the data were skewed. Counts and percentages were used to summarise categorical data. Summary statistics were reported in tables, graphs, and charts.

2.6.3.2 Inferential statistics

Firstly, A 95% confidence intervals was calculated for the outcome variable, retention. For bi-variate analysis, retention was the outcome variable and the explanatory variables were the 16 aforementioned socio-demographic and behavioural variables. Hypothesis testing was conducted to determine association between these FSWs' characteristics and retention. Pearson's chi-squared test was the test of association conducted as the outcome variable and all explanatory variable were categorical. Additionally, univariate logistic regression was performed to compute crude odds ratios of the associations. All hypothesis testing was conducted at an alpha level of 0.05, i.e., p-value < 0.05 was interpreted as statistically significant.

Furthermore, a multivariate logistic regression model was fitted to assess independent significant associations between the outcome and explanatory variables. Only explanatory variables which showed association in the bi-variate analysis at $p<0.2$ were considered for modelling. In the final model, using backward elimination, only independent variables significant at $p<0.05$ were retained. Post regression diagnostics were conducted.

2.6.4 Missing Data

The study utilised data that were not specifically collected for research purposes. As such, there were some variables with missing data. Observations with missing data for an analysis were excluded from that analysis.

Table 3: Summary data analysis plan aligning study objectives with key study variables and analytical procedure

Study objective	Variable	Statistical Analysis Plan
To describe the socio-demographic characteristics of FSWs accessing health care services in the two clinics.	Age (Numerical continuous)	Mean, median range, standard deviation
	Marital/Partner Status (categorical, nominal)	Proportions
	Level of Education (categorical, ordinal)	Proportions

	Country of birth (Categorical: nominal) Number of dependents (numerical, continuous)	Proportions Mean, range, standard deviation
To describe the primary reason FSWs access health care at the two clinics	STI, HIV services, Family Planning, PrEP, UTI, GTI, primary healthcare (Categorical, nominal)	Proportions
To describe the level of retention among FSWs receiving healthcare services at the two clinics	Describe the different levels of retention (How many FSW are accessing care once, twice, three times, four times or five times)	Descriptive; Proportions
To identify the socio-demographic factors associated with retention in care amongst FSWs receiving health care services at the two clinics.	Exposure: Characteristics of FSWs (e.g. age, country of birth, substance use, alcohol use) Outcome: Retention	Categorise FSWs retained in the program and those lost to care and perform a multivariate logistic regression to determine how these factors independently influence retention

2.7 ETHICAL CONSIDERATIONS

This study was approved by the University of the Witwatersrand Human Research Ethics Committee (HREC Medical) (Protocol No. M180958) (Appendix G-H). Although programme staff collected identifying information during clinical visits, the study did not access or make use of any such personal or identifying information. This maintenance of confidentiality is important, given that sex work is criminalised and highly stigmatised in South Africa and identifying individual patients accessing services at these clinics could have serious ethical and legal consequences. Permission to use these data was obtained from the Chief Executive Director of Wits RHI and the Wits RHI key populations programme manager who is directly responsible for managing the datasets (Appendix I). As this is a secondary analysis, no primary data collection was done, nor did the researcher need to interact directly with individual FSWs, as study participants.

The dataset used was de-identified and stored on the researcher's laptop, which is password protected. The dataset will be retained for two years following study completion.

Chapter 3: RESULTS

The overall aim of this study was to understand how and why FSWs accessing targeted health services, at two Wits RHI urban clinics, remain in care over a five-year period, 2013 -2017.This chapter presents the results of the study in four parts, which are:

I. Characteristics of FSWs accessing health care services in the two clinics
II. Primary reason FSWs access healthcare at the two clinics (Johannesburg and Pretoria)
III. Level of retention of the FSWs and number of clinic visits between 2013-2017
IV. Factors associated with retention in care among FSWs attending the two clinics

The above outline for the presentation of results align with the study objectives, which include descriptive and analytical outcomes.

3.1 Characteristics of the FSWS accessing health care services in the two clinics

3.1.1 General characteristics of the population

The total sample size for the study was 7 624 FSW. As the data were collected for programme, and not for this particular research purpose, the sample size analysed varied slightly for most variables and considerably for a few variables. Data on the clinic site where services were received was recorded for 7 283 FSWs, the majority (5 737, 79%) of whom accessed services at the Johannesburg service points, with the remainder (1 546, 21%) accessing services in Pretoria. .

3.1.2 Distribution of sex workers by place where they received services

Figure 2 below shows the distribution of the service points where the FSWs included in the study accessed healthcare. Half (51%) of the FSWs received health services at their place of work, which was either in a hotel or brothel, while 33% did so at a fixed-site clinic, and the remainder received services through the mobile clinic

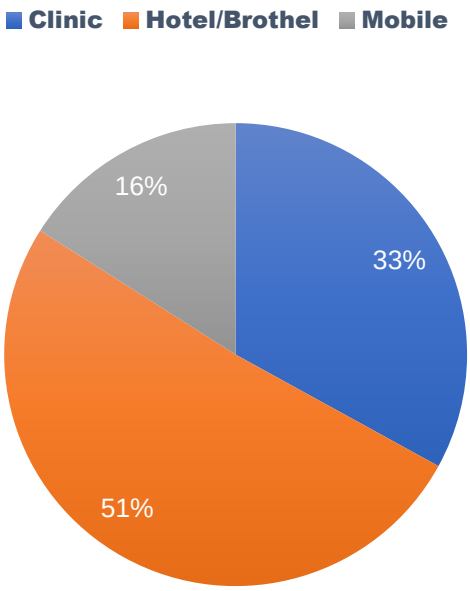

Figure 2: Points of service where FSWs accessed health care across the two sites

3.1.3 Socio-demographic characteristics and occupational profile of the FSWs

The socio-demographic characteristics of FSWs included in the study are presented in Table 4. The average age of FSWs accessing Wits RHI services was 29 years, with a standard deviation (SD) of 6.5. A third (34%) of the FSWs were aged between 25 and 30 years old, and just over 42% were above 30 years. More than half of the participants were born in South Africa (52%), and the remainder was composed of migrants from neighbouring countries, the majority from Zimbabwe (40%). Among those FSWs born in South Africa, nearly half of them (48%) originated from Gauteng, the province of the study. Almost all (97%) of the FSWs had people depending on their income, with a median of three dependants and an interquartile range (IQR) of two to five dependants.

There were 6 753 respondents who provided data on their level of education. The results showed that most of the FSWs had some secondary education (88%). The majority (81%) of the women described themselves as single (not married). However, almost half of the FSWs (47%) confirmed that they had an intimate partner. Only 4 141 FSWs provided information on the length of time they had been working in the sex work industry. The median duration in sex work was 1 year, with an IQR of 0-3.5 years. This

means that about half (46%) of the FSWs had been in sex work for more than one year, while 25% had been in sex work for more than three and half years.

Only a tenth of FSWs in the sample reported that they had been in the industry for less than a year.

Table 4: Socio-demographic characteristics of FSWs who accessed care at the 2 study sites between 2013 and 2017 (years)

Characteristic	Frequency (n)	Percentage (%)
Age (years) *n= 7 623*		
Mean (Standard Deviation): 29 (6.5)		
24 years or younger	1 866	24.5
25 to 30 years	2 566	33.7
31 to 35 years	1 551	20.3
more than 35 years	1 640	21.5
Level of Education *n=6 753*		
No schooling	47	0.7
Primary	300	4.44
Secondary	5 972	88.4
Tertiary	434	6.43
Country of birth *n= 7 080*		
South Africa	3 704	52.3
Zimbabwe	2 801	39.6
Other	575	8.1
South African Province of birth *n = 2 940*		
Eastern Cape	473	16.1
Free State	242	8.2
Gauteng	1 406	47.8
KwaZulu Natal	193	6.6
Limpopo	227	7.7
Mpumalanga	227	7.7
North West	137	4.7
Northern Cape	11	0.4
Western Cape	24	0.8
Marital Status *n= 6 758*		
Single/Never married	5 520	81.7
Married	298	4.4
Divorced	816	12.1
Widowed	124	1.8
Intimate Partner *n= 6 564*		
No	3 453	52.6
Yes	3 111	47.4
Number of Dependents *n = 6 658*		
Median: 3		

IQR: 2-5		
None	209	3.1
One to two	1 666	25.0
Three to Four	2 869	43.1
Five and more	1 914	28.8
Sex Work Duration *n = 4 141*		
Median: 1 year		
IQR: 0 – 3.5 yeas		
Less than or equal to six months	1 826	44.1
Six months to one year	415	10.0
More than one year	1 900	45.9

3.1.4 HIV status and behavioural risk factors

Out of the 7 624 FSWs in this study, 6 403 had their HIV status recorded at baseline (first visit). The HIV prevalence in this study population was 41.9% (95% confidence interval [CI]: 41.0%-43.5%).

More than a quarter of the FSWs in the study reported that they drink alcohol (28%). In terms of drug use in this population, one in ten (9%) of the FSWs reported using at least one drug such as tik, mandrax, crack and rock.

43% of the FSWs reported that they never used condoms with their intimate partners. By contrast, 96% confirmed that they always used condoms during commercial sex work.

Table 5: Behavioural Risks for HIV infection among the FSWs in the sample

Factor	Frequency (n)	Percentage (%)
Used Alcohol *n= 6 564*		
Yes	1 867	28.4
Used Drugs (any of tick, mandrax, crack, rock) *n=6 564*		
Yes	614	90.6
Condom Use with Intimate Partner *n = 2 979*		
Never	1 300	43.7
Sometimes	558	18.7
Always	1 121	37.6
Condom Use with Clients *n = 6 407*		
Never	141	2.27
Sometimes	120	1.9
Always	6 146	95.9
HIV status *n=6 403*		
Negative	3 670	57.3
Positive	2 684	41.9
Unknown	49	0.8

3.2 Primary reason FSWs access healthcare at the two clinics (Johannesburg and Pretoria)

The reasons for accessing healthcare and percentage distribution of each are presented in Figure 3. The most common reason provided by FSWs for accessing services through the programme was that they were seeking primary healthcare (PHC) services (39%). This was followed by a need for STI treatment services (36%). The novelty of PrEP as a method of HIV prevention is reflected in the data as only 3% of the FSWs accessed the clinic to receive PrEP. Almost one in 10 FSWs accessed care because of symptoms of a suspected urinary tract infection (UTI) (8%), while services for family planning purposes were sought by 7% of the FSWs, who asked for contraceptives to prevent pregnancy. Just over a tenth (11%) of the FSWs accessed the clinics for HIV treatment services. The same proportion (11%) complained of symptoms of a gastrointestinal tract infection (GTI).

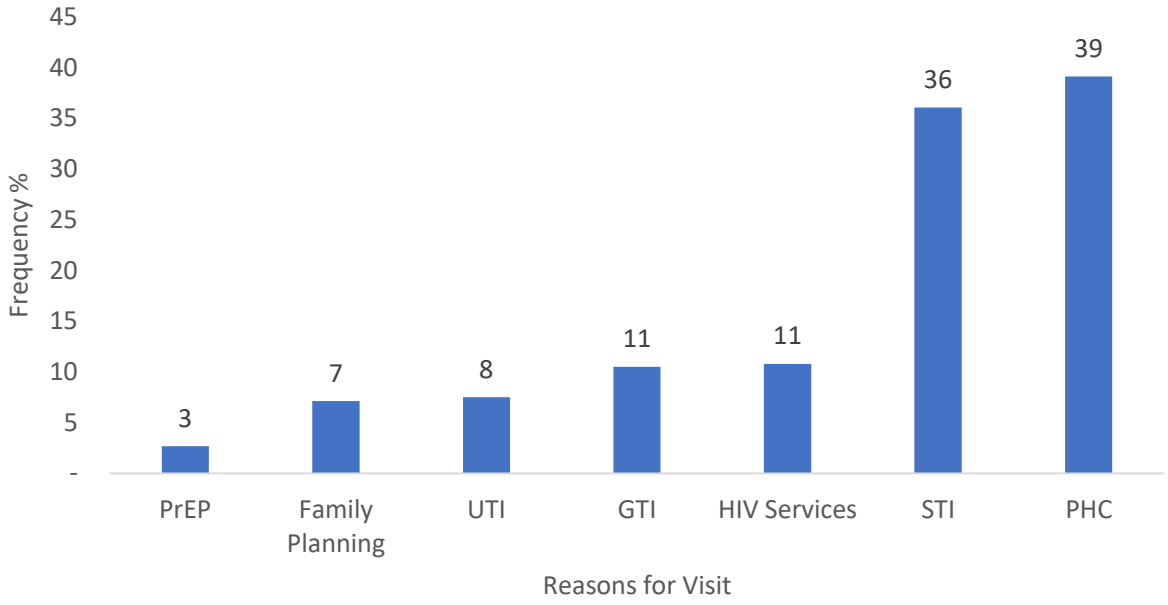

Figure 3: Reasons given by FSWs for accessing health services

3.3. Level of retention and number of clinic visits between 2013-2017

3.3.1 Level of retention

Figure 4 shows the proportion of FSWs retained in health services according to the definition of retention used in this analysis (attending two or more visits between 2013 and 2017). Over a third (37%) of the FSWs were retained in care.

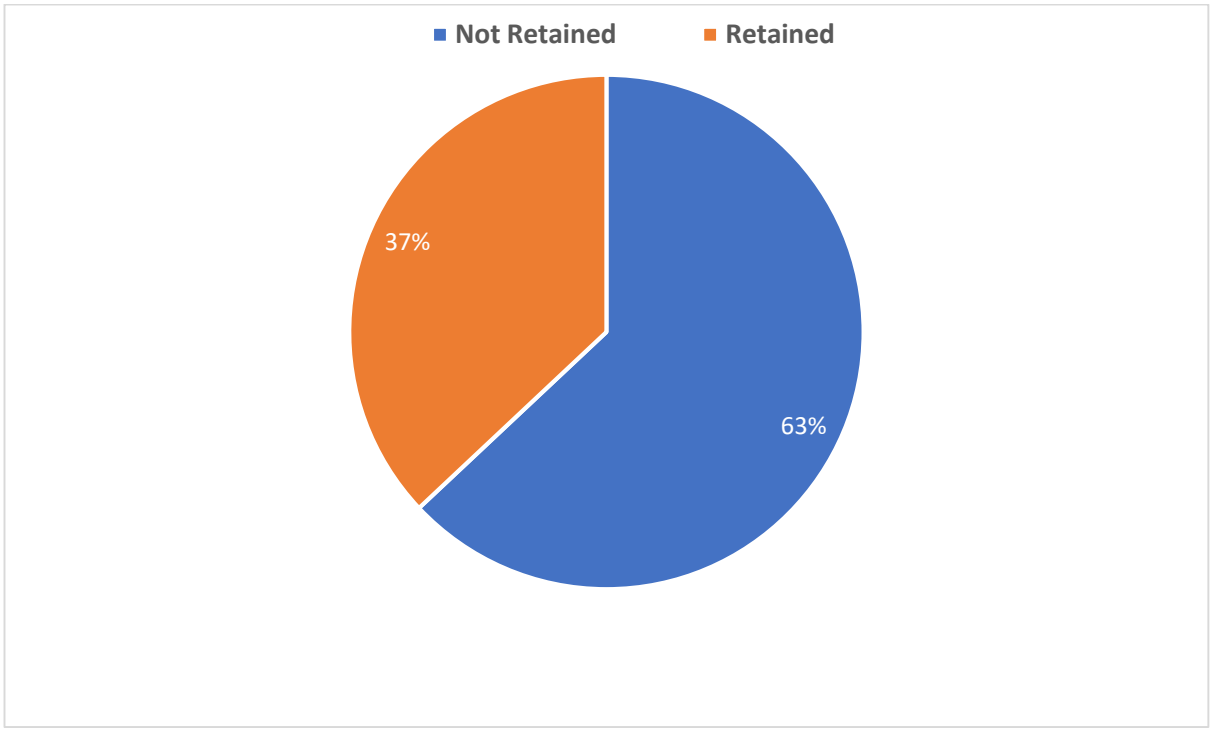

Figure 4: Percentage of FSW retained in health services between 2013-2017

3.3.2 Number of clinic visits

In addition to dichotomising retention, as presented above, further analysis examined the number of visits made by FSWs during the study period. The majority (63%) of the FSWs came for one visit only and did not return to any service points after that. A small proportion (15.4%) of the study sample returned for a second visit only (maximum of two visits), with even fewer (7%) visiting the clinic for five or more visits.

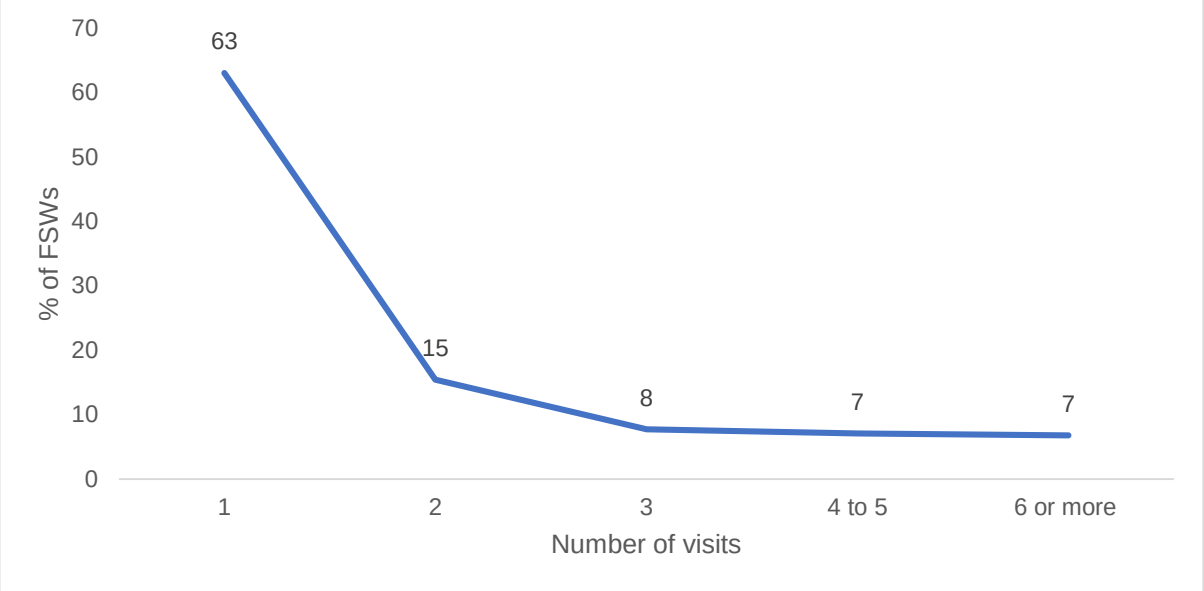

Figure 4: Figure showing the number of repeat visits by FSWs from 2013-2017

3.4 Factors associated with retention in care

Pearson's chi-squared test was conducted to test for association between retention (dependent variable) and 16 selected characteristics of FSW (independent variables). Of these 16, 14 variables were associated with retention. Table 6 shows the associations between various socio-demographic characteristics of FSWs and retention. The risk behaviour variables are presented in the following section (Table 7).

3.4.1 Bi-variate analysis of retention and patient socio-demographic characteristics

As shown in Table 6, the site (Johannesburg or Pretoria) and point of clinic services (fixed site clinic, hotel/brothel, mobile clinic) were significantly associated with retention ($p<0.001$ and $p=0.004$ respectively). More FSWs accessing services in Pretoria were retained in care compared to those in Johannesburg (44% versus 36% respectively). There was higher retention among women who received healthcare at the fixed site clinic (59%), compared to those receiving services at a mobile clinic (49%).

Age was significantly associated with retention in clinical services ($p<0.001$). Significantly more women between 31-35 years were retained (43%) compared to their

younger counterparts, aged 25 years or younger (31%). Also associated with retention was level of education ($p<0.001$). Although the number in this group was small, FSWs who had no schooling had the lowest retention.

A number of geographic factors, including country of birth and province of birth, were significantly associated with retention ($p<0.001$). Women who were born outside of South Africa had a higher retention compared to those who were born in South Africa. Just under half of the Zimbabwean FSWs (45%) were retained in comparison to 34% of the South African FSWs. When retention was analysed by province of birth for South African FSWs, those from the Northern Cape Province showed the highest retention (82%), followed by those from KwaZulu-Natal (50%). The lowest level of retention was seen among those from Gauteng.

Two family characteristics were associated with retention ($p<0.001$). Women who were widowed had the highest retention (53.2%) in the marital status category. Divorcees had a higher retention (45.5%) than married women (41.3%). Single women had the lowest retention of all, at 39.2%. Women who had three to four dependants had a higher retention (40.2%) compared to those who did not have any dependants (32.5%). Overall, women who did not have any dependants had the lowest retention. Having an intimate partner was not significantly associated with retention.

This test of association also showed that the duration of sex work was associated with retention in care ($p<0.001$). FSWs who had been in the sex work industry for longer duration had significantly higher retention. Just over a third of women who had been working as FSWs for more than a year were retained (36%), while those who were relatively new (less than six months in the sex work industry) had the lowest retention (28%).

Table 6: Demographic factors associated with retention in care

Characteristic	Frequency (n)	Retained (%)	P-Value
Site of Clinic Services			
Johannesburg	5 741	35.6	*<0.001*
Pretoria	1 546	44.4	
Point of Service			
Clinic	1 483	58.5	
Hotel/Brothel	3 013	54.5	*0.004*
Mobile	1 496	48.7	
Age			
24 years or younger	1 867	30.5	
25 to 30 years	2 568	39.9	*<0.001*
31 to 35 years	1 551	42.7	
more than 35 years	1 641	34.2	
Level of Education			
No schooling	47	38.3	
Primary	300	49.0	*<0.001*
Secondary	5 972	40.6	
Tertiary	434	40.3	
Country of birth			
South Africa	3 707	34.2	*<0.001*
Zimbabwe	2 801	44.7	
Other	576	39.9	
South African Province of birth			
Eastern Cape	473	40.8	
Free State	242	37.6	
Gauteng	1 407	25.6	
KwaZulu Natal	193	50.3	*<0.001*
Limpopo	227	38.8	
Mpumalanga	227	40.1	
North West	139	43.9	
Northern Cape	11	81.8	
Western Cape	24	45.8	
Marital Status			
Single	5 523	39.2	
Married	298	41.3	*<0.001*
Divorced	817	45.5	
Widowed	124	53.2	
Partner			
No partner	3 453	52.2	0.605
Partner	3 111	47.8	
Number of Dependents			
None	209	32.5	*<0.001*
One to two	1 669	35.5	

Three to four	2 870	40.2	
Five and more	2 880	34.8	
Sex Work Duration			
Less than or equal to six months	1 826	27.7	*<0.001*
Six months to one year	415	29.9	
More than one year	1 901	36.1	

3.4.2 Bi-variate analysis of retention and patient risk behaviour and HIV status

Table 7 presents results of the chi squared tests conducted to determine associations between retention and HIV status and risk factors. The results showed that alcohol use was associated with retention (p=0.004): those who reported drinking alcohol had a lower retention (39%) compared to those who did not drink alcohol (43%). Using drugs was not significantly associated with retention (p= 0.327). Condom use with both partner and client was associated with retention (p=0.024 and p=0.002 respectively), but the direction of association differed in each. Fewer FSWs who reported using condoms with their partners were retained in care (40%) compared to those who said they did not use condoms (44%). In contrast, FSWs who reported always using condoms with clients had higher retention (41%) compared to those who reported never using condoms with them (30%). Finally, HIV status was associated with retention. HIV positive FSWs had a higher retention (43%) compared to their HIV-negative counterparts (38%).

Table 7: Risk factors associated with retention in care

Risk Factor	Frequency (n)	Retained (%)	P-Value
Used Alcohol			*0.004*
Yes	1 867	38.8	
Used Drugs			0.327
Yes	615	40.1	
Condom Use with Partner			*0.024*
Never	1 300	43.6	
Sometimes	558	36.0	
Always	1 121	39.3	
Condom Use with Clients			*0.002*
Never	144	29.8	
Sometimes	120	30.0	

Always	6 146	40.8	
HIV status			
Negative	3 670	37.5	*<0.001*
Positive	2 684	43.2	

3.4.3 Bi-variate analysis of retention and reasons for visit

In addition to the primary objective of the study, namely, to investigate associations between socio-demographic factors and retention in care, bi-variate analysis was conducted to determine how primary reasons for visit may drive retention. Table 8 below illustrates the findings. HIV PrEP (p<0.001), HIV (p=0.003) services and STI (p<0.001) services were associated with retention. Only a quarter (25%) of those who came to the clinics for PrEP were retained compared to 37% who did not come for PrEP. FSWs seeking HIV services had a higher retention (41.6%)compared to those who came to the clinics for other services (36.4%). Less than half (44.2%) of the FSWs who accessed services for STI treatment were retained in care.

Table 8: Bi-variate analysis of retention and reasons for visit

Reasons for visit	Frequency (n)	Retained %	P value
HIV PrEP			
Yes	204	25	*< 0.001*
No	7420	37.3	
Family Planning			
Yes	470	40	0.516
No	6 118	41.5	
UTI			
Yes	494	43.7	0.820
No	6094	41.2	
HIV Services			
Yes	824	41.6	*0.003*
No	6 800	36.4	
GTI			
Yes	693	41.9	0.811
No	5 895	41.3	
STI			
Yes	2 749	44.2	*< 0.001*
No	4 875	32.8	
PHC			
Yes	2 577	42.4	0.191
No	4 011	40.8	

3.4.4 Factors associated with retention

Further to the above sets of bi-variate analysis, the last set of analysis was conducted to determine the factors that are independently associated with retention. This multivariable analysis was important to conduct, since some of the associations observed in the sets of bi-variate analysis presented above may be confounded. For example, the observed association between marital status, where divorced FSWs were more likely to be retained than unmarried FSWs, may in fact be confounded by age, as older FSWs were also more likely to be retained. Similarly, increased duration in sex work was observed to increase the likelihood of retention, but this, too, may be confounded by age. To separate such mixing of effects and identify independent determinants of retention, multiple logistic regression was conducted.

Firstly, univariate logistic regression was performed to obtain odds ratios of association between each of the FSW characteristics and retention. Furthermore, a multivariable logistic regression model was fitted to determine independent associations with those characteristics. Univariate associations were reported as Unadjusted (crude) Odds Ratios (UOR), and multivariable associations as adjusted Odds Ratio (AOR), along with 95% CI and p values. The results are presented in Table 9.

A total of four variables were found to be independently associated with retention in the adjusted model. They include: the site where services were received, point of services, age, and country of birth. FSWs who accessed services in Pretoria were 1.78 times more likely to be retained compared to their Johannesburg counterparts (AOR: 1.78, 95% CI: 1.45-2.19). As age increased, the odds of retention increased steadily. FSWs who were more than 35 years old showed about 50% higher odds of retention in comparison to those who were younger than 25 years old (AOR: 1.48, 95% CI: 1.13-1.93). Also, in the adjusted model, FSWs who accessed healthcare services at the fixed clinics were significantly more likely to be retained compared to those who were reached at their place of work (hotel/brothel) or through the mobile clinic. The odds of retention decreased significantly by 30% amongst those who accessed services at hotels/brothels in comparison to those who did at the fixed clinics (AOR:0.70, 95% CI: 0.59-0.85). The decrease in odds was even more for FSWs who accessed healthcare

at mobile clinics. Zimbabwean FSWs were 1.31 times more likely to be retained compared to South African FSWs (AOR: 1.31, 95% CI: 1.07-1.51).

None of the primary reasons for visit were independently associated with retention in the final adjusted model. Also, none of the risk factors were significantly associated with retention in care.

Table 9. Univariate and Multivariate Logistic Regression

Factor	Univariate Analysis			Multivariate Analysis		
	OR	P-value	95%CI	aOR	P-value	95%CI
Site of Clinic Services						
Johannesburg (Ref)	1			1		
Pretoria	0.55	<0.001	0.52-0.58	1.78	*<0.001*	1.45-2.19
Age						
</= 24 years (Ref)	1			1		
25 to 30 years	1.51	<0.001	1.33-1.71	1.20	0.085	0.98-1.48
31 to 35 years	1.69	<0.001	1.47-1.95	1.31	*0.025*	1.03-1.65
more than 35 years	1.18	0.020	1.03-1.36	1.48	*0.004*	1.13-1.93
Point of Service						
Clinic (Ref)	1			1		
Hotel/Brothel	0.85	0.061	0.72- 1.00	0.70	*<0.001*	0.59-0.85
Mobile	0.67	0.001	0.53-0.85	0.58	*<0.001*	0.45-0.75
Country of birth						
South Africa (Ref)	1			1		
Zimbabwe	1.56	<0.001	1.40-1.72	1.31	*0.005*	1.07-1.51
Other	1.28	0.007	1.07-1.53	0.84	0.267	0.61-1.11
Province of birth						
Eastern Cape (Ref)	1					
Free State	0.87	0.408	0.64-1.20			
Gauteng	0.49	<0.001	0.40-0.62			
KwaZulu Natal	1.46	0.026	1.04-2.05			
Limpopo	0.92	0.607	0.66-1.27			
Mpumalanga	0.97	0.857	0.70-1.34			
North West	1.13	0.517	0.77-1.66			
Northern Cape	6.52	0.017	1.39-30.54			
Western Cape	1.22	0.626	0.53-2.79			
Marital Status *n= 6 762*						
Single (Ref)	1			1		
Married	1.09	0.463	0.86-1.38	1.25	0.294	0.78-2.44
Divorced	1.3	0.001	1.12-1.51	1.30	0.349	0.74-2.27
Widowed	1.77	0.002	1.23-2.52	1.06	0.838	0.62-1.81
Partner *n = 6 564*						

No partner	1					
Partner	1.02	0.605	0.93-1.13	-	-	-
Number of Dependents *n = 6 662*						
None (Ref)	1			1		
One to two	1.12	0.393	0.84-1.55	1.38	0.266	0.78-2.44
Three to four	1.4	0.029	1.04-1.88	1.30	0.349	0.75-2.27
Five and more	1.11	0.512	0.82-1.49	1.59	0.103	0.91-2.79
Level of Education *n=6 757*						
No schooling (Ref)	1			1		
Primary	1.54	0.174	0.82-2.91	0.76	0.616	0.27-2.18
Secondary	1.099	0.752	0.61-1.98	0.70	0.498	0.26-1.93
Tertiary	0.69	0.251	0.37-1.29	0.79	0.660	0.27-2.28
Sex Work Duration *n = 4 145*						
</= 6 months (Ref)	1			1		
Six months to one year	1.14	0.365	0.88-1.40	0.51	0.012	0.29-0.86
More than one year	1.47	<0.001	1.28-1.70	1.25	0.160	0.91-1.71
Alcohol *n= 6 568*						
Yes (Ref)	1			1		
No	0.85	0.004	0.77-0.95	0.89	0.235	0.75-1.07
Drugs *n=6 568*						
Yes (Ref)	1					
No	0.92	0.327	0.77-1.09	-	-	-
Condom Use with Partner *n = 2 979*						
Never (Ref)	1					
Sometimes	0.76	0.009	0.62-0.94	-	-	-
Always	0.88	0.108	0.74-1.03			
Condom Use with Clients *n = 6 407*						
Never (Ref)	1					
Sometimes	1.01	0.970	0.59-1.72	1.73	0.06	0.97-3.07
Always	1.62	0.009	1.13-2.30			
HIV status *n=6 407*						
Negative (Ref)	1			1		
Positive	1.26	<0.001	1.14-1.40	1.15	0.113	0.97-1.36

3.4.5 Post Regression Tests

Collinearity Diagnostics: We assessed multi-collinearity among the independent variables using the variance inflation factor (VIF). A VIF of 10 or more is generally

considered indicative of multi-collinearity. The VIF of all independent variables in our model was less than 1.2 and the mean VIF was 1.10. Table 10 shows the results from the collinearity diagnostics.

Table 10. Collinearity Diagnostics

Variable	**Variance Inflation Factor**	**R-Tolerance**
City	1.17	0.8517
Age	1.05	0.9552
Point where services were accessed	1.14	0.8773
Country of birth	1.04	0.9583

Goodness-of-fit Test: The Hosmer-Lemeshow goodness of fit test was conducted post regression to ascertain the fit of the final model. This gave a p-value of 0.768 as shown in Table 11. The p value of 0.768 indicates that the null hypothesis was accepted, which states that the model and the data are not significantly different. In conclusion, our model fits the data.

Table 11. Goodness-of-fit Test

Number of observations	2584
Number of covariate patterns	57
Pearson chi2(48)	40.57
Prob > chi2	0.7680

Chapter 4: DISCUSSION

The aim of this study was to understand how FSWs accessing health services remain in care at two Wits RHI urban clinics in South Africa over a four-year period and to explore the factors that influence these patterns of repeat visits (retention in care). The results are considered in the light of relevant literature and discussed within the conceptual framework outlined in Chapter 1. The results show that the city where FSWs accessed services, their age, the point where services were delivered, and their country of birth were significantly associated with retention in care. The limitations of the study are presented at the conclusion of this chapter.

4.1 Characteristics of the study population

4.1.1 Socio-demographic Characteristics

In this study, around a quarter of the FSWs were 24 years or younger. This young cohort of FSWs experience both vulnerabilities of youth and those associated with being a FSW (97). Social factors (greater vulnerability to gender power imbalances, inconsistent condom use and violence) and biological factors, such as immature reproductive tracts and greater cervical ectopy (98, 99), may render them more vulnerable to STI acquisition (100). The findings showed that 44% of the study population were relatively new to sex work, having been in the industry for only six months or less. New sex workers are at heightened risk of poor health outcomes as they may be less likely to access general health facilities or specialised sex worker clinics (101, 102) than those who have been in the industry for longer. Furthermore, adolescent girls and young women in sub-Saharan Africa have a high risk for HIV acquisition (103), which may be increased in young FSWs due to these additional vulnerabilities. This cohort of young, new FSWs requires tailored services that are acceptable to them, which may be a challenge to deliver if they do not (yet) self-identify as “sex workers”.

Most FSWs had at least some secondary school education in this study. Research has shown that women with a higher level of education are more likely to access services

(49), which may be attributed to the agency educated women may have over their health. The impact of education as a structural determinant of health has been documented in several pieces of literature (49, 104, 105). Luseno et al (49) suggested that low levels of education among South African women can lead to disengagement in health care, which may be as a result of lack of agency these women have for their own health care. Based on the findings of these authors, it is surprising that in this study, education was not significantly associated with retention. This may be because, FSWs accessing health services (regardless of their level of education) have been empowered to be their own health advocates through Wits RHI programmes, since these programmes have been operational for many years.

In this study, 48% of the FSWs were migrants, demonstrating the preponderance of migrants in sex work settings in this region. Zimbabwean sex workers accounted for the majority of migrants in our sample, which may reflect the escalation of Zimbabwean migration to South Africa in recent years as people move in search of improved economic opportunities and living conditions (106). Within South Africa, the Eastern Cape province is one of the poorest provinces and has high rates of out-migration in search of financial stability (107). This is reflected in our findings which showed the Eastern Cape to be the largest contributor of internally migrating FSWs.

Most of the FSWs in this study had at least one dependant whom they were financially supporting, which is common amongst FSWs in similar South African urban settings (65, 105). Many studies indicate that FSWs often are not married, but may be intimately involved with a partner (65, 108), similar to the findings of this study, in which almost half of FSWs had an intimate partner. The findings may suggest that single FSWs with dependants may be driven into sex work in order to provide for their families. Studies that have explored social support as a determinant of FSWs' health have concluded that this is an area with a dearth of evidence and mixed findings, albeit critical for further research and understanding how this drives health-seeking behaviour (61, 109).

There was no significant association between the two independent variables (having dependants and having an intimate partner) and retention in this study. This finding maybe because dependants were not disaggregated between the FSW's children and other family members in the analysis due to the limitations of the available dataset. If

this disaggregation had been applied, retention may have been significant for FSWs who were supporting their children, as the need to stay healthy in order to continue taking care of their children may have motivated better retention, however there is a need for further investigation. Having a partner has been linked to better health outcomes (61) but this study did not show that. It may be that FSWs who reported having partners in our study were not receiving health care support from these partners to encourage engagement in healthcare, as found in a study in Kenya (61).

4.1.2 Behavioural risk and HIV status

The majority (72%) of FSWs in this study reported never drinking alcohol and only a tenth reported any form of substance use. A South African study investigating alcohol and substance abuse among women found that FSWs were significantly more likely to experience alcohol or substance abuse in the past year compared to non-FSWs, (84% vs 66%) (110). The apparent under-reporting of alcohol intake and substance use in this study may be related to social desirability bias when reporting drinking patterns to a health care professional. Although alcohol use was associated with retention in the bivariate analysis, this association did not persist in the multivariate analysis.

The negative impact of alcohol use on health and social outcomes is well documented. A global review of literature on alcohol use among FSWs and male clients reported that alcohol use had a positive correlation to poor health outcomes and poor health-seeking behaviour among FSWs (111). Additionally, a study conducted in South Africa to determine health services utilisation among women living with HIV showed that women who reported substance abuse were less likely to attend a follow-up visit compared to those who did not (49). Although these studies did not report directly on retention in care, they suggest that substance and alcohol abuse could be predisposing factors contributing to poor retention in care among FSWs. This study did not find significant associations between alcohol/substance use and retention possibly because substance use was not directly defined using standardised tools. The programme questionnaire measured these behaviours as binary variables (yes or no). Sensitivity and validity were compromised as the tool did not distinguish between FSWs who drink alcohol (or use drugs) occasionally and habitually or dependently.

Nearly all FSWs in this study reported consistent condom use with their clients. Several authors across the spectrum of HIV and sexuality research (108, 112, 113), have highlighted that self-reported condom use is subject to reporting and recall bias. A study conducted in Madagascar showed that nearly a third of FSWs reporting consistent condom use had prostate-specific antigens, a biomarker of semen on vaginal swabs (114), suggesting that self-reports of sexual behaviour may need to be interpreted with caution. However, Lipovsek, et al (115) state that…"*general consensus is that the reliability and validity of self-reporting is questionable; but there is also agreement that it is, by and large, the only feasible way to measure sexual behaviors" .* In contrast to client condom use, FSWs in this study reported a marked difference when reporting condom use with their intimate partners, with only a third reporting practicing safe sex with their intimate partners. Several studies have shown that condom use is heterogenous in sex work, and varies according to the type of partner with usage being lower with regular clients, boyfriends and husbands compared to their non-regular clients (116, 117). According to studies conducted in the CBDs of Durban and Johannesburg, South African FSWs often perceive these emotional partners as "safe" and "clean", in contrast to casual or irregular clients, who are regarded as "unsafe" and "dirty" (24, 118). This may account for some of the variation in condom usage patterns in this study.

Finally, the high prevalence of HIV (42%) amongst this study population is similar to what has been found in previous studies amongst sex workers in South Africa, reflecting the high burden of the epidemic amongst FSWs, as mentioned in several literature (7-9).This high prevalence indicates the important role played by FSWs in the HIV epidemic in the general population. FSW-focused health services are very crucial in stemming the epidemic and this can be achieved by retaining FSWs in healthcare to improve their health outcomes.

4.2 Primary reason for accessing health services

The conceptual framework in Figure 5 was used to analyse the primary reasons for accessing health services, which are depicted as 'health needs' in the framework.

The most common reason given for accessing health services was primary health care. This is perhaps unsurprising, and is supported by other studies which demonstrate that FSWs' health needs extend beyond HIV services and that HIV services alone are in fact, insufficient for attracting and retaining in care a health seeking population of FSWs (105, 119-121). Several studies have called on FSW programmes to provide holistic innovative strategies, extending beyond the traditional ambit of HIV prevention interventions, in order to retain FSWs in care (105, 122). It is also crucial for programmes to address both perceived health needs and evaluated health needs, as per the Gelberg-Andersen model, if health outcomes are to be improved.

In our study, 36% of FSW accessed services to receive STI services, possibly reflecting a higher prevalence of STIs among FSW than in the general population, as reported by a study conducted in Johannesburg, which found that typically half to two-thirds of FSWs have a curable STI at any one time (123). In their systematic review of facility-based health services for FSWs, Dhana et al. (5) reported that nearly all FSW programmes in Africa have a specific focus on HIV and STI interventions alone. This, in turn, may be as a result of condom less sex (with intimate partners, as reported above) and the occupational vulnerabilities faced by FSWs.

With the high HIV prevalence in the study sample, as well as the fact that there have historically been a number of large and well-publicised awareness campaigns in South Africa, it is surprising that HIV services were not among the most common reasons for accessing health services in this study. It is standard practice at the Wits RHI clinics that every client is offered an HIV test when they access services, which may mean that the HIV test is not recorded as the primary reason a client consulted with a clinician, even if she accepts the test. This may partially account for the relatively low use of HIV services in our study.

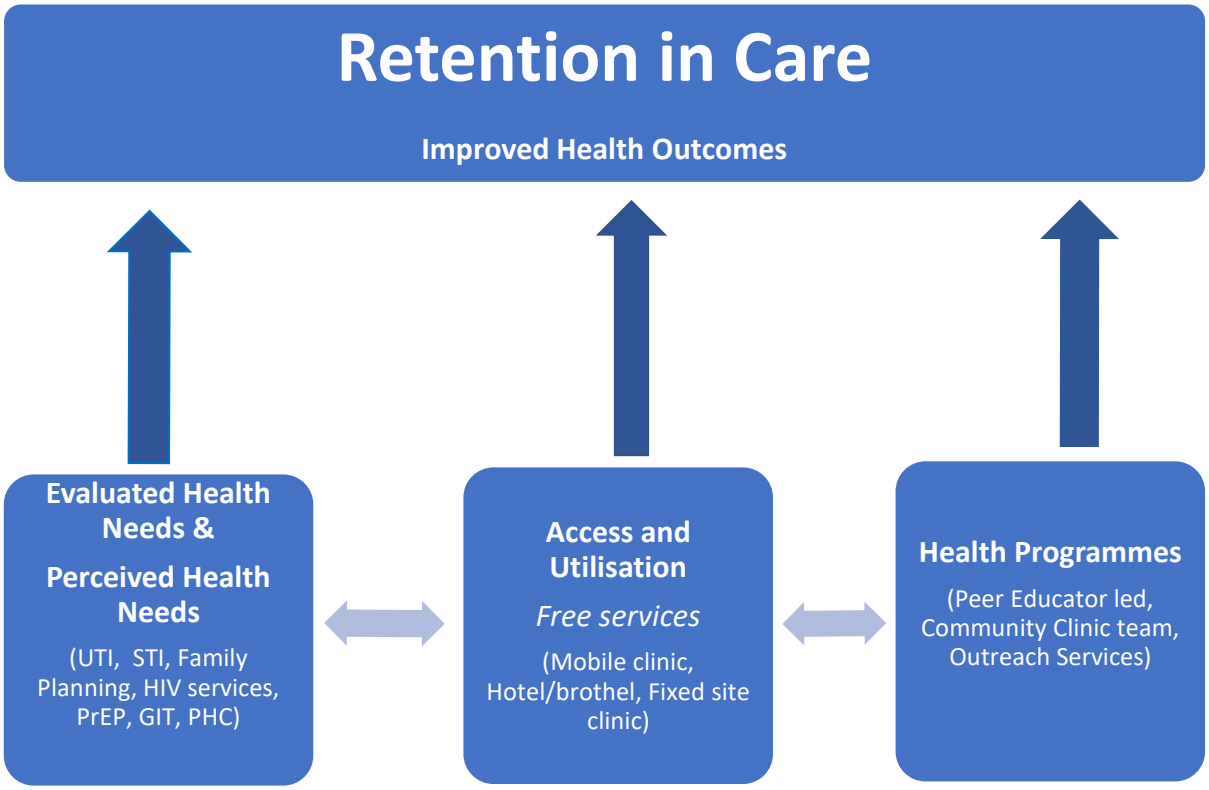

Figure 5: Conceptual framework illustrating key elements of retention observed in the study

4.3 Retention and Health Care Utilisation

The finding that only 37% of the FSWs were retained in healthcare (more than one clinic visit in the study period) is consistent with other studies which have reported poor retention in care among sex workers despite having more controlled conditions and even financial reimbursements in some instances (64, 65). In this study this low retention could be explained by the possibility that FSWs may not always use the same name or identity when accessing services because of concerns relating to working in a criminalised sector and potential concerns about irregular immigration status. As such, these FSWs would not have been recorded as "repeat" users and they could have multiple records with different unique identification.

The literature on the reasons why FSWs disengage from healthcare is thin, but it does provide some clues as to why this population disengage in healthcare even when

specialised services are provided for them. Most studies have explained poor engagement where FSWs have accessed public health care in terms of the stigma and discrimination they experience (124), unsuitable clinic opening hours (57), and criminalisation and social exclusion (10).

Access and utilisation in this study were conceptualised within the Gelberg-Andersen framework. Three modalities of clinics were analysed: fixed site, brothel/hotel and mobile clinic, all of which provided free services. The value of outreach services in improving access to care would appear to be supported by this study's findings, which showed that 51% and 16% of FSWs utilised services which were provided at brothels/hotels and in the mobile clinic, respectively. Several studies have highlighted the importance of tailored services for FSW, with a specific focus on community outreach as a modality to increase coverage and improve utilisation of services (25, 28, 29). FSWs may prefer community outreach as they may also fear that physically attending a fixed-site clinic that is known in the community to be a dedicated sex worker clinic would expose them to others as 'sex workers' and therefore invite stigma.

It was encouraging to note that HIV positive FSWs had a higher retention than their HIV negative counterparts in the bivariate analysis of retention and HIV status. Furthermore, in the bivariate analysis of primary reasons for visit and retention, FSWs who reported seeking HIV services at baseline showed higher retention compared to other reasons for seeking care. These results, although still not ideal are encouraging as they may reflect the efforts implemented by the Wits RHI programme to retain HIV positive FSWs in health care. Less than half (42%) of the FSWs who had HIV services as the primary reason for visit were retained. This trend was also shown in a systematic review of retention in HIV care between testing and treatment in sub-Saharan Africa (125), where attrition rates across the HIV continuum of care ranged from 32% to 54%. These attrition rates have a negative impact on the individual and society, including poor clinical outcomes, increased transmission of HIV and increased health care costs (126-128).

Unsurprisingly, FSWs who sought out health services because they had symptoms of an STI showed a higher retention in the bivariate analysis compared to FSWs who accessed services for any other reason. The higher retention could also reflect the easy

access to STI screening and treatment for FSWs during outreach activities. Recall that the majority of FSWs were accessing outreach services (hotel/brothel and mobile clinic). Peer educators are trained to proactively screen for STI symptoms and link FSWs to a professional nurse, who may be readily available to treat the STI.

The study findings reflect some of the challenges FSWs may face when trying to remain engaged in healthcare, as seen in the significant decrease in the number of FSWs who return for subsequent visits. What is reflected positively in these findings is that after the third visit, retention amongst FSWs does not drop off.

Although the services offered by the Wits RHI clinics are free of charge – suggesting greater access – the low retention reported in this study suggests that there are other factors at play (beyond the issue of cost), which require closer examination.

4.4 Factors associated with Retention

The study findings show that the city and the point at which FSWs accessed services, age, and country of birth were significantly associated with retention.

Although the two study settings are both urban and located in the central business districts, the odds of FSWs from Pretoria being retained were 1.78 times more than that of FSWs in Johannesburg. It should be considered however that the Pretoria site was only operational from 2014 and had lower numbers of FSWs in the database. It could be postulated that since Hillbrow is a central hub and home to migrants (more so than the Pretoria site), there might be higher mobility amongst these migrants, which could render retention a challenge. Also, differential profile and health-seeking behaviour between the FSWs in both cities may explain the finding. For example, FSWs in Pretoria were significantly older and less likely to be migrants.

FSWs who received services at the fixed site clinic had a higher retention compared to those who were reached through the mobile clinic or at their place of work. This was an unexpected finding considering that most FSWs accessed healthcare through outreach services which can minimise their opportunity costs lost due to time and

money spent travelling to the clinic, thus encouraging retention. Furthermore, it was expected that retention through community outreach health services would be higher than through the fixed site clinics as FSWs may still shy away from fixed-site clinics owing to prior experience of negative health worker attitudes in mainstream services (57). Although unexpected, this finding was also found in a study conducted in Port Elizabeth, South Africa, which showed that FSWs who accessed mobile services were less likely to return to the clinic for ART initiation after testing HIV positive (129). There are a number of plausible reasons for this. Firstly, the lower retention amongst FSWs who accessed services through community outreach in our study may be as a result of FSWs' mobility as a way to avoid police impunity or searching for more lucrative sites (2), as such the outreach teams may find it challenging to reach these FSWs again. Secondly, the mobile clinics themselves are mobile. They may not always pitch in the same location and sex workers may find it difficult to locate them when they need health services. Thirdly, FSWs who have the ability and willingness to visit fixed-site clinics may exhibit increased agency for their own health, therefore they are more likely to return to the clinic for services compared to their counterparts who have services brought to them.

This study found that retention in health care increased with age. Similarly, Mugavero et al found that younger patients were more likely to miss their clinic visits, with the odds of missing a visit increasing as age decreases. (70). In Zimbabwe, younger FSWs demonstrated significantly lower engagement in care at each step of the HIV cascade compared to older FSWs (97). The apparent disengagement of younger FSWs in health care may be as a result of social factors that promote risky behaviour and poor health-seeking behaviour (99), such as lack of knowledge of safe sex and limited access to health facilities. Alternatively, age could be ensconced in specific societal and cultural contexts, and perhaps younger women in this study were more exposed to the social disapproval of sex work by health providers, which became an impediment to continuous access of care. Consequently, these FSWs may have been more likely to disengage from health care.

This study showed that Zimbabwean FSWs were more engaged in health care and their odds of being retained in care were 1.31 times more compared to their South African counterparts. Richter et al. (130) found that cross-border migrants were more

empowered than their non-migrant counterparts with additional income-generating activities and safer working conditions, but had less contact with health services in three South African cities. The high retention of Zimbabwean FSWs in our study may have been driven by their need to stay healthy so that they could continue to work and take care of their families they were supporting in Zimbabwe. Alternatively, it may be explained by the "healthy migrant" effect, where immigrants to a new community may on average exhibit better health-seeking behaviour than the host population (131, 132).

4.5 Limitations

When considering the findings of this study it is important to bear in mind the following limitations. This study is limited by the use of retrospective methodology, which does not allow for controlling of external events or confounding factors that may have affected the programme. The retrospective approach also requires the use of routine programme data, which are not collected for research purposes and are therefore of poorer quality and completeness than data collected purposively for research. This was evident in the missing data that was observed in this study. Missing data can underestimate the impact of the findings and introduce bias. Jakobsen, et al (133) recommend that researchers plan for missing data at the planning stage of a randomised clinical trial, however the retrospective methodology in this study did not allow for this. The missing data imply that inferences from this study should be made with caution.

Furthermore, the programme data collected was not designed to answer the research question on retention in care. As such, there are several other factors that have not been explored in this study that may affect FSWs' retention in health services. These factors might have been of a qualitative nature, such as social exclusion, criminalisation, stigma and discrimination, as outlined in several literature (10, 57, 124). However, it is important to note that the programme employs experienced peer educators and sensitised clinical staff, which give credence to the validity of the data collected.

This study used only one measure of retention, which categorised FSWs' based on repeat visits. Mugavero et al. (95) recommended that best practice is to employ multiple

retention measures within one study, especially those based on missed visits and another on kept clinic appointments. These authors concluded that retention measures should be selected based on the available data, the research question, and the study rationale. With these recommendations in mind, this study used the available data to analyse the factors contributing to retention in health care among FSWs.

The programme data may have been limited by measurement error. The questions developed to assess alcohol and substance abuse (and which were examined in this study) were not validated measures. For example, alcohol and substance abuse were not assessed using standardised tools such as AUDIT (134) or CAGE (135). In addition, the questions relating to alcohol consumption were broad and the results may not have been necessarily linked to alcohol abuse. As such, the under-reporting may have affected our results on retention.

The independent variables assessed in this study were based on self-reports by FSWs and this may have been skewed by recall or social desirability bias, poor understanding of the questions or reluctance to divulge sensitive personal information. One example of this is that – contrary to expectations and to the high HIV prevalence among FSWs in this study – virtually all of the FSWs reported consistent condom use with their clients, implying that this may have been over-reported. The retrospective methodology in this study also hinders deeper investigation of the responses given.

The primary reasons for accessing health services were categorised in broad themes to ensure more robust results. But this may have limited examination of unique, and more specific reasons for visiting the clinics, such as mental health and gender-based violence post-care.

Lastly, the clinical services offered by the Wits RHI sex worker program in Hillbrow and Pretoria are mainly accessed by sex workers based in urban settings in which the clinics are located. FSWs not accessing services are likely to differ from the study population in significant ways which could limit the generalisability of the study results.

Despite these limitations, this study contributes to the growing evidence on factors that are associated with retention in health care among FSWs in South Africa.

Understanding how FSWs are retained in health care contributes to our knowledge of the needs of FSWs, and how services can be tailored to meet those needs. Furthermore, as FSW programmes scale up and expand, this research can shed light on the gaps that remain to be addressed, for example improving access to and utilisation of health services for young and new FSWs.

Chapter 5: CONCLUSIONS ANDRECOMMENDATIONS

The study found low levels of retention (defined as visiting the clinic more than once during the study period), with only 37% of the FSWs being retained. Documenting the low level of retention is important for highlighting the need for interventions in this population. Knowing the factors associated with retention is important for understanding who needs interventions and how interventions may be tailored. The study showed that age, city where services were accessed, point of service and country of birth were significantly associated with the outcome variable, retention in care.

Older FSWs were more likely to be retained in health care compared to younger FSWs. Although the study focused on women from urban centres only, there was a significant difference in retention between those who accessed care in Pretoria and those who were receiving services in Johannesburg, the former being positively associated with retention. The data shows that community outreach services are an effective way of reaching FSWs who may not be accessing mainstream services, however the lower retention amongst this group of FSWs suggests that strategies which encourage engagement in healthcare need to be developed. The study was also characterised by a high number of migrants, particularly from Zimbabwe, who had a higher retention compared to others from South Africa.

5.1 Recommendations

From the findings of this study, the following recommendations emanate.

5.1.1 Health Needs

The programme data analysed for this study showed that very few FSWs visited health services for needs such as mental health support, substance abuse support, and violence post-care. It is therefore critical to design interventions that are sensitive to and directly address FSWs' experiences of gender-based violence, human rights violations, substance abuse, and mental health problems, given the vulnerability of this population to these experiences. Providing these broad services may motivate FSWs to seek healthcare and to be retained in these health services.

5.1.2 Access to and Utilisation of Health Services

Based on the findings of this study, retention in care is clearly still a challenge, particularly in young FSWs. A combination package of services to provide interventions that address biological, social and structural determinants of poor health, tailored to the priorities and needs of this group should be considered. These services can include; screening and treatment of SRH problems in convenient places and appropriate times, skills building on financial empowerment and negotiating safe sex with clients and creating an environment that enables social cohesion amongst FSWs, such as safe spaces where they can discuss their challenges and collectively explore solutions (29, 97).

Criminalisation of sex work often results in authorities ignoring the importance of occupational health and safety regulations for sex workers (136). South Africa's debate on decriminalisation of sex work is still ongoing (137), despite the inclusion of sex workers in official strategies like the National Strategic Plan (138) and the South African National Sex Worker Plan (40). Sex-worker led movements should continue to lobby support for decriminalisation of sex work, which has been shown to have a positive impact on health care access and utilisation (139, 140). Furthermore, decriminalising sex work could enable labour laws to be applied to assist the sex work sector in developing safe workplace policies.

5.1.3 FSW programmes

The programme data available for this study highlighted the importance of not only tracking individuals in the continuum of care but also developing tools and sophisticated data systems to follow up individuals who need ongoing health services. Microplanning is an outreach approach which has been implemented to improve the effectiveness and coverage of community outreach efforts, including follow-up for health care services, by peer educators by using tools that assist tracking and tracing of FSWs (141). This approach can be adapted in various sex worker settings to improve retention in care through cohort tracking of FSWs by peer educators (141). In India the

decrease in STI infections and improved outcomes across the HIV continuum of care was attributed to this approach (142).

The Wits RHI programme reaches sex workers mostly through peer educators who are responsible for demand creation and mobilisation. Peer educators play a multi-faceted role within sex worker networks. They are the foundation of most sex worker programmes as they are often perceived to be non-judgemental and being former or current sex workers themselves, they have a nuanced understanding of the lifestyles of most sex workers (137, 143). Outreach services that are peer-led have been implemented successfully to raise awareness of sex workers' health needs and availability of health services, which in turn leads to improved health outcomes (13, 144). Peer support is also crucial for illiterate sex workers who require face-to-face interactions in order to understand health information, which may otherwise be read on an information, education and communications (IEC) material (59).

The high numbers of migrants in this study indicate the need for cross-border collaborations, particularly with Zimbabwe. Sex worker programmes in neighbouring countries could collaborate to form safe networks that strengthen interventions and also draw best practices from each other. Furthermore, developing bi-directional referral protocols with neighbouring countries, such as The Centre for Sexual Health and HIV/AIDS Research Zimbabwe (CeSHHAR) (http://ceshhar.org/study-sex-workers-denied-access-to-healthcare-in-zimbabwe/) could help to ensure that FSWs do not interrupt their treatment or miss important clinic appointments if they are visiting their countries of origin. This cross-collaboration should consider the laws on sex work in different countries and endeavour to create partnerships which will not increase FSWs' vulnerability to criminalisation and stigma.

5.2 Further Research

Further research on the mental health needs of FSWs is required. In Gambia, FSWs reported depressive symptoms as high as 62.6% (145), indicating the need for programmes to address the mental health needs of FSWs. Research into the impact of mental health on retention in health care is warranted because of FSWs' vulnerability

to poor mental health outcomes which may hinder optimal functioning (146, 147) and may result in missing clinic appointments for other health needs.

Understanding the health needs of FSWs underscores their effective access to and engagement in health services. It is imperative for further research to assess the reasons for poor retention of FSWs in health care, despite the presence of specialised services targeting them. An approach that incorporates qualitative methods and multiple measures of retention may be best suited to unearthing and understanding the reasons that drive retention in this population.

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APPENDICES

APPENDIX 1 : PLAGIARISM FORM

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG | FACULTY OF HEALTH SCIENCES

PLAGIARISM DECLARATION TO BE SIGNED BY ALL HIGHER DEGREE STUDENTS

SENATE PLAGIARISM POLICY: APPENDIX ONE

I Rutendo Bothma (Student number: 1481521) am a student registered for the degree of Master of Public Health in the academic year 2016.

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.

Signature:  Date: 18 March 2020

APPENDIX A: Intake Form i.

New Client / First Intake Form **Version: Oct 15 , 2010**

SECTION A: UNIQUE INFORMATION

1. SWP ID: | | | – | | | | | **2. Interview Date (dd/mmm/yyyy):** _____ / _____ / _____

3. Surname _____ **Name:** _____

4: Date of Birth (dd /mm / yy):_____/_____/_____

SECTION B: SOCIODEMOGRAPHIC INFORMATION

1. What is the highest grade of school that you completed? (Check only one)

☐ No schooling ☐ Primary ☐ Grade 8 - 10 ☐ grade 10 - 12 ☐ Higher

☐ Marital Status ☐ Single ☐ Married ☐ Divorced/Separated ☐ Widowed

2. Total Number of Pregnancies: I___I___I

4. Number of living children: **At home with the family** I___I___I **Living with you** I___I___I

5. How many people depend on your income including you? Adults I___I___I Children I___I___I

6. Name of Hotel Where you currently <u>WORK</u> (check only one)

☐ Nest Inn ☐ Hillbrow inn ☐ Ambassador ☐ Maxime ☐ Diplomat

☐ Little Rose ☐ Soper ☐ Hilton Plaza ☐ Summit Club ☐ Royal Park

☐ German Club ☐ Sky Place ☐ Others (s):_____

7. How long have you worked in this hotel? I___I___I **years** I___I___I **months**

8. Name the hotels where you previously worked in <u>Johannesburg</u> (JHB) (check all that apply):

☐ Nest Inn ☐ Hillbrow inn ☐ Ambassador ☐ Maxime ☐ Diplomat

☐ Little Rose ☐ Soper ☐ Hilton Plaza ☐ Summit Club ☐ Royal Park

☐ German Club ☐ Sky Place ☐ Others (s):_____

9. Where do you currently <u>LIVE?</u> (Check only one)

☐ Nest Inn ☐ Hillbrow inn ☐ Ambassador ☐ Maxime ☐ Diplomat

☐ Little Rose ☐ Soper ☐ Hilton Plaza ☐ Summit Club ☐ Royal Park

☐ German Club ☐ Sky Place ☐ Others (s):_____

SECTION C: GEOGRAPHICAL INFORMATION

1. Where were you born? ☐ Gauteng → Skip to Q5 ☐ Outside Gauteng

☐ Outside South Africa→ Skip to Q6

2. If from outside <u>Gauteng</u>, which province are you from? (Check only one)

☐ KZN ☐ Northwest ☐ Mpumalanga ☐ Other: _____

3. How long have you been in JHB? I___I___I **years** I___I___I **months**

4. Did you engage in sex work prior to coming to JHB? ☐ YES ☐ No

5. Total time you have engaged in sex work? I___I___I **years** I___I___I **months** Skip to Q10

APPENDIX B: Intake Form ii.

New Client / First Intake Form **Version: Oct 15 , 2010**

6. In what country were you born? (Check only one)

☐ Mozambique ☐ Lesotho ☐ Swaziland ☐ Nigeria ☐ Botswana

☐ Zimbabwe ☐ Zambia ☐ Namibia ☐ DRC ☐ Other: _____

7. How long have been in South Africa? I___I___I years I___I___I months

8. Duration of sex work in South Africa? I___I___I years I___I___I months

9. Did you engage in sex work before coming to South Africa?

☐ YES ☐ No **If YES, I___I___I years I___I___I times**

ALL RESPONDENTS:

10. In the last 12 months, how many times have you moved house? I___I___I years

11. In the last 12 months, how many times did you return home to visit friends or family? (Check only one)

☐ None ☐ 1-2 times ☐ 3-4 times ☐ >4 times ☐ NA (from JHB)

12. Did you engage in sex work when you visit home? ☐ YES ☐ No ☐ NA

13. If you have a main partner, where does he live? (Check one)

☐ No main partner ☐ JHB/Gauteng ☐ Outside Gauteng ☐ Outside South Africa

SECTION D: PAST MEDICAL AND SEXUAL HISTORY

1.What medical problems do you have? (Check all that apply) ☐ None ☐ High blood pressure

☐ Diabetes ☐ Overweight ☐ Anemia (low blood count) ☐ Other: _____

2. Have you ever had any of the following sexually transmitted diseases? Check all that apply)

☐ None ☐ Genital ulcer disease ☐ Genital warts ☐ Vaginal Candida/thrush ☐ PID

☐ Syphilis ☐ Genital herpes ☐ PVD ☐ Other: _____

3. Have you experienced any of the following types of violence during sex worker? (Check all that apply)

☐ None ☐ Physical ☐ Sexual ☐ Emotional ☐ Financial/theft ☐ Other:

_____

4. If yes to Q3, did you seek medical or social help as a result of violence? ☐ YES ☐ No ☐ NA

5. If No to Q4, why did you not seek help? _____ ☐ NA

_____

6. In the past, have you had difficulty getting medical care or social help? ☐ YES ☐ No ☐ NA

7. If YES, to Q6, what were the reasons? (Check all that apply)

☐ NA ☐ Police harassment ☐ Community harassment ☐ Refused treatment/care

☐ Social stigma ☐ other: _____

INTERVIEWER Initials & Surname: _____

APPENDIX C: Clinic Visit Form i.

Clinical Visit Form **Version: Jan 8, 2013**

SECTION A: UNIQUE INFORMATION

1. SWP ID: | | | - | | | | | **2. Interview Date (dd/mmm/yyyy):** _____ / _____ / _____

☐ New Visit ☐ Review Visit ☐ Return Visit **Drug Allergies:** _____

Site of visit: ☐ Esselen ☐ Hotel (specify): _____

SECTION B: HISTORY & PHYSICAL EXAMINATION

1. Complaints (check all that apply):

☐ No complaints ☐ Request FP ☐ Pain/burning with urination
☐ Genital sore/blister ☐ Rash ☐ Pelvic/abdominal pain
☐ Vaginal itching ☐ PVD ☐ Other(s), specify: _____

2. Current medications. DO NOT include medications prescribed at this visit. (check all that apply):

☐ None ☐ Erythromycin ☐ Bicillin ☐ Doxycycline ☐ Flagyl
☐ Fixime ☐ Vaginal tab ☐ ARVs ☐ Other(s), specify: _____

3. Current contraception method (check all that apply): ☐ Condom ☐ Injectable ☐ Pill
☐ None ☐ IUD / Loop ☐ Other: _____

4. Beginning date of LMP (dd/mmm/yyyy): _____ / _____ / _____

5. When was the last time you were tested for HIV? |_____|_____| (mmm/yyyy) ☐ Never→ **Skip to Q7**

6. Result of your last HIV test? ☐ Positive ☐ Negative ☐ Do not know ☐ NA

7. Why never tested for HIV? (check all that apply) ☐ NA ☐ Don't know ☐ Impact on work
☐ Not offered ☐ Don't care ☐ Afraid ☐ Stigma ☐ Other:_____

8. Would you like to test for HIV today? ☐ Yes ☐ No ☐ NA (HIV positive)

9. Have you had any of the following symptoms only in the last 8 weeks? (Circle for each/list days if Yes)

			Duration (days)				Duration (days)
Fever	Yes	No	|___|___|	Swollen glands	Yes	No	|___|___|
Headache	Yes	No	|___|___|	Sore throat	Yes	No	|___|___|
Night sweats	Yes	No	|___|___|	Sores in mouth	Yes	No	|___|___|
Body aches	Yes	No	|___|___|	Cough	Yes	No	|___|___|
Rash	Yes	No	|___|___|	Nausea/ vomiting	Yes	No	|___|___|
Loss of appetite	Yes	No	|___|___|	Painful stomach	Yes	No	|___|___|
Oral thrush	Yes	No	|___|___|	Diarrhea	Yes	No	|___|___|

10. Clinical findings (Check all that apply):

☐ None ☐ GUD ☐ Genital warts ☐ Herpes
☐ FP provided ☐ PID ☐ Vaginal candidiasis ☐ Vaginal discharge
☐ Abscess, location: _____ ☐ Other(s), specify: _____

SECTION C: SCREENING PROCEDURES & RESULTS

APPENDIX D: Clinic Visit Form ii

Clinical Visit Form **Version: Jan 8, 2013**

1. **Procedures done at this visit:**

1.a. HIV Rapid Testing? #1: ☐ No ☐ Yes → **Result:** ☐ Pos ☐ Neg ☐ Indeterminate

#2: ☐ No ☐ Yes → **Result:** ☐ Pos ☐ Neg ☐ Indeterminate

1.b. Pap smear? ☐ No ☐ Yes

1.c. Pregnancy test? ☐ No → **Skip to Q3** ☐ Yes → **Result:** ☐ Pos ☐ Neg → **Skip to Q3**

2. **If pregnant, ask "Do you plan to deliver the baby?"** ☐ No ☐ Yes ☐ Don't know

3. **Blood sample obtained?** ☐ No ☐ Yes → **Specify:** ☐ CD4 ☐ Baseline bloods ☐ RPR ☐ Other: _____

4. **TB screening - Check all current symptoms:**

Cough > 2 weeks? ☐ No ☐ Yes | Fever or night sweats? ☐ No ☐ Yes

Loss of weight or appetite? ☐ No ☐ Yes | TB contact in last 12 months? ☐ No ☐ Yes

5. **Sputum bottles given?** ☐ No ☐ Yes

SECTION D: ACTION TAKEN

1. **Medication prescribed (check all provided):** ☐ Erythromycin_____ ☐ Bicillin_____ ☐ Doxycycline_____ ☐ Flagyl_____ ☐ Fixime_____ ☐ Ceftriaxone_____

☐ Other(s), specify: _____

2. **Referral:** ☐ ARV Site, specify: _____ ☐ TOP

☐ Other, specify: _____

3. **Partner notification slip issued?** ☐ No ☐ Yes ☐ Declined

INTERVIEWER Initials & Surname: _____

CONTINUATION NOTES (if last visit within prior 4 weeks document findings/plan here):

4. **Date of continuation visit** (dd/mmm/yyyy): ____ / _____ / _____

5. ☐ **Result(s) given→ Specify:** ☐ RPR ☐ CD4 ☐ PAP ☐ Baseline bloods ☐ Other:_____

Place Label for Baseline Bloods here

APPENDIX E: Behavioural Risk Form i

Behavioural Risk form **Version: Oct 15 , 2010**

SECTION A: UNIQUE INFORMATION

1.SWP ID: | | | – | | | | |

2. Interview Date (dd/mmm/yyyy): _____ / _____ / _____

☐ **Check if moved to the new Hotel/location, specify:**_____

SECTION B: SEXUAL BEHAVIOR INFORMATION

*** **Do not administer if completed with client in the prior 3 months.**

1. Do you have a main or a causal partner (not clients): ☐ Main partner ☐ Casual Partner

☐ None→ Skip to Q6

2. In the past 7 days, how many partners (not clients) did you have sex with? |___|___|

3. In the past 7 days, what type of sex have you had with your current partner(s)? (not clients)

☐ **NA (no partners)**

	Main partner	Casual partner(s)
Vaginal	Yes/No/Declined	Yes/No/Declined
Oral giver	Yes/No/Declined	Yes/No/Declined
Oral receptive	Yes/No/Declined	Yes/No/Declined
Anal	Yes/No/Declined	Yes/No/Declined
Number of Sex Encounters	|___|___|	|___|___|

4. How often do you use condoms with your current partners? (Not clients) (Circle only one for each)

Main partner	Casual partner(s)
Every time/Sometimes/Never/ NA	Every time/Sometimes/Never/ NA

5. What are the reasons for not using condoms every time with your partner(s)? (Check all that apply):

☐ NA (use every time) ☐ Not available ☐ Partner preference

☐ Personal preference ☐ Partner(s) refused ☐ Other_____

***CLIENT INFORMATION ONLY**

6. In the last 7 days, how many times have you had sex with clients? I___I___I encounters

7. Number of days of sex work within the last 7 days: I___I___I days

8. Number of clients seen in the last working day (excluding today): I___I___I Clients

9. In the last 7 days, what type of sex have you had with your clients? (Circle only one for each)

Vaginal	Oral giver	Oral receptive	Anal
Yes/No/Declined	Yes/No/Declined	Yes/No/Declined	Yes/No/Declined

10. How often do you use condoms with your clients? ☐ Every time ☐ Sometimes ☐ Never

APPENDIX F: Behavioural Risk Form ii

Behavioural Risk form **Version: Oct 15 , 2010**

11. If not every time, what are the reasons for not using condoms all the time? (Check all applicable)

☐ NA (use every time) ☐ Not available ☐ Received more money
☐ Personal preference ☐ Client refused ☐ Other: _____

12. If you think of all the men you have had sex 2ith in the last 7 days- BOTH CLINETS & PARTNERS- what country do you think they are from? (Check all that apply)

☐ S Africa ☐ Zimbabwe ☐ Nigeria ☐ Mozambique ☐ Don't know
☐ Lesotho ☐ Swaziland ☐ DRC ☐ Zambia ☐ Other: _____

13. In the past month, have you used any of the following drugs prior to or during sex with clients?

Alcohol: ☐ YES ☐ No **dagga:** ☐ YES ☐ No **Crack or rock:** ☐ YES ☐ No

Tik: ☐ YES ☐ No **Mandrax:** ☐ YES ☐ No **Other drug(s):** _____

14. In the past 7 days, have you had sex after drinking 5 or more drinks with a client? ☐ YES ☐ No

SECTION B: MEDICAL &SEXUAL HISTORY

1. Are you currently pregnant? ☐ Yes ☐ No → Skip to Q4 ☐ Don't know → Skip to Q4

2. If Yes, have you attended prenatal care for pregnancy? ☐ YES ☐ No ☐ NA

3. Do you plan to deliver the baby? ☐ YES ☐ No ☐ NA ☐ Don't know

---

4. When was the last time you were tested for HIV? I___I___I (dd/mmm/yyyy) ☐ Never → Skip to Q6

5. What was the result of your last HIV test? ☐ Positive → Skip to Q7
☐ Negative ☐ Don't know ☐ NA (never tested)

6. How at risk do you think you are for getting HIV?

☐ No risk ☐ Some risk ☐ Great risk ☐ Don't know ☐ NA (HIV Positive)

7. Would you like to test for HIV today? ☐ YES ☐ No ☐ NA (HIV Positive)

---

8. Condoms given? (Check all applicable): ☐ Male ☐ Female
☐ Declined ☐ Not available

9. Do you have any physical complaints today or need to see a nurse?

☐ Yes- Complete CLINICAL VISIT FORM ☐ No

INTERVIEWER Initials & Surname: _____

APPENDIX G: Ethics Approval: M180958

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG	HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

Office of the Deputy Vice-Chancellor (Research & Post Graduate Affairs)

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University

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CC: Supervisor: Drs F Scorgie and B Bello <fscorgie@wrhi.ac.za>
and <HREC-Medical.ResearchOffice@wits.ac.za>

FROM: Iain Burns
Human Research Ethics Committee (Medical)
Tel: 011 717 1252

E-mail: Iain.Burns@wits.ac.za

DATE: 08/01/2019

REF: *R14/49*

PROTOCOL NO: **M180958** *(This is your ethics application study reference number. Please quote this reference number in all correspondence relating to this study)*

PROJECT TITLE: *Socio-demographic factors associated with retention of female sex workers in health care in Hillbrow and Pretoria sex worker clinics*

Please find attached the Clearance Certificate for the above project. I hope it goes well and that an article in a recognized publication comes out of it. This will reflect well on your professional standing and contribute to the Government funding of the University.

MSWorks2000/Iain0007/Clearscan.wps

APPENDIX H: Ethics Approval: M180958

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

R14/49 Ms R Bothma

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
CLEARANCE CERTIFICATE NO. M180958

NAME: (Principal Investigator)	Ms R Bothma
DEPARTMENT:	School of Public Health Medical School University
PROJECT TITLE:	Socio-demographic factors associated with retention of female sex workers in health care in Hillbrow and Pretoria sex worker clinics
DATE CONSIDERED:	28/09/2018
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Drs F Scorgie and B Bello
APPROVED BY:	Dr N Naran, Deputy Chairperson, HREC (Medical)
DATE OF APPROVAL:	08/01/2019

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 Research Office Secretary on 3rd floor, Phillip V Tobias Building, Parktown, University of the Witwatersrand, Johannesburg.
I/We fully understand the conditions under which I am/we are authorised 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 to the Committee. **I agree to submit a yearly progress report**. When a funder requires annual re-certification, the application date will be one year after the date of the meeting when the study was initially reviewed. In this case, the study was initially reviewed in **September** and will therefore reports and re-certification will be due early in the month of **September** each year. Unreported changes to the application may invalidate the clearance given by the HREC (Medical).

Principal Investigator Signature _____ Date _____

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

APPENDIX I: Letter of Approval

University of the Witwatersrand
WITS RHI

27 August 2018

University of the Witwatersrand
Human Research Ethics Committee (HREC)
Johannesburg

To whom it may concern

Re: APPROVAL FOR RUTENDO BOTHMA TO USE WITS RHI SEX WORKER PROGRAMME DATASET FOR MASTERS OF PUBLIC HEALTH RESEARCH.

This letter is to notify you that The Wits Reproductive Health and HIV Institute (Wits RHI) grants Rutendo Bothma permission to use the Wits RHI sex worker programme dataset for her Masters in Public Health research report titled **"Socio-demographic factors associated with retention of female sex workers in health care in Hillbrow and Pretoria sex worker clinics".**

If the research report is published, the student should acknowledge the Wits RHI sex worker programme.

Please do not hesitate to contact me at 011 358 5300 or email nhill@wrhi.ac.za should you have any queries.

Kind Regards,

Naomi Hill
Technical Lead, Wits RHI Sex Worker Programme

University of the Witwatersrand
WITS RHI

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Wits RHI is an Institute of the University of the Witwatersrand and a WHO Collaborating Centre