

DETERMINANTS OF STI-RELATED CARE-SEEKING BEHAVIOUR AMONG FEMALE SEX WORKERS IN SOUTH AFRICA'S MAJOR METROPOLITAN CITIES



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A RESEARCH REPORT SUBMITTED TO THE UNIVERSITY OF THE
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DECLARATION

I, Nomawonga Lesedi Bongiwe Sibusisiwe Ndlovu, declare that this research report is my original work. All secondary materials used in this study have been thoroughly acknowledged and cited in accordance with the American Psychological Association (APA) referencing style. This report is submitted to the Faculty of Humanities, School of Social Sciences in partial fulfilment of the requirements of the Master of Arts in Demography and Population Studies. To the best of my knowledge, this research report has not been submitted before for any degree or examination at this or any other university.

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Signature: _____

Date: 15 August 2025

DEDICATION

“all glory to God, who is able, through His mighty power at work within us, to accomplish infinitely more than we might ask or think.”

Ephesians 3:20 - NLT

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LIST OF ACRONYMS

AMR – Antimicrobial-Resistance
CAPRISA – Centre for the AIDS Programme of Research in South Africa
CFSWs – Clients of Female Sex Workers
FGM - Female Genital Mutilation
FSW - Female Sex Worker
HIV - Human Immunodeficiency Virus
HPV - Human Papillomavirus
NACOSA - Networking HIV & AIDS Community of Southern Africa
NSP - National Strategic Plan
NSWP – National Sex Worker Plan
QDSTM - Questionnaire Development System
RDS - Respondent-Driven Sampling
SANAC - South Africa National AIDS Council
SDG - Sustainable Development Goals
SSA - Sub-Saharan Africa
STI - Sexually Transmitted Infections
TB - Tuberculosis
UNAID - US Agency for International Development
USA - United States of America

ABSTRACT

Background: Sexually transmitted infections (STIs) remain a major global public health concern as they contribute significantly to population morbidity and mortality. Due to their risky sexual behaviours, female sex workers are a key population that has been identified as a group most at risk of acquiring STIs, which is further heightened by their biological susceptibility and other compounding factors. All STIs are manageable, either through curative treatments or long-term management strategies; however, a significant proportion remain untreated. Previous studies have found that only 20.5% of female sex workers who have STIs seek treatment, and 9.2% consult healthcare providers. The disparity in STI-related care-seeking among FSWs persists despite their heightened risk of acquiring and transmitting STIs. The implications are far-reaching, potentially leading to a higher risk of STI transmission and, in extreme cases, fatalities. Though actioned by an individual, care-seeking behaviour is influenced by a complex matrix of factors that operate at the level of the individual, family, and community. There is a paucity of recently published literature that specifically explores the demographic, socioeconomic, and health-related factors associated with FSW STI-related care-seeking behaviour in South Africa in a single study. Part of managing the STI crisis in South Africa entails gaining an understanding, through research, of what factors drive how FSWs behave to either prevent STI acquisition or find a remedy for an STI.

Objective: To determine how demographic, socioeconomic, and health-related factors influence STI-related care-seeking behaviour among female sex workers in South Africa's major metropolitan cities.

Methods: This is a quantitative cross-sectional study using secondary unweighted cross-sectional data obtained from the 2018 South African Health Monitoring Study, which was the second round of Biological and Behavioural Surveys among female sex workers in South Africa. Ethical clearance was obtained from the University of the Witwatersrand Humanities Research Ethics Committee, and data access was approved by The Aurum Institute's Data Sharing Governance Committee. The outcome variable in this study was STI-related care-seeking behaviour (sought advice or treatment for self-reported STI symptoms – abnormal discharge or sore/ulcer near or on the vagina). Binary logistic regression was used to determine

the association between STI-related care-seeking behaviour and selected demographic, socio-economic, and health-related explanatory variables.

Results: Of the 745 FSWs who reported STI symptoms, 88% (n = 657) sought treatment. The demographic factors associated with STI-related care-seeking were the city of Durban (reference category: Cape Town) (AOR = 2.99, p= 0.002, 95% CI: 1.51-5.89) and being single (reference category: married) (AOR = 2.59, p= 0.018, 95% CI: 1.18-5.67). All socio-economic factors namely, personal income, household income, and level of education, were not associated with STI-related care-seeking behaviour. The health-related factor associated with STI-related care-seeking behaviour was knowledge of STIs other than HIV (reference category: no knowledge) (AOR = 9.09, p= 0.003, 95% CI: 2.12-38.96).

Conclusion: STI-related care-seeking among FSWs in the three metropolitan cities was high. Living in Durban and being single were positively associated with seeking care, likely due to better service access and greater autonomy. Knowledge of STIs other than HIV was positively associated with STI-related care-seeking behaviour, suggesting that peer-led interventions may be effective in boosting STI awareness and care-seeking behaviours. These findings highlight the need for tailored, context-specific interventions to sustain and enhance STI service uptake. However, recent funding cuts threaten to erode current successes. The people-centred framework, aligning resources with the specific needs of FSWs, may offer a sustainable approach to improve sexual and reproductive health outcomes.

Keywords: Sexually Transmitted Infections, Sexually Transmitted Diseases, Female Sex Workers, Health-Seeking Behaviour

CHAPTER 1: INTRODUCTION

1.1 Background

Sexually transmitted infections (STIs) remain a major global public health concern as they contribute significantly to population morbidity and mortality (Agozzino et al., 2004; H. W. Chesson et al., 2017a). Untreated sexually transmitted infections can cause severe complications, including neurological and heart diseases, infertility, stillbirths, cancer, and increased HIV risk (Newton-Levinson et al., 2016). As such, STIs have been identified as one of the leading causes of mortality and morbidity among females of reproductive age in low-to-middle income countries (Kamb et al., 2010; Seidu et al., 2023). STIs are infections that are transferred between individuals during sexual intercourse that is oral, vaginal, or anal (Morris, 2024; World Health Organisation, 2024a). Globally, it is estimated that the incidence of curable STIs is as high as one million per day, contributing to the global health burden (Cohen et al., 2019; World Health Organisation, 2024a). Furthermore, studies have shown that individuals who present with STI symptoms such as genital warts and sores report lower levels of quality of life than individuals whose STIs are asymptomatic or have less severe symptoms (Singh & Singh, 2021).

In 2008, Sub-Saharan Africa (SSA) shouldered over 40% of the global STI burden (White et al., 2008). To date, South Africa continues to be known as the epicentre of the HIV pandemic, boasting the highest HIV incidence and prevalence rates, coupled with the highest STI prevalence (roughly 23%) among the population aged 16-29, globally (Frank et al., 2023; Wand et al., 2020). Further, recent statistics show that there are approximately 2.5 million global STI-related deaths annually (World Health Organisation, 2024b). There are over thirty different STI pathogens that exist in the world in the form of bacteria, parasites, and viruses (World Health Organisation, 2024a). STIs can also be transmitted non-sexually through direct skin contact with infected sores or blood and broken or cut skin (Bani, 2022). Other methods of STI spreading are: lateral transmission during child delivery, pregnancy, and the sharing of unsterilised surgical tools or needles (Ka'e et al., 2023; Kassel, 2021). The symptoms associated with STIs typically fall into two main categories: discharge or painful urination, and ulcerative lesions (Garcia et al., 2023).

All STIs are manageable, either through curative treatments or long-term management strategies; however, a significant proportion remain untreated (Mapp et al., 2017; World Health Organisation, 2023a). Researchers have found it difficult to quantify how many STIs go untreated, and STI-related care-seeking knowledge in South Africa remains limited. However, researchers outside South Africa have estimated that up to 50% and 70% of males and females who have chlamydia do not experience symptoms and consequently do not seek treatment (Bishop, 2022; Mapp et al., 2017). Gonorrhoea presents asymptotically in up to 40% of males and at least half of females. Herpes simplex virus is particularly elusive, with about 70% of infected individuals showing no apparent symptoms, and human papillomavirus (HPV) tops the list, with 70-90% of cases being asymptomatic. STIs that go untreated are a result of individuals not seeking care and serve as a strong motivation for accessible routine testing (Abood, 2023; Bishop, 2022). For symptomatic STIs, roughly 86% of people reported using treatment, in one study (Mullick et al., 2023).

Not only do STIs perpetuate morbidity and mortality, but they also have adverse effects on the overall quality of life and well-being of individuals, particularly those of females. Females are more susceptible to contracting STIs and HIV due to the thin lining and moist environment of the vagina that allows bacteria to thrive (Michigan State University, 2015). Furthermore, STIs largely disproportionately affect the reproductive health of women, leading to infertility, birth defects, neonatal deaths, cervical and other cancers, and pelvic inflammatory disease (World Health Organisation, 2023a). Among females of reproductive age, the three most common causes of healthy life years lost are: HIV, maternal causes, and STIs (Lusti-Narasimhan et al., 2011). This further reiterates the importance of curbing the STI crisis among females in particular.

Apart from females, key populations such as sex workers, men who have sex with men, transgender people, people who inject drugs, and prisoners have been identified as groups most at risk of acquiring and transmitting STIs (The Global Fund, 2020). This is due to the adverse social, economic, and structural challenges they face that can be summarised as: poverty, violence, gender inequality, stigma, and discrimination (Jewkes et al., 2023; Navarrete Gil et al., 2021). Female sex workers (FSWs) are a key population that has been identified as a group most at risk of acquiring STIs, which is further heightened by their biological susceptibility and other compounding factors (Bitty-Anderson et al., 2022; Burns et al., 2006; Chen et al., 2011).

FSWs in previous studies have reported an average of at least four daily sexual clients (Sitonga et al., 2023). Having a high frequency of sexual encounters increases exposure to trauma and tears of the mucous membranes of the vagina, urethra, or rectum (sites of STI transmission) (Mandal, 2023). In addition to this, having a high number of sexual partners also increases exposure to potential STI carriers, and having condom-less sexual encounters leads to higher exposure to STIs (Iversen et al., 2020). As a result, this research project will focus on FSWs as the primary study population, given their disproportionately high prevalence of STIs and their unique vulnerability within the broader context of sexual health (Chabata et al., 2025).

Whether compared to the general female population or females in the same age group, FSW STI rates always fare higher. In SSA, 50-66% of FSWs have at least one STI at any given time (World Health Organisation, 2021). A longitudinal study conducted in Kwa-Zulu Natal province between 2002 and 2016 determined that STI prevalence among FSWs was 20% while the incidence rate was 15 per 100 females in the general population (Wand et al., 2020).

Sex workers (both male and female) have been found to have 13.5 time greater odds of being infected with an STI compared to the general population owing to various structural, behavioural, and environmental factors in their line of work (Baral et al., 2012). FSWs perform sexual acts for monetary or material gain (WorkSafe ACT, 2024). Structural factors they face include the criminalisation of sex work, poverty, and limited access to healthcare due to stigmatisation and discrimination (Iversen et al., 2020). Behavioural contributing factors include poor condom use patterns, having multiple sexual partners, and participation in group sex (Nsanzimana et al., 2020; Uddin et al., 2014). Environmental factors are challenges faced within the place of work, such as forced sex, violence, and poor access to condoms and healthcare services (Khanam et al., 2017). A vast majority of these challenges are known to affect the likelihood of FSWs seeking healthcare for STIs negatively (Nnko et al., 2019).

Care-seeking behaviour refers to any action or lack thereof taken by individuals who perceive themselves as unwell in an effort to find an appropriate remedy (Olenja, 2003). Care-seeking encompasses several stages: recognizing symptoms, interpreting their significance, evaluating the situation, and making decisions about seeking healthcare (S. Scott & Walter, 2010). Though actioned by an individual, care-seeking behaviour is influenced by a complex matrix of factors that operate at the level of the individual, family, and community (van der Hoeven et al., 2012).

Care-seeking for STIs in particular is known to be negatively influenced by stigma (Lee & Cody, 2020). Research in this field has tended to focus on reporting the outcomes of care-seeking behaviour, rather than examining the factors that lead to avoiding or not seeking care (Mapp et al., 2017). As such, this study aims to do the latter, that is, to find the specific demographic, socio-economic, and health-related factors that lead to care-seeking behaviour for self-reported STI symptoms.

Not much is known about the more recent levels of STI-related care-seeking behaviour in South Africa's major metropolitan cities – Durban in Kwa-Zulu Natal province, Johannesburg in Gauteng province, and Cape Town in the province of the Western Cape- as the available studies date back to the early 2000s and do not include FSWs as the study population (Govender & Eche, 2012; Wilson, 2000). More recent studies regarding FSWs and STIs have been located in the city of Durban, the epicentre of the HIV pandemic, mostly regarding STI prevalence and risk factors for STIs and HIV (Allinder & Fleischman, 2019; Mazibuko, 2024). Given that the prevalence rates of STIs among FSWs are high in these metropolitan cities, what are the factors contributing to these rates, and what behaviours of FSWs are perpetuating or reducing the rates?

In response to the global health crisis, which includes the scourge of STIs, various intervention programmes and policies have been introduced and implemented to manage, prevent, and control STIs with a specific focus on FSWs, and key populations at large. The South African National Strategic Plan (NSP) by the Department of Health outlines goals to improve the prevention and treatment of tuberculosis (TB), STIs, and HIV. Its goals include accelerating infection prevention, reducing mortality through treatment, creating interventions for vulnerable groups, and addressing structural drivers of these diseases. The latest 2023-2028 NSP emphasizes a multi-sectoral approach to achieving these objectives (South African National Aids Council, 2023).

There are currently a multitude of programs run by organisations that champion the goals of the NSP to build a healthy South African community. The Networking HIV & AIDS Community of Southern Africa (NACOSA) runs programs aligned with the NSP and Sustainable Development Goals. NACOSA focuses on vulnerable populations, including sex workers, to prevent new infections and improve health outcomes through outreach and peer education (NACOSA, 2023). The second South African National Sex Worker (NSWP) HIV,

TB, and STI Plan (2019–2022) targets reducing mortality, morbidity, and human rights violations among sex workers (Jaffer et al., 2022). Like the NSP, it emphasizes multisectoral collaboration (Jaffer et al., 2022; South African National Aids Council, 2023). However, the NSWP has not been updated since, highlighting neglect of sex workers' health crises (Tipping & Segall, 1995).

Another neglected aspect of the sex workers' health crisis is the decriminalisation of sex work. It is known that FSWs' vulnerability to STIs is further heightened by the criminalisation of sex work. The decriminalisation of sex work could serve to afford sex workers legal protection and rights, improved access to services such as healthcare, and overall empowerment (Cordingley, 2024). Although South Africa proposed the Criminal Law (Sexual Offences and Related Matters) Amendment Bill in 2022 to decriminalize sex work, aiming to reduce sexual violence and STI/HIV risks among FSWs by addressing a key structural factor, the Bill has not yet been passed (Jewkes et al., 2023; Masson, 2023; Masuku & Kwanje, 2023). If passed, the regulation of sex work could improve the care-seeking behaviours among FSWs (Sirotin et al., 2010).

Most STIs are asymptomatic or go unnoticed, which misleads individuals to hold the perception that they do not carry any STIs, which can cause a cascade of health problems (World Health Organisation, 2023a). The way forward toward a global society that has eradicated the STI crisis involves early screening for STIs and timely treatment, strengthened surveillance systems monitoring the STI rates through increased and adequately funded research, proper implementation of policies and targeted intervention programmes (Moyo et al., 2023; National Academies of Sciences, 2021; World Health Organisation, 2023a). However, researchers are yet to determine the full complex set of factors that drive the current STI crisis and behaviours that perpetuate it as they vary across regions (Keller, 2020).

Part of managing the STI crisis in South Africa entails gaining an understanding, through research, of what factors drive how FSWs behave to either prevent STI acquisition or find a remedy for an STI. This research report aims to determine demographic, socioeconomic, and health-related factors that promote FSWs seeking healthcare as it relates to STIs to enhance the expanding body of research on STIs and their management in South Africa.

1.2 Problem Statement

Poor STI-related care-seeking behaviour among FSWs poses significant challenges at both the level of the individual and the level of public health in developing countries (H. W. Chesson et al., 2017b; World Health Organisation, 2024a). At the level of the individual, poor STI-related care-seeking behaviour causes morbidity and mortality (World Health Organisation, 2024a). Complications related to untreated STIs are known to be attributable to inadequate care-seeking behaviour (Aral & Wasserheit, 1999; Tsadik et al., 2019; World Health Organisation, 2016). STIs that are left untreated can have serious health consequences that negatively affect the quality of life of an individual in the long-term, both in terms of their health and economic standing (H. Chesson et al., 2024; World Health Organisation, 2024a).

Some of the long-term effects of untreated STIs are liver and cervical cancer, arthritis, leukaemia, chronic abdominal pain, central nervous system disease, and a higher risk of acquiring and transmitting HIV (World Health Organisation, 2024a). For FSWs whose primary motivation for sex work is monetary gain, their ability to work may be hindered through time lost travelling to, waiting at, and receiving treatment at healthcare facilities, thereby negatively impacting their economic productivity (H. Chesson et al., 2024).

While the rates of STIs among FSWs compared to females in the general population are always significantly higher, the levels of STI-related care-seeking behaviour among FSWs are significantly lower compared to females in the general population (Mc Grath-Lone et al., 2014). In SSA, 34% of females in the general population exhibit poor care-seeking practices for STIs in the form of delaying care-seeking (Seidu et al., 2023). Previous studies have found that among FSWs, only 20.5% who have STIs seek treatment, and 9.2% consult healthcare providers. The disparity in STI-related care-seeking among FSWs persists despite their heightened risk of acquiring and transmitting STIs (Lafort et al., 2016; Wulifan, 2024; Zhang et al., 2013). The large proportion of FSWs who are not seeking treatment pose great challenges to both public health and their individual health which ultimately slow down efforts to achieve universal health coverage whereby all individuals, including vulnerable populations like FSWs, have access to healthcare services that include prevention and treatment (World Bank, 2024; Wulifan, 2024).

At the level of public health, high STI rates reflect risky sexual behaviour exhibited by female sex workers and are known to increase the risk of STI acquisition and transmission (Cohen et al., 2019; Llangari-Arizo et al., 2021). Risky sexual behaviour includes sexual intercourse in the absence of barrier methods such as condoms, substance abuse such as alcohol and/or drug use, and having multiple sexual partners (Marcus & Snowden, 2020). The notably high STI prevalence among FSWs and their clients—estimated to be 10 to 20 times higher than in the general population—underscores the extent of the risk.(Nadol et al., 2017). Like FSWs, clients of FSWs are also known to have multiple sexual partners which extends to both FSWs and members of the general population leading to larger networks for the spread of STIs, thereby amplifying the public health impact of STIs (Decker et al., 2008; Fajans et al., 1995; Gomes do Espirito Santo & Etheredge, 2003).

A critical public health challenge arising from inadequate STI-related care-seeking behaviour is the escalating prevalence of antimicrobial-resistance (AMR) among STI pathogens (Tien et al., 2020; World Health Organisation, 2023b). Antimicrobial-resistance occurs when microorganisms adapt to survive exposure to antibiotic drugs. When antibiotics are present, susceptible bacteria die off, while resistant bacteria survive and reproduce, ultimately leading to the lowered or eliminated efficacy of antibiotics (Subramaniam & Girish, 2020). This natural process is accelerated by excessive antibiotic use, incorrect drug selection, improper dosing, and poor adherence to treatment guidelines (Prestinaci et al., 2015). This results in infections that are increasingly challenging or, in some cases, impossible to treat effectively (World Health Organisation, 2023b).

The implications are far-reaching, potentially leading to a higher risk of STI transmission, more severe illnesses, long-term disabilities, and in extreme cases, fatalities (World Health Organisation, 2023b). Bacterial and parasitic STIs like syphilis, gonorrhoea, chlamydia, and trichomoniasis are cured with antibiotics, while viral STIs are managed in the long-term (World Health Organisation, 2023a). However, it is known that gonorrhoea and trichomoniasis have shown clinical resistance to existing treatment regimens, which pose a threat to existing treatment protocols and complicate efforts to control the spread of STIs (Bosserman et al., 2011; CDC, 2024). This makes it crucial to find strategies such as improving STI-related care-seeking behaviour among FSWs who are at high risk of STI transmission and acquisition, to prevent the spread and increase of antimicrobial-resistant STIs.

Preventative healthcare includes determining the risk factors for a particular illness and how to mitigate them (Yongu, 2021). Such an exploration requires an identification and understanding of the demographic, socio-economic, and structural conditions and risky sexual behaviours (risk factors) that lead to STI transmission and acquisition among FSWs. While such studies are not new on a global scale, there is a paucity of recently published literature that specifically explore the demographic, socioeconomic, and health-related factors associated with FSW STI-related care seeking behaviour in South Africa in a single study.

Previous research surrounding the care-seeking behaviour of FSWs has primarily focused on quantifying the proportion of FSWs who actively seek care. While this information has been instrumental in driving STI-related interventions for this population, a concerning paradox persists despite the implementation of numerous targeted programs, STI rates among FSWs remain stubbornly high (Chabata et al., 2025). This disconnect and the potential spread of antimicrobial-resistant STIs underscore the need for a shift in both research methodologies and intervention strategies to improve the STI-related care-seeking behaviour of FSWs (Mapp et al., 2017).

Much of the existing literature on FSWs and STIs in South Africa primarily focuses on the prevalence rates of STIs and the various factors that contribute to their transmission and acquisition (Tesfie et al., 2024). This research is undoubtedly valuable in informing prevention strategies, as it helps identify high-risk behaviours, socio-economic factors, and environmental conditions that facilitate the spread of STIs (Lafort et al., 2016; Mokinu et al., 2024). However, this focus often overlooks an equally critical aspect of sexual health: the treatment and care for those already affected by STIs.

Fewer recent studies in South Africa have focused on the factors that determine the care-seeking behaviour of FSWs for STIs in particular (Coetzee et al., 2017; Savva, 2013). The studies on care-seeking behaviours for STIs tend to focus on HIV in particular and very few focus on FSWs but instead include other key populations as the study population (Jaffer et al., 2022; Maleke et al., 2019; Newton-Levinson et al., 2017). Given the stigma surrounding sex work, barriers such as discrimination, lack of health resources, and economic constraints may prevent FSWs from seeking timely and adequate care (Mokhwelepa et al., 2024; Moyo et al., 2023; Phrasisombath et al., 2012a). Expanding research to include the treatment and care-seeking behaviours of FSWs could offer a more holistic approach to addressing the health

challenges faced by this population, ensuring that not only prevention but also treatment and ongoing care are integrated into sexual health interventions (Lafort et al., 2016; Phrasisombath et al., 2012a).

1.3 Research Question

Main research question

How do the demographic, socioeconomic, and health-related factors influence STI-related care-seeking behaviour among female sex workers in South Africa's major metropolitan cities?

Sub research questions

- (1) What is the level of STI-related care-seeking behaviour among female sex workers in South Africa's major metropolitan cities?
- (2) What are the demographic, socioeconomic, and health-related factors associated with STI-related care-seeking behaviour among female sex workers in South Africa's major metropolitan cities?

1.4 Objectives

Main research objective

To determine how demographic, socioeconomic, and health-related factors influence STI-related care-seeking behaviour among female sex workers in South Africa's major metropolitan cities.

Sub-objectives

- (1) To examine the level of STI-related care-seeking behaviour among female sex workers in South Africa's major metropolitan cities.
- (2) To identify the demographic, socioeconomic, and health-related factors associated with STI-related care-seeking behaviour among female sex workers in South Africa's major metropolitan cities.

1.5 Definitions

STI-related care-seeking behaviour- Seeking treatment or advice by FSWs who have self-reported STI symptoms.

Metropolitan city- a vast urban ecosystem comprising a central core city and its interconnected peripheral areas. These connections are social, political, and cultural (da Cruz et al., 2020). In this study, the three metropolitan cities were Durban, Johannesburg and Cape Town.

1.6 Justification

The care-seeking behaviour of vulnerable populations at risk for any disease or infection is important as it is known to be intimately related to the health of a country and therefore its economic development (Latunji & Akinyemi, 2018). Understanding the factors that influence the care-seeking of FSWs is important in achieving Sustainable Development Goal (SDG) 3.7 which seeks to “ensure universal access to sexual and reproductive healthcare services, including for family planning, information, and education, and the integration of reproductive health into national strategies and programmes” (United Nations, 2015b). South Africa is one of the 191 countries following the socially inclusive SDGs provided by the United Nations aimed at solving the economic, social, and environmental challenges that stand in the way of achieving universal peace and prosperity for all by 2030 (United Nations, 2015a).

STI-related care-seeking behaviour plays a crucial role in lowering the burden of STIs among vulnerable groups, like FSWs, as it enables timely diagnosis and treatment of STIs (Phrasisombath et al., 2012a). Timely diagnosis and treatment lead to a reduction in the transmission window of STIs, the prevention of complications arising from untreated STIs, and the mitigation of the rise of antimicrobial-resistant STI pathogens. All these factors act to improve the quality of life of FSWs, their clients, and the general population and lessen the burden of STIs on the public health system and the country’s economy (H. W. Chesson et al., 2017b; Passanisi et al., 2013). This study can contribute to the statistical evidence required to determine the progress being made in terms of the numbers of FSWs who have STIs and are seeking care for them in Cape Town, Durban, and Johannesburg, and highlighting changes and

trends in their care-seeking behaviour that contribute to the prevention and treatment of STIs (World Health Organisation, 2023a)

Identifying the determinants of STI-related care-seeking behaviour among FSWs serves a dual purpose: (1) it guides the development of tailored STI interventions and (2) enhances the effectiveness of current policies aimed at mitigating the STI burden within this vulnerable population (Sharma et al., 2017). This knowledge can lead to more precise and impactful strategies for improving the sexual health outcomes of FSWs. A policy that can benefit from this study is the NSP of South Africa which is currently employing a multi-sectorial approach to achieving SDG 3.7 by 2030. The NSP is reworked approximately every five years and is based on evidence obtained from previously implemented interventions, and programmes aimed at targeting the challenges of obtaining widespread, adequate access to prevention and the treatment of tuberculosis, STIs, and HIV (South African National Aids Council, 2023).

The locations of the FSWs in this study are important. Firstly, because of the population distribution of FSWs in these cities and the opportunities that arise. FSWs in South Africa are known to be concentrated in the provinces of Gauteng at 22%, followed by Kwa-Zulu Natal at roughly 16%, followed by the North West, Mpumalanga, Limpopo, and the Western Cape, all averaging 10% of the sex worker population each (Parliamentary Monitoring Group, 2013). Secondly, of greater interest, would be the provinces of Gauteng, Kwa-Zulu Natal, and the Western Cape where the country's largest economic hubs are situated making them hotspots for economic opportunities (Oliveira, 2017; Statistics South Africa, 2019).

Thirdly, these provinces are also home to the country's largest populations. In 2024, the city of Johannesburg in Gauteng had the highest population concentration at 6.3 million, followed by the city of Cape Town in the Western Cape at nearly 5 million, closely followed by the city of Durban in Kwa-Zulu Natal at 3.2 million (Villette, 2023; World Population Review, 2024). Lastly, being located in these cities with large populations presents a greater number of potential clients which leads to greater potential for risky sexual behaviour and thus increased networks for STI acquisition and transmission (Alirol et al., 2011).

Focusing specifically on FSWs who have self-reported STI symptoms is relevant and timely, as symptoms are a well-documented driver of care-seeking behaviour and one of the most

common reasons for healthcare utilisation in developing countries (Balfe et al., 2010; Mercer et al., 2012). The limited published research on FSWs, STIs, and care-seeking behaviour in South Africa's major metropolitan cities stems from financial constraints associated with conducting comprehensive behavioural surveys and adequate testing (White et al., 2008). This knowledge gap extends to the demographic, socioeconomic, and health-related factors influencing care-seeking behaviour among FSWs with STIs in Cape Town, Durban, and Johannesburg. A holistic, statistically supported analysis of the determinants of care-seeking behaviour among FSWs could provide compelling evidence for increased funding, improved healthcare practices, and reduced societal discrimination. Such insights could ultimately contribute to a significant reduction in South Africa's STI burden by informing more effective interventions and policies tailored to the needs of FSWs.

CHAPTER 2: LITERATURE REVIEW, THEORETICAL AND CONCEPTUAL FRAMEWORK

2.1 Literature Review

2.1.1 Introduction

This chapter aims to critically review the dearth of published literature about the determinants of STI-related care-seeking behaviour among FSWs in South Africa. First, an overview of the factors that affect care-seeking behaviour, such as stigma, health literacy, trust in the healthcare system and healthcare workers, and the unique barriers faced by females versus males when seeking healthcare. Next, the structural and social vulnerabilities of FSWs, in the global context, are explored to offer deeper insight into the experiences FSWs may face that hinder their STI-related care-seeking behaviour. The last two topics reviewed are the determinants of STI-related care-seeking behaviour among FSWs (1) in Africa and SSA, and (2) in South Africa. Throughout, gaps in literature that have the potential to drive new research and glean richer insights about what determines STI-related care-seeking behaviour will be discussed.

2.1.2 Care-seeking behaviour

2.1.2.1 Stigma

Throughout research, it is known that stigmatisation negatively impacts the care-seeking behaviour of individuals (Ndung'u, 2016; N. Scott et al., 2015). Where stigma surrounding STIs is concerned, the stigma is attached to having an STI, accessing healthcare for the STI(s), and the morals of people who refuse to implement sex education in schools (Asaolu et al., 2016; Handebo, 2020; Hood & Friedman, 2011). All these forms of stigma hamper care-seeking for STIs (Seidu et al., 2023). Further, it has been found by Newton-Levinson et al. (2017) that females who self-report STI symptoms exhibit poor STI-related care-seeking behaviour due to embarrassment and social customs around their sexual and reproductive health (Newton-Levinson et al., 2017). FSWs in particular have an added element of stigma attached to their line of work. FSWs are viewed as deviants who are othered from the rest of

the population and denied the social rights that are enjoyed by the rest of the population (Benoit et al., 2018; Jiao & Bungay, 2019).

Stigma by association is a phenomenon that affects the organisations that aim to address the social and healthcare needs of FSWs and defend their human rights (Benoit & Unsworth, 2022). Further, stigma by association negatively affects the funding efforts made by these organisations, which in turn leads to resource unavailability that would negatively affect the care-seeking behaviour of FSWs who do seek care (Schäferhoff et al., 2019).

2.1.2.2 Health literacy

Health literacy is often suggested as a means to improve the care-seeking behaviour of individuals (Khadka et al., 2022). Health literacy is a key factor to take into account when looking at health outcomes; however, it does not always lead to good health practices. Studies have shown that FSWs are aware of most preventative sexual health practices and knowledge, such as condom use, lubrication of condoms, genital STI symptoms, and sites of transmission apart from genitalia, yet their frequency of application of this knowledge is inconsistent (Perdomo Sandoval & Goberna-Tricas, 2024; Sousa et al., 2024). Further, studies have found that the most effective method of teaching FSWs about STI-related care-seeking is through peer-educators (Phrasisombath et al., 2012b). While FSWs are equipped with knowledge about good STI-related care-seeking behaviours, their use of healthcare services is disincentivised by maltreatment at healthcare facilities (Wulifan, 2024).

Moreover, gaps in health knowledge persist. For instance, one study revealed that FSWs were unfamiliar with pre-exposure and post-exposure prophylaxis, highlighting areas for potential intervention in future sexual and reproductive health programs targeting this population (Sousa et al., 2024). Importantly, Coughlin et al. (2020) emphasize that knowledge of STIs alone, regardless of its depth, does not directly translate to improved care-seeking behaviour (Coughlin et al., 2020). This finding underscores the need to consider a broader range of factors that influence care-seeking behaviour among FSWs, including social, economic, demographic, environmental, legal, and cultural factors (McMurray & Clendon, 2011; Viner et al., 2012).

2.1.2.3 Trust in the healthcare system

Research emanating from both developed and developing countries suggests that one social determinant of care-seeking behaviour is based on the level of trust in healthcare professionals

or the healthcare system itself (Akeju et al., 2016; Baroudi et al., 2022). This approach to identifying determinants is different, as these determinants directly influence an individual's trust and indirectly lead to their care-seeking behaviour.

A lack of trust in the healthcare system has been found to lead to poor care-seeking behaviour such as delays in seeking and under-use of healthcare services, low self-rated health, and inadequate compliance to treatment (LaVeist et al., 2009; Mohseni & Lindstrom, 2007; Trachtenberg et al., 2005). Both studies by Baroudi et al. (2022) and Zajacova & Lawrence (2018) found that distrust of the healthcare system is more likely among people who have low levels of education, resulting in lower utilisation of healthcare services and thus poorer health outcomes than those with higher levels of education (Baroudi et al., 2022; Zajacova & Lawrence, 2018).

The low levels of trust that FSWs have reported in healthcare systems and their workers are due to the experiences of trauma and stigmatisation from healthcare workers. As a result, FSWs often exhibit poor care-seeking behaviour that is directly proportional to their level of trust in the healthcare ecosystem. In cases where FSWs do seek care, they do not disclose their occupation, which may lead to inadequate forms of care (O'Brien et al., 2024).

2.1.2.4 Sex-related barriers

There is strong evidence that suggests that in South Africa, it is the males, not females, who exhibit poor care-seeking behaviour. Poor care-seeking behaviour among males is driven by harmful masculinity performances and social norms that require males not to express concern about symptoms, otherwise they will be labelled as weak (Cleary, 2012; Harris et al., 2015; Kaufman et al., 2014). However, in other less developed countries, females experience inequitable access to healthcare services than males, leading to poor care-seeking behaviour among more females than males. Studies have also shown that females are less satisfied with the quality of care they receive at hospitals than males are (Patel & Chauhan, 2020). Additionally, males are more willing and able to travel further for hospitalization than females. In developed countries, females are more likely than males to seek healthcare for the treatment of symptoms of various conditions (Patel & Chauhan, 2020).

Elnegaard et.al. (2016) disagree with the notion put forward by many researchers in developed nations who purport that females (universally) exhibit better care-seeking behaviour than

males. Their study found that persons in the general population, irrespective of age or sex, only sought treatment with a General Practitioner for every fifth symptom experienced or observed (Elnegaard et al., 2017). Baroudi et al. (2022) also found that the stereotypical view that males are more reluctant than females to seek healthcare was false (Baroudi et al., 2022).

Individuals in low-income countries have been shown to exhibit different patterns of care-seeking behaviour for different conditions, and they also seek care from traditional or formal medical practitioners depending on their condition (Elnegaard et al., 2017; Masud Ahmed et al., 2001). As a result, females are 86% more likely to visit a traditional healer before consulting a medical practitioner, and their diagnoses are often more delayed than those of males, even for the same symptoms (Needham et al., 2001; Sun et al., 2023; Yamasaki-Nakagawa et al., 2001). For STI symptoms, the diagnosis thereof is known to, on occasion, be misdiagnosed as STI symptoms, such as discharge, which can mirror symptoms of urinary tract infections that are not STIs (Tomas et al., 2015). This phenomenon occurs at a higher rate for females than males (Kuritzky et al., 2023). As such, the reliance on syndromic testing that can sometimes lead to misdiagnosis negatively affects the outcomes of females who do seek care for STI symptoms. Misdiagnosis and inappropriate antibiotic treatment are associated with AMR development, which poses a great risk to global health (World Health Organisation, 2023b).

2.1.3 Structural and social vulnerabilities of FSWs

The demographic attributes of FSWs are largely unknown due to factors such as non-disclosure of their occupation and the political factors that bar researchers from carrying out research about sex workers (Dandona et al., 2006; Sinha, 2017). What is widely known is that FSWs tend to be young, with the age of entry into sex work starting at 11 years and ranging to 61 years (Dandona et al., 2006; Footer et al., 2020). Entering sex work at an age below 18 is associated with exposure to childhood sexual abuse. FSWs who are minors have a higher risk of HIV and risky sexual behaviour than FSWs who enter sex work as adults (Footer et al., 2020; Goldenberg et al., 2014; Silverman et al., 2015).

At any given time in SSA, there is a 50-66% chance that an FSW is living with an STI (World Health Organization, 2011). While there is no doubt that FSWs have a high burden of STIs, there is conflicting research about which age group of FSWs (old or young) has the highest risk

of acquiring and spreading STIs (including HIV) (Scorgie et al., 2012). Scorgie et al. (2012) attribute the following characteristics (that are true for any FSW of any age) as the characteristics of young FSWs that increase their vulnerability to STIs, namely, poverty, the criminalisation of sex work, violence, alcohol misuse, and high mobility (Scorgie et al., 2012). Chen et al. (2016), on the other hand, attribute the heightened risk for older FSWs to competition. For an older FSW to lure more customers, they offer more benefits such as condom-less sex to potential clients that expose them to greater risks of contracting STIs (Chen et al., 2016). Therefore, it would be useful to determine the age groups of FSWs who reported no condom use at last sex to see which literary perspective the FSWs based in South Africa align with.

A large proportion of sex workers in various studies are migrants. Literature emphasises the economically limited nature of most FSWs and thus their mobility in search of better circumstances (Dandona et al., 2006; Scorgie et al., 2012). Obtaining a high(er) living wage is pertinent as many female sex workers report that they engage in sex work to contribute to their household income (Dandona et al., 2006). Young female migrants are at even greater risk of STIs than older female migrants as they are often forced to or deceived into selling sex at higher rates (International Labour Organization & International Programme on the Elimination of Child Labour, 2002; Skeldon, 2000).

Globally, it is estimated that 4.8 million people are trafficked for sexual exploitation purposes, and of those, 70% are females (International Labour Organization, 2017; Novotney, 2023). Further, it was found by Silverman et al. (2011) that roughly 40% of FSWs in their study had been trafficked into sex work (Silverman et al., 2011). Coerced sex work leads to a lack of autonomy in the following ways: increased (up to 3 times higher) exposure to physical and sexual violence, no control over how many clients an FSW has in a day, and no control over whether condoms are used (George et al., 2011; Silverman et al., 2011). Forced sex is known to increase the risk of STI transmission, while coercion and a lack of autonomy mediate sexual risk (Tucker et al., 2011). Further, FSWs in coercive sex work settings tend to be constrained with high levels of surveillance and limited control over how much income they make and when they work (Johnson, 2006). As it relates to care-seeking behaviour, these factors can hinder an FSW's ability to seek any form of care for STIs.

2.1.4 Global determinants of FSW STI-related care-seeking behaviour

It is widely accepted and known that FSWs engage in risky sexual behaviour that increases their chances of transmitting or acquiring STIs, including HIV (Phrasisombath et al., 2012a). The nature of their work i.e., the transaction of money or goods in exchange for sexual favours, exposes them to STIs and HIV (Razu et al., 2023; Rekart, 2015). Common themes identified by the Razu et al., (2023) systematic review of the care-seeking behaviour among FSWs and various other papers sharing similar sentiments on the influences of care-seeking behaviour of FSWs are: (1) a lack of awareness and knowledge of sexual and reproductive health, (2) use of drugs, (3) exposure to violence and sexual abuse, (4) stigma and discrimination faced in society at large and in healthcare facilities perpetrated by healthcare professionals, and (5) the often illegal status of sex work and illegal migrant status (Phrasisombath et al., 2012b; Razu et al., 2023; Rekart, 2015; Tipping & Segall, 1995).

STIs are common among sub-populations that have high rates of condom-less sex and multiple sexual partners, like FSWs (Chen et al., 2005; Mgone et al., 2002; Morison et al., 2001; Shakarishvili et al., 2005). As such, there has been a focus on patterns of condom use in literature exploring the care-seeking behaviour of FSWs (Kawser et al., 2024; Llangarí-Arizo et al., 2021; Sherman et al., 2021). Apart from the conflicting ideas of whether old or young FSWs use condoms less, there have been more nuanced and non-conventional inquiries into why condom use is low among sex workers.

Kawser et al. (2024) found that FSWs who did use condoms did so primarily to prevent pregnancy, not STI acquisition or spread (Kawser et al., 2024). In Japan, oral contraceptive use was linked to inconsistent and improper condom use (Kimoto, 2001; Reed et al., 2017). FSWs who made use of modern contraceptives had comparatively lower HIV infection rates than non-users (Carlos et al., 2019; Singh et al., 2015; Uddin et al., 2014). Modern contraceptives include options such as oral contraceptives (the pill), intrauterine devices (IUDs), female and male sterilization, injectables, implants, diaphragms, male and female condoms, and emergency contraception (Martin, 2024). Observing if modern contraceptive methods, other than condoms, affect condom use and therefore STI prevention has the potential to provide new insights for STI intervention redirection, leading to potentially better STI outcomes among FSWs of reproductive ages.

In the paper written by Kawser et al. (2024), looking at the structural and social determinants of the prevalence of STIs among FSWs. FSWs reported high rates of condom use with first-time clients; thereafter, condom use waned (Kawser et al., 2024). This finding prompted an inquiry into how different the frequency of condom use is among females in the general population and their sexual partners versus FSWs and their clients. Research suggests that condom use is high among casual relationships but decreases among couples dating and with increased relationship longevity (Manlove et al., 2011). Framing condom use according to relationship status excludes FSWs, their clients, and the transactional nature of their interactions from the discourse. Agnew et al. (2017) word this differently in such a way that FSWs can be included. They state that condom use is known to decrease as commitment to a sexual partner increases (Agnew et al., 2017). As such, it can be concluded that the more regular a CFSW is, the less frequently condoms will be used (Muñoz et al., 2010).

2.1.5 Africa determinants of FSW STI-related care-seeking behaviour

In Sub-Saharan Africa, literature emphasises the role of harmful beliefs in traditional medicine efficacy, flawed knowledge of sexual and reproductive health, and other cultural practices such as female genital mutilation (FGM) that lead to poor care-seeking behaviour related to STIs and HIV by FSWs (APET Secretariat et al., 2023; Muñoz et al., 2010; Okonofua et al., 2002). These ideas were captured in the Muñoz et al. (2010) study, which reported that one FSW said, “traditional medicine is better for prevention because it protects you from any disease and you don’t pay a lot of money” (Muñoz et al., 2010). Another FSW in the study said, “I use medicine regularly and have unprotected sex with only clients that I know well. I am not careless ... it’s only the ignorant ones that end up with HIV infection” (Muñoz et al., 2010).

These statements highlighted a few important insights that have been echoed in existing research, (i) traditional medicines are believed by FSWs to be capable of preventing STIs, (ii) there is a financial consideration that stops FSWs from seeking care at modern hospitals or clinics, and (iii) the risk perception of FSWs declines inversely to familiarity and trust in a client.

Literature emanating from SSA recognises the influence of various cultural practices plaguing the region with regard to care-seeking behaviour by FSWs (Beksinska et al., 2010; Moyo et al., 2023; Runganga & Kasule, 1995; Van De Wijgert et al., 2000). FSWs make use of intravaginal treatment methods like vaginal cleansing to dry the vagina as a means of protection against STIs or to heat or contract the vagina – practices believed to enhance the sexual pleasure of male clients and provide protection against STIs (Moyo et al., 2023; Runganga & Kasule, 1995). Vaginal cleansing or vaginal douching commonly involves the use of water or a solution of water and soap to achieve a sense of cleanliness (Carter et al., 2013; Martino & Vermund, 2002).

Vaginal cleansing methods that involve the application of herbal concoctions increase the risk of acquiring STIs, bacterial vaginosis, infertility, cervical cancer, and pelvic inflammatory disease (Martino & Vermund, 2002; Moyo et al., 2023). However, literature on the positive relationship between females who have STIs turning to vaginal cleansing methods as remedies is divided (Martino & Vermund, 2002).

High levels of self-care for HIV by FSWs can be attributed to the negative experiences commonly reported by FSWs when seeking care at health facilities (Nnko et al., 2019). FSWs are regularly subjected to poor treatment from healthcare workers when their occupation is disclosed, which then leads them to find alternative sources of healthcare, like services from traditional healers or none at all (Moyo et al., 2023; Ndung'u, 2016; Nnko et al., 2019). FSWs are also unlikely to seek care that is costly, even if it is of high quality, thereby highlighting the importance of how FSWs are treated, which impacts their uptake of services available to them (Latunji & Akinyemi, 2018; Nnko et al., 2019).

2.1.6 South African determinants of FSW STI-related care-seeking behaviour

A dearth of literature emanating from South Africa exploring the determinants of care-seeking behaviour of FSWs focuses on HIV in particular and not all STIs (Jaffer et al., 2022). This focus on HIV is justified given that South Africa continues to have the highest prevalence and incidence rates of HIV, globally. This maintains SA's status as the epicentre of the HIV pandemic with the most alarming rates recorded in the province of Kwa-Zulu Natal – 60% among females in certain communities (Allinder & Fleischman, 2019). However, the

prevalence rates are unequal among adults of differing races and sexes. By race, black South Africans have a prevalence rate of 19.8% whereas white South Africans have a prevalence rate of 1.3%. South African females have nearly double the prevalence rate of HIV than males at 20.3% and 11.5% respectively (HSRC, 2023). The HIV prevalence disparities among races and sexes in South Africa demonstrate that there are other social, economic, and cultural determinants of STI transmission and acquisition at work, and of those, this study aims to determine the socioeconomic determinants (Olaniran, 2013; Zungu-Dirwayi et al., 2007).

Further, the persistently high rates of HIV in SA render Kwa-Zulu Natal province an appropriate study site choice. It would be beneficial, in future studies, to determine if the prevalence rates among FSWs mirror those of the general female population in KZN to identify which sub-population is at greater risk of HIV spread in that location and what factors drive this phenomenon.

2.1.7 Conclusion

This review of literature reveals a complex interplay of factors influencing healthcare utilization. Stigma, health literacy, trust in healthcare systems, and gender biases emerge as crucial elements affecting care-seeking patterns. The interplay between the coercive nature of sex work, age-related risk differences, and the influence of traditional practices and beliefs further complicates the landscape of STI-related care-seeking behaviour. In the South African context, the disproportionate impact of HIV on different populations, particularly in Kwa-Zulu Natal, underscores the need to investigate social, economic, and cultural determinants of STI transmission and care-seeking behaviour. As seen in the characteristics of FSWs, not much is known about what the various demographic and socioeconomic factors are that influence STI-related care-seeking behaviour, apart from age, migrant status, and their limited economic standing, which motivates them to engage in sex work. To close this gap, this study aims to determine a wider range of demographic, socioeconomic, and health-related factors that are associated with STI-related care-seeking behaviour among FSWs in South Africa's major metropolitan cities.

2.2 Theoretical and Conceptual Frameworks

2.2.1 Theoretical Framework

This study makes use of Ronald M. Andersen's 1960s Initial Behavioural Model, which is frequently used to predict and describe healthcare service use (R. M. Andersen, 2008). Andersen's model offers a flexible framework for examining healthcare utilisation. Its testable variables make it applicable across various contexts, allowing it to be used to identify factors influencing healthcare access for a wide range of illnesses (R. M. Andersen, 1995). Researchers have used it to study how individuals interact with healthcare, the health conditions they face, and how healthcare systems work (R. M. Andersen et al., 2011). Notably, it incorporates both individual and environmental factors, making it a widely accepted and applied tool that provides a well-rounded understanding of health services utilisation (R. M. Andersen, 2008; Graham et al., 2017).

The unit of analysis in the initial behavioural model was the family because the medical care received by an individual is influenced by the demographic, social, and economic characteristics of their family (R. M. Andersen, 1995). The model makes use of a linear flowchart of characteristics that ultimately lead to the use of healthcare services. The diagram begins with "predisposing characteristics," which are pre-existing factors that influence people's likelihood of using health services. It is important to note that predisposing characteristics alone cannot lead to healthcare service use (R. M. Andersen, 1995). Followed by "enabling resources" that promote or impede the use of health services. Lastly, "need" factors refer to conditions that healthcare providers or the general public deem fit for medical attention (R. Andersen & Davidson, 2014).

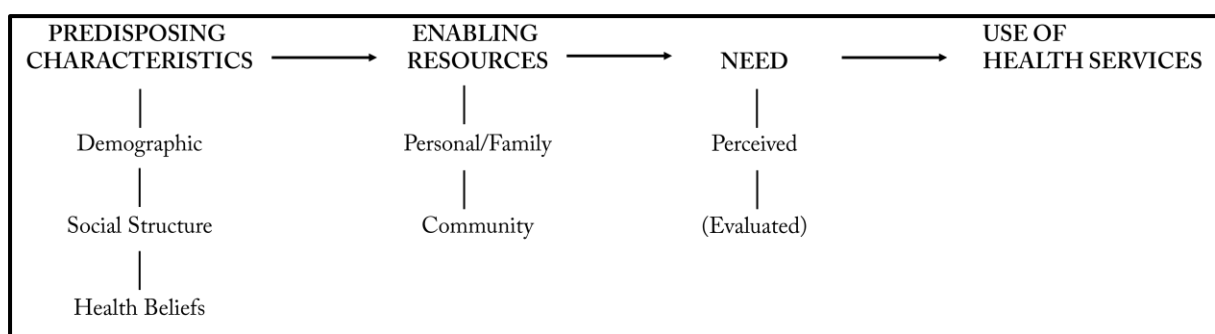


Figure 1: Ronald M. Andersen's 1960s Initial Behavioural Model (R. M. Andersen, 1995)

Predisposing characteristics are split into three: demographic, social structure, and health beliefs (R. M. Andersen, 1995). Demographic predisposing characteristics are gender and age that influence the probability of an individual requiring healthcare (R. Andersen & Davidson, 2014). Social structure predisposing characteristics dictate the status of an individual within a community and their ability to garner resources to deal with problems that may arise, such as a person's occupation, education, ethnicity, and social networks (R. Andersen & Davidson, 2014; R. M. Andersen, 1995). Social structure also includes the external environment that the individual is in, which may be healthy or unhealthy (R. M. Andersen, 1995). These measures influence a person's ability to access services. Health beliefs refer to the values, knowledge, and attitudes people have towards health in general and health services that alter their perception of their need and use of healthcare services (R. Andersen & Davidson, 2014).

Enabling resources are viewed from both the individual and community levels, and both should be present for healthcare service use to occur. The correct facilities and healthcare professionals should be available in communities, and the individuals should have the appropriate means and knowledge to gain access to and use the services at hand. Important enabling resources are income, medical aid, travel time, and waiting times (R. M. Andersen, 1995).

Perceived individual need characteristics refer to how individuals perceive their overall health, and how they experience and respond to symptoms of ill-health. Perceptions of the seriousness of symptoms experienced are important as they lead to care-seeking behaviour. Evaluated need speaks to the professional and objective judgment of a person's health status that is not limited to measurements of blood pressure, for example, but also the quality of the training and competency of the healthcare worker assessing the patient's health (R. Andersen & Davidson, 2014).

The outcome (health service use) is measured broadly in units of physician and hospital inpatient services, and dental care services used by a family over the span of a year (R. M. Andersen, 1995).

2.2.2 Conceptual Framework

In later years, Andersen shifted his unit of analysis in his model of health services use to the individual, as it became difficult to show differences in factors leading to health service use among individuals within families using the measures from the initial model. The conceptual framework used in this study makes the individual female sex worker the unit of study while adapting Ronald M. Andersen's 1960s Initial Behavioural Model to explain their STI-related care-seeking behaviour. The family's characteristics, such as their aggregate household income, are instead attached to the individual FSW to explain their individual care-seeking behaviour (R. M. Andersen, 1995). The initial model created by Andersen in the 1960s was critiqued for having an outcome that was too non-specific and would benefit from relating the measures to a particular type of illness (R. M. Andersen, 1995). In line with this, this study's outcome variable is STI-related care-seeking behaviour.

Unlike Andersen's original model which showed that the predisposing characteristics and enabling factors were not adequate explanations for healthcare service utilisation which had to be initiated by 'need', this conceptual framework allows the predisposing characteristics, enabling factors, and need factors to each directly influence the STI-related care-seeking behaviour of FSWs (R. M. Andersen, 1995; Wulifan, 2024).

Figure 2 shows that the predisposing characteristics (demographic factors), enabling resources (socioeconomic factors), and need (health-related factors), each directly influence STI-related care-seeking behaviour (seeking or not seeking advice or treatment for a self-reported STI symptom).

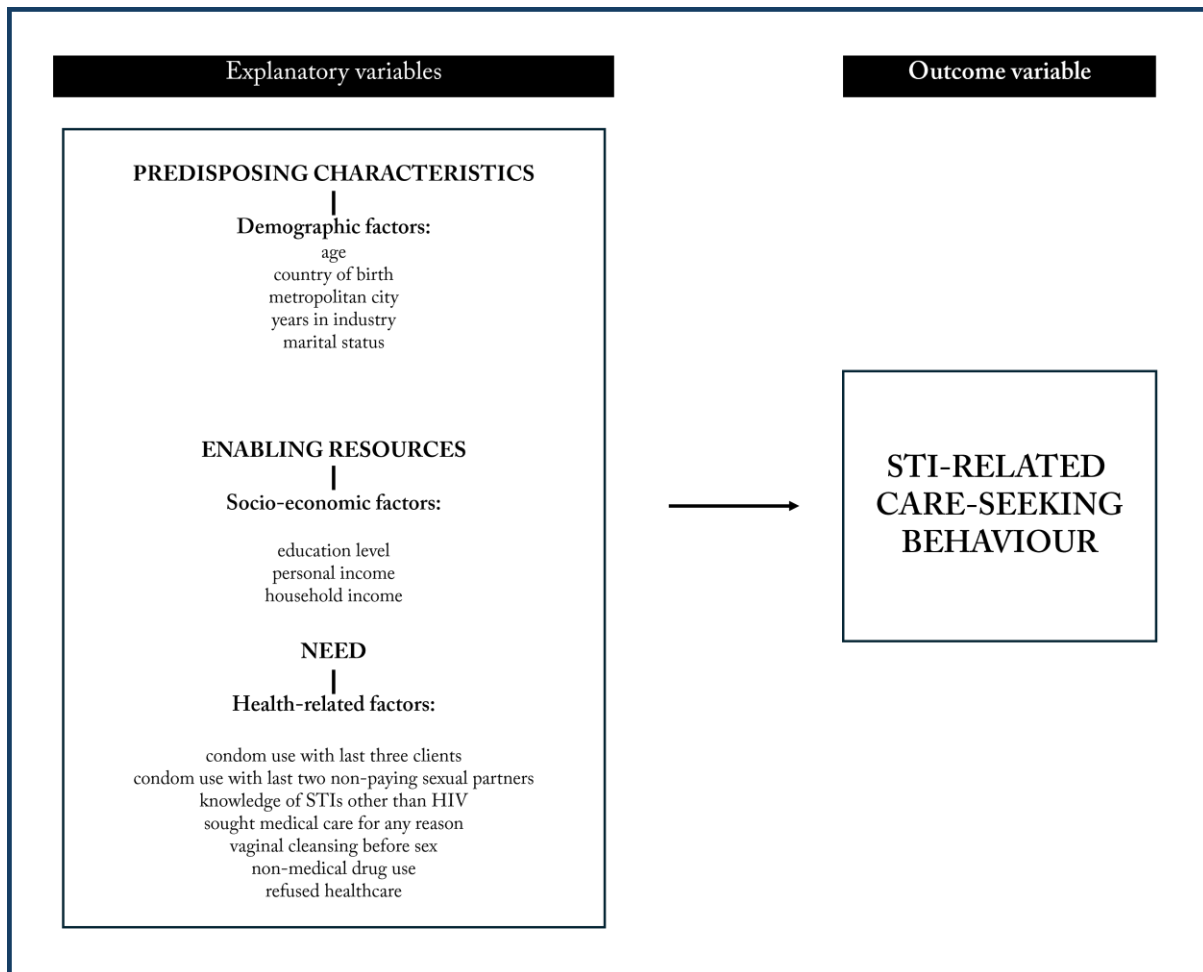


Figure 2: Conceptual framework adapted from Ronald M. Andersen's 1960s Initial Behavioural Model

CHAPTER 3: METHODS

3.1 Study Setting

This study was set in three of South Africa's major metropolitan cities: Durban in Kwa-Zulu Natal province, Johannesburg in Gauteng province, and Cape Town in the Western Cape province. These were the three cities included in the primary study – the 2018 South African Health Monitoring Survey (SAHMS).

The three cities were selected on the basis that they are the largest cities in each of the provinces with high concentrations of FSWs (Parliamentary Monitoring Group, 2013). Of the national sex worker population, Gauteng has the highest proportion of FSWs (22%), followed by Kwa-Zulu Natal (16%), followed by the North West, Mpumalanga, Limpopo, and the Western Cape averaging approximately 10% each (Parliamentary Monitoring Group, 2013). The geographical distribution of FSWs is primarily due to these cities being the country's economic hubs that offer more economic opportunities than other provinces and cities (Oliveira, 2017; Statistics South Africa, 2019). As a result of the high concentration of FSWs in these cities, these metropolitan cities have been epicentres of the sex worker HIV epidemic in South Africa (Milovanovic et al., 2021).

3.2 Data Source

The SAHMS 2018 survey was commissioned through the National Department of Health and the South Africa National AIDS Council (SANAC) by the government of South Africa. The survey was a cross-sectional study conducted by The Aurum Institute of South Africa and various other collaborators from May to December 2018 in South Africa's major metropolitan cities – Johannesburg, Durban, and Cape Town. The aims of the survey were to estimate the size of the FSW population in these cities, to identify risk factors for STI and HIV transmission, to assess the use of HIV prevention and treatment programmes, and to measure the prevalence of HIV and viral load suppression among FSWs (The Aurum Institute, et al., 2019).

Behavioural information was gathered using a standardized survey tool, digitally implemented using Questionnaire Development System (QDSTM) version 2.6.1, and conducted by

interviewers utilizing Computer-Assisted Personal Interview software on laptops. For the collection of biological data, all participants involved were requested to supply blood samples for HIV testing, including viral load assessment and identifying antiretroviral drugs in HIV-positive cases. Survey personnel assisted in conveying results and referring participants who tested positive for HIV to suitable medical assistance in partnership with local service providers in each city (The Aurum Institute, 2019).

3.3 Study Design

The current study was a quantitative cross-sectional study using secondary unweighted cross-sectional data obtained from the 2018 SAHMS, which was the second round of Biological and Behavioural Surveys among female sex workers in South Africa. The Biological and Behavioural surveys are conducted among key populations to measure their risky behaviours, which contribute to their high HIV risk (World Health Organization et al., 2017).

3.4 Study Population

In the primary study, FSWs were recruited in Cape Town, Durban, and Johannesburg using respondent-driven sampling (RDS). Survey staff approached a maximum of eight FSWs (seeds) with access to diverse and large FSW networks in each of the study's cities to begin the chain of recruitment of FSWs. In RDS, seeds serve as the starting point for the study. These initial participants are carefully selected based on their strong social connections and high motivation to engage others (Reisner et al., 2010). The identification of the seeds was achieved through formative assessments with service providers and FSWs in each city. The seeds used uniquely coded referral coupons to invite fellow FSWs to participate in the survey and were later used by recruited participants (The Aurum Institute, et al., 2019).

Coupons are a key element in the RDS sampling process (Abadie et al., 2022). Each seed is allocated a limited number of coupons to hand out during their peer recruitment (Institute for Community Research, 2022). These coupons contain unique alphanumeric codes, allowing researchers to track recruitment chains without collecting personal identifiers, thereby protecting participant anonymity, as well as helping researchers map the recruitment chains (Abadie et al., 2022). Coupons are also used as a mechanism for incentivising both successful

recruitment and successful participation. Further, each coupon provides all necessary information for participation in the study (Hipp et al., 2019).

To be eligible for participation in the 2018 SAHMS, FSWs were required to meet several specific criteria. Firstly, they had to have been assigned female sex at birth. Additionally, participants needed to be at least 16 years of age or older. A key qualification was having engaged in transactional sex within the past month, specifically receiving monetary compensation in exchange for sexual activities. Furthermore, possession of a valid survey coupon was necessary for inclusion. Lastly, all potential participants had to demonstrate both the capacity and willingness to provide informed consent for their involvement in the study. Thereafter, eligible FSWs were required to provide written consent required for survey participation (The Aurum Institute, 2019).

3.5 Sample Size

All available data on FSWs who met the inclusion criteria were used. A total of 1927 FSWs were included in the primary study's survey. Of these, 600 FSWs were from Durban, 546 from Johannesburg, and 781 from Cape Town. After application of the restrictions and inclusion and exclusion criteria, the final analytical sample was 745.

Inclusion criteria

FSWs who self-reported experiencing STI-related symptom(s) in the 12 months preceding the survey, namely abnormal discharge and/or a sore or ulcer near/on the vagina (see Appendix 1).

Exclusion criteria

FSWs who did not self-report experiencing STI-related symptom(s) in the 12 months preceding the survey, namely abnormal discharge and/or a sore or ulcer near or on the vagina (see Appendix 1).

3.4 Research Hypotheses

Alternative hypothesis, H_a : Demographic, socioeconomic, and health-related factors are associated with STI-related care-seeking behaviour among FSWs in South Africa's major metropolitan cities.

Null hypothesis, H_0 : Demographic, socioeconomic, and health-related factors are not associated with STI-related care-seeking behaviour among FSWs in South Africa major metropolitan cities.

3.5 Variable Definitions

3.5.1 Outcome variable

The outcome variable in this study, STI-related care-seeking behaviour, was based on two primary questions that asked if participants had observed abnormal discharge and/or sores or ulcers near their vagina (see Appendix 1). FSWs who self-reported an STI symptom in either of the primary questions were asked the question: "If had discharge, sore or ulcer: The last time you had this problem did you seek any kind of advice or treatment?". The responses to this question were coded as 0=no, and 1=yes.

Table 1: Description of outcome variable

Outcome variable	Question/ Definition	Category	Description
STI-related care-seeking behaviour	If had discharge, sore or ulcer: The last time you had this problem did you seek any kind of advice or treatment?	0 = No 1 = Yes	Categorical

3.5.2 Explanatory variables

The study utilised variables, which were of a demographic, socioeconomic, and health-related nature, to explain their relationship to the outcome variable that was the seeking of treatment or advice for self-reported STI symptoms (sores and ulcers near or on the vagina, and abnormal vaginal discharge). The explanatory variable selection for this study was guided by literature.

Demographic explanatory variables were used to help describe the characteristics of the FSWs, such as their location, age, years in industry, country of birth, current marital status, age at first vaginal sex, and age at first sex work (Velliari, 2017). *METROPOLITAN CITY* was a categorical variable that was generated by STATA when all three datasets from Durban, Cape Town, and Johannesburg were appended. The categories for *METROPOLITAN CITY* were as follows: 1=Cape Town, 2=Durban, and 3=Johannesburg. *AGE* was a continuous variable calculated from the primary question asking what the participants' date of birth was. The ages ranged from 16 to 63 years and were calculated in the primary study using the participant's date of birth and year of the survey. *YEARS IN INDUSTRY* was a continuous variable from a question that asked "How many years have you been a sex worker for?". The years ranged from 0 to 32.

COUNTRY OF BIRTH was a categorical variable from a question that asked where the FSW was born. It was recoded into two categories: 1=Other and 2=South Africa. The category "Other" included Zimbabwe, Mozambique, Nigeria, Botswana, Namibia, Lesotho, and Swaziland. *MARITAL STATUS* was a categorical variable from a question that asked what the FSW's current marital status was at the time of the survey. *MARITAL STATUS* had the following recoded categories: 1=married, 2=single, 3=divorced, and 4=widowed.

Socioeconomic explanatory variables were factors that were of both a social and an economic nature. The socioeconomic variables used in this study were personal income, household income, and the highest level of education completed. *PERSONAL INCOME* was a continuous variable stemming from a question where the participants were able to indicate the amount of money (in the South African Rand, ZAR) they earned in the previous month, ranging from R0 to R27000. *HOUSEHOLD INCOME* was a categorical variable that provided a range of the sum of all income resources in the South African Rand (ZAR). The categories were recoded as follows: 1= below R2499, 2=R2499-R4999, 3=R5000-R9999, and 4= above R10000.

EDUCATION LEVEL was a categorical variable from a question that asked what the highest level of education completed by the FSW was. The categories were recoded as follows: 1= never attended, 2= attended school, but never completed any level of schooling, 3= primary school (grade 1-7), 4= secondary school (grade 8-12), and 5= tertiary school.

Health-related explanatory variables were the characteristics, exposures, or attributes that affected the probability of an FSW acquiring an STI or seeking treatment for STI symptoms. *REFUSED HEALTHCARE* was a categorical variable that asked if the participant had experienced, in the past 12 months, being refused healthcare because someone believed they were a sex worker. The categories of the variable *REFUSED HEALTHCARE* were 1= no, and 2= yes. *KNOWLEDGE OF STIS OTHER THAN HIV* was a categorical variable from a question that asked if the participant knew of any STIs other than HIV that could be transmitted during sexual intercourse. The categories of *KNOWLEDGE OF STIS OTHER THAN HIV* were 1= no and 2= yes.

Two composite variables were created: *CONDOM USE WITH LAST THREE CLIENTS* and *CONDOM USE WITH LAST TWO NON-PAYING SEXUAL PARTNERS*. The composite variable *CONDOM USE WITH LAST THREE CLIENTS* was created by combining responses from three questions about condom use with each of their last three paying sexual partners. The composite variable was categorized into three levels: always, sometimes, and never. The "always" category was created by combining FSWs who responded "Yes" to condom use for all three clients. The "sometimes" category included FSWs who reported using condoms with one or two clients out of the three, specifically combining all cases where there was a "Yes" response once or twice across the three questions. The "never" category comprised all FSWs who responded "No" to condom use for all three clients. The categories of *CONDOM USE WITH LAST THREE CLIENTS* were 1= always, 2= sometimes, and 3= never.

The composite variable *CONDOM USE WITH LAST TWO NON-PAYING SEXUAL PARTNERS* was created by combining responses from two questions about condom use with the last two non-paying sexual partners for each female sex worker (FSW). The composite variable was categorized into four levels: always, sometimes, never, and only have paying sexual partners. The "always" category was created by combining FSWs who reported consistent condom use with both non-paying partners. The "sometimes" category included FSWs who reported using condoms with one partner but not the other. The "never" category comprised FSWs who reported no condom use with either of their last two non-paying partners. The fourth category, "only have paying sexual partners," was assigned to FSWs who were not asked these questions because they did not indicate having any non-paying sexual partners. The categories of *CONDOM USE WITH LAST TWO NON-PAYING SEXUAL PARTNERS* were 1= always, 2= sometimes, 3= never, and 4= only had paying sexual partners.

VAGINAL CLEANSING BEFORE SEX was a categorical variable from a question that asked how often the FSW had done anything, in the past month, to dry, clean, or tighten their vagina before having sex. The categories were 1= no, 2= yes. *SOUGHT MEDICAL CARE FOR ANY REASON* was a categorical variable from a question that asked if the FSW had, in the past 12 months, sought medical care for any reason. The categories of *SOUGHT MEDICAL CARE FOR ANY REASON* were 1= no, and 2= yes. *NON-MEDICAL DRUG USE* was a categorical variable from a question that asked if the FSW had, in the past 12 months, consumed any drugs without having a medical reason. The categories were 1= no, and 2= yes.

Table 2: Description of explanatory variables

Variables	Question	Categories/description	Data type
Demographic factors			
Metropolitan Cities	Where do you live?	1=Cape Town 2=Durban 3=Johannesburg	Categorical
Age (years)	Which year were you born?	Calculated from the reported date of birth and date of study the response given in the format "mm/dd/yyyy"	Continuous
Years in industry	How many years have you been a sex worker for?	Years ranging from 0 to 32 in single years	Continuous
Country of birth	In what country were you born?	1 = Other African Country* 2 = South Africa	Categorical
Marital Status	What is your current marital status?	1 = Married 2 = Single 3 = Divorced 4 = Widowed	Categorical
Socioeconomic factors			
Personal income (ZAR)	How much money did you personally earn last month from all sources?	Income as reported by participant	Continuous
Household income (ZAR)	What is your overall monthly household income from all sources?	0 = < 2500 1 = 2500-4999 2 = 5000-9999 3 = ≥ 10000	Categorical

Variables	Question	Categories/description	Data type
Education level	What is the highest level of school you completed?	1 = Never attended school 2 = Attended, no level completed 3 = Primary school (grades 1-7) 4 = Secondary school (grades 8-12) 5 = Tertiary	Categorical
Health-related factors			
Refused healthcare	In the past 12 months, have you been refused healthcare because someone believed you to be a sex worker?	1 = No 2 = Yes	Categorical
Knowledge of STIs other than HIV	Apart from HIV, have you heard about other infections that can be transmitted through sexual contact?	1 = No 2 = Yes	Categorical
Sought medical care for any reason	During the last twelve months have you sought medical care for any reason?	1 = No 2 = Yes	Categorical
Non-medical drug use	During the last twelve months have you consumed any drugs without having a medical reason?	1 = No 2 = Yes	Categorical
Vaginal cleansing before sex	In the past month how often have you done anything to dry, clean, or tighten your vagina before having sex?	1 = No 2 = Yes	Categorical
Condom use with last three clients	Frequency of condom use with paying sexual partners	1 = Always 2 = Sometimes 3 = Never	Categorical
Condom use with last two non-paying sexual partners	Frequency of condom use with non-paying sexual partners	1 = Always 2 = Sometimes 3 = Never	Categorical

*Other includes Zimbabwe, Mozambique, Nigeria, Botswana, Namibia, Lesotho, and Swaziland.

3.6 Ethical Considerations

This study made use of secondary data from the 2018 SAHMS. The data did not contain any identifiable markers of the FSWs; thus, confidentiality of the study participants was

maintained. As a result, this study did not come into contravention of any ethical considerations.

This study's ethics waiver was granted on the 14th of August 2024 by the University of the Witwatersrand Humanities Research Ethics Committee. The ethics number is: WDEMG2024/07/04.

3.7 Data Collection

The study utilized secondary data obtained through a structured application process. Initially, a formal request was submitted electronically, via Google Forms, to The Aurum Institute, specifying the required variables and providing details about the research institution, study objectives, and a concise project description. Subsequently, The Aurum Institute's Data Sharing Governance Committee engaged in email correspondence, requiring the completion of electronic forms and submission of ethics clearance documentation, to complete the data sharing request DSGC-00036. Upon completing this process by uploading the relevant documentation on Aurum Institute's SharePoint, this study's secondary data was obtained from The Aurum Institute's Data Sharing Governance Committee electronically on Google Drive. Permission to use the data was granted on the 23rd of August 2024.

3.8 Data Management

Three datasets containing the variables that were requested for Durban, Cape Town, and Johannesburg, respectively, were downloaded in STATA format compatible with STATA version 18 and saved onto OneDrive, an online Microsoft cloud storage service. The datasets were appended to create a single dataset. Data management and analyses were conducted in STATA version 18.

All FSWs who did not self-report an STI symptom were removed from the dataset. This was done for clear alignment with this study's main research question, which seeks to find the factors associated with STI-related (in particular) care-seeking behaviour. The outcome variable, STI-related care-seeking behaviour, was defined as described in Table 1, above.

The data were cleaned by checking for missing entries in all variables. Observations with missing entries were deleted. Further, all participants who responded “don’t know” or “refuse to answer” for any variable were removed from the dataset to avoid ambiguity (see Table 3). These included the composite variables “Condom use with non-paying sexual partners”, “Condom use with clients”, and “vaginal cleansing before sex”. Variables were recoded and named in preparation for analysis (see Table 2).

Table 3: Description of participant selection

Criteria	Removed	Remaining
All observations		1927
<i>STI symptoms</i> : "no" or "don't know"	1167	760
<i>Condom use with last three clients</i> : "don't know"	2	758
<i>Vaginal cleansing before sex</i> : "refuse to answer"	13	745

3.9 Data Analysis

The data was analysed to achieve the study’s objectives, namely at the univariate, bivariate, and multivariable levels. For statistical analyses, STATA version 18 was used. No weights were applied, as the scope of this study was not to infer care-seeking behaviour among the entire population of FSWs in the three cities, only those who participated in the primary study (Australian Bureau of Statistics, 2023).

At the univariate level, categorical data were summarised as frequencies and proportions, which were expressed as percentages. For continuous variables, normality was assessed from detailed summaries of each of the count variables. Where the skewness value was between +2 and -2, signifying a normal distribution, the mean and standard deviation were reported (Sarstedt et al., 2021). Where the skewness value was above 2 or below -2, signifying a skewed or non-normal distribution, the median and inter-quartile range were reported (Sarstedt et al., 2021).

At the bivariate level, the Pearson chi-square test was used to determine the association of each categorical explanatory variable against the outcome variable and to measure the distribution of observations across each category of each explanatory variable in relation to the outcome variable (STI-related care-seeking behaviour). The significance level of the associations was set at a value of $p < 0.05$, as is accepted in the social sciences (Kowsalya, 2020). Where the significance level was $p \leq 0.05$, the null hypothesis was rejected, and where the significance was $p > 0.05$, we failed to reject the null hypothesis (Kowsalya, 2020).

Univariate and multivariable binary logistic regression models were used to calculate unadjusted and adjusted odds ratios to test associations between the outcome- STI-related care-seeking behaviour and the explanatory variables. The binary logistic regression was used due to the outcome variable being a dichotomous variable, i.e., yes and no, taking the variables 1 and 0, respectively.

The equation for the logistic regression is as follows:

$$\log(n/1-n) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_m x_m$$

Source: (Sperandei, 2014)

Where:

n : The probability of the outcome occurring

$1-n$: The probability of the outcome not occurring

$\log(n/1-n)$: the log-odds of the event occurring.

β_0 : The intercept, representing the log-odds when all explanatory variables are zero

$\beta_1, \beta_2, \dots, \beta_m$: Coefficients for each explanatory variable

$x_1, x_2, \dots, x_m$: explanatory variables influencing the outcome

Source: (Sperandei, 2014)

Model fitness was first tested by the goodness-of-fit test for the multivariable logistic regression model (see Appendix 2). *REFUSED HEALTHCARE* was excluded from the multivariable model due to collinearity, and *CONDOM USE WITH LAST TWO NON-PAYING SEXUAL PARTNERS* was removed because it was found to perfectly predict the outcome. The goodness-of-fit test was conducted to assess the variation of the predicted values in the model from the observed values. The model was a fit if $p\text{-value} > 0.05$. The second test was used to

detect a specification error in the model (see Appendix 2). The model evaluates specification by re-estimating the regression using the linear predicted value ($\hat{y}$) and its squared term ($\hat{y}^2$) as predictors. Since $\hat{y}$ represents the model's own predictions, it should remain a statistically significant predictor in this new specification. This confirms that the original model's linear predictor effectively captures the relationship between the independent and dependent variables, while a significant $\hat{y}^2$ would indicate potential model misspecification.

The third test used to diagnose model fitness of the logistic regression was the pair-wise correlation coefficient to test for multicollinearity (see Appendix 2). Pairwise correlation coefficients below 0.65 in a matrix indicate that multicollinearity is unlikely among the explanatory variables, as these values suggest no strong linear relationships and no correlations between them.

CHAPTER 4: RESULTS

This chapter reports the study's findings. The findings are organized into two categories, aligning with this study's sub-objectives as detailed in the methods section. The first sub-objective was to determine the level of STI-related care-seeking behaviour among female sex workers in South Africa's major metropolitan cities. The second sub-objective was to determine the demographic, socioeconomic, and health-related factors associated with STI-related care-seeking behaviour among female sex workers in South Africa's major metropolitan cities.

A total of 1927 FSWs were included in the primary study. Of these, 600 FSWs were from Durban, 546 from Johannesburg, and 781 from Cape Town. After applying the exclusion criteria and relevant restrictions, 745 FSWs were retained for analysis (see Table 3, above).

4.1 Participant characteristics

Summaries of participant characteristics are presented in these sections as continuous variables in Table 4 and as categorical variables in Table 5.

4.1.1 Demographic characteristics

The mean age of the FSWs was 31.5 ± 7.46 years (Table 4). The mean number of years in the sex work industry was 6.89 ± 5.46 years. Most of the FSWs resided in Durban ($n=267$, 35.84%) and Johannesburg ($n=257$, 34.50%), with fewer from Cape Town ($n=221$, 29.66%) (Table 5). Most were born in South Africa ($n=714$, 95.84%), with the remainder born in other parts of Africa ($n=31$, 4.16%). Most FSWs were single ($n=640$, 85.91%).

Table 4: Continuous variable descriptive results

Variable	Mean	Standard Deviation
Age	31.5	7.46
Years in industry	6.89	5.46
Variable	Median	IQR*
Personal Income (ZAR)*	R2 100	R2 300

*IQR = interquartile range

**ZAR = South African Rand

Table 5: Characteristics of the FSWs who were included in the study (N=745)

Characteristics	n	%
Demographic		
Metropolitan City		
Cape Town	221	29.66
Durban	267	35.84
Johannesburg	257	34.50
Country of birth		
Other	31	4.16
South Africa	714	95.84
Marital Status		
Married	50	6.71
Single	640	85.91
Divorced	43	5.77
Widow	12	1.61
Socioeconomic		
Education Level		
Never attended school	2	0.27
Attended school, but never completed any level	43	5.77
Primary School (grades 1-7)	535	71.81
Secondary school (grades 8-12)	152	20.40
Tertiary	13	1.74
Household income		
Below R2499	257	34.50
R2500-4999	283	37.99
R5000-9999	162	21.74
R10000 or more	43	5.77

Characteristics	n	%
Health-related		
Refused healthcare		
No	730	97.99
Yes	15	2.01
Knowledge of STIs other than HIV		
No	10	1.34
Yes	735	98.66
Condom use with last three clients		
Always	516	69.26
Never	32	4.30
Sometimes	197	26.44
Condom use with last two non-paying sexual partners		
Always	113	15.17
Never	117	15.70
Sometimes	17	2.28
Only have paying sexual partners	498	66.85
Vaginal cleansing before sex		
No	362	48.59
Yes	383	51.41
Sought medical care for any reason		
No	316	42.42
Yes	429	57.58
Non-medical drug use		
No	396	53.15
Yes	349	46.85

4.1.2 Socioeconomic characteristics

Apart from the two (0.27%) who never attended school and the 43 (5.77%) who attended, but had not completed primary school, most FSWs had at least primary school education (n=540, 71.81%), followed by those with secondary school (n=152, 20.40%) and tertiary level education (n=13, 1.74%) (Table 5). The median personal income earned by the FSWs was R2100.00, where the interquartile range was R2300 (Table 4). Most FSWs had a monthly household income below R5000 (n=540, 72.49%). Fewer FSWs had a household income above R5000 (n=205, 27.51%).

4.1.3 Health-related characteristics

Most FSWs (n=730, 97.99%) reported that they had not been refused healthcare because someone believed they were a sex worker (Table 5). Most FSWs had knowledge of STIs other than HIV (n=735, 98.66%). With respect to condom use with their last three paying clients, few FSWs (n=32, 4.30%) reported that they had never used condoms with their last three clients, while some (n=197, 26.44%) reported using condoms sometimes, and 526 (69.26%) reported always using condoms.

Most FSWs (n=498, 66.85%) reported that they did not engage in sexual intercourse with non-paying sexual partners. Of those who did, 113 (15.17%) reported always using condoms with non-paying partners, another 117 (15.70%) reported never using condoms, and 17 (2.28%) reported sometimes using condoms. Almost half of the FSWs (n=362, 48.59%) reported that they had not used vaginal cleansing methods before sex, while the remainder (n=383, 51.41%) reported that they had (Table 5).

Four hundred and twenty-nine (57.58%) FSWs reported that they had sought medical care for any reason in the past 12 months. Almost half of the FSWs (n=349, 46.85%) reported that they had used drugs for non-medical reasons in the past 12 months.

4.2 STI-related care-seeking behaviour

Of the 745 FSWs who self-reported an STI symptom, most had sought advice or treatment for observed STI symptoms (abnormal discharge and/or sores or ulcers near or on the vagina) (n=657, 88%) – see Fig 3.

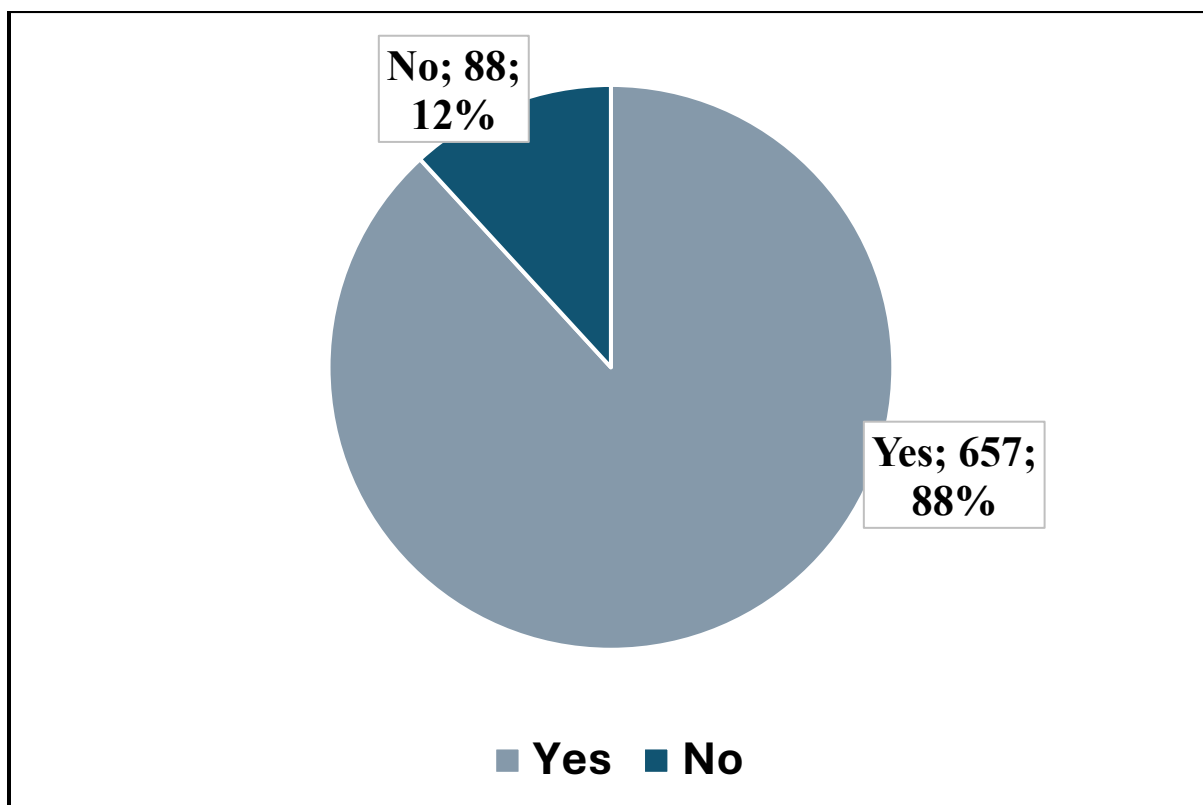


Figure 3: Proportions of STI-related care-seeking behaviour among FSWs

The distribution of variables by STI-related care-seeking behaviour is presented in Table 6. There were statistically significant associations between STI-related care-seeking behaviour and metropolitan cities, marital status, education level, knowledge of STIs other than HIV, and condom use with the last two non-paying sexual partners. The associations with country of birth, household income, refused healthcare, condom use with last three clients, seeking medical care for any reason, and non-medical drug use were not statistically significant.

Table 6: Distribution of FSW characteristics by STI-related care-seeking behaviour

Characteristics	n	STI-related care-seeking behaviour, n (%)		
		No	Yes	p-value
Demographics				
Metropolitan City				
Cape Town	221	36 (16.29)	185 (83.71)	0.000
Durban	267	15 (5.62)	252 (94.38)	
Johannesburg	257	37 (14.40)	220 (85.60)	
Country of birth				
Other	31	6 (19.35)	25 (80.65)	0.184
South Africa	714	82 (11.48)	632 (88.52)	
Marital Status				
Married	50	13 (26.00)	37 (74.00)	0.015
Single	640	70 (10.94)	570 (89.06)	
Divorced	43	4 (9.30)	39 (90.70)	
Widow	12	1 (8.33)	11 (91.67)	
Socioeconomic				
Education Level				
Never attended school	2	1 (50.00)	1 (50.00)	0.001
Attended school, but never completed any level	43	13 (30.23)	30 (69.77)	
Primary School (grades 1-7)	535	57 (10.65)	478 (89.35)	
Secondary school (grades 8-12)	152	15 (9.87)	137 (90.13)	
Tertiary	13	2 (15.38)	11 (84.62)	
Household Income				
Below R2,499	257	33 (12.84)	224 (57.16)	0.624
R2500-4999	283	36 (12.72)	247 (87.28)	
R5000-9999	162	15 (9.26)	147 (90.74)	
R10,000 or more	43	4 (9.30)	39 (90.70)	
Health-related				
Refused healthcare				
No	730	88 (12.05)	642 (87.95)	0.152
Yes	15	0 (0.00)	15 (100.00)	

Characteristics	n	No	Yes	p-value
Knowledge of STIs other than HIV				
No	10	5 (50.00)	5 (50.00)	0.000
Yes	735	83 (11.29)	652 (88.71)	
Condom use with last three clients				
Always	516	66 (12.79)	450 (87.21)	0.462
Never	32	3 (9.38)	29 (90.62)	
Sometimes	197	19 (9.64)	178 (90.36)	
Condom use with last two non-paying sexual partners				
Always	113	10 (8.85)	103 (91.15)	0.003
Never	117	25 (21.37)	92 (78.63)	
Sometimes	17	0 (0.00)	17 (100.00)	
Only have paying sexual partners	498	53 (10.64)	445 (89.36)	
Vaginal cleansing before sex				
No	362	47 (12.98)	315 (87.02)	0.336
Yes	383	41 (10.70)	342 (89.30)	
Sought medical care for any reason				
No	316	45 (14.24)	271 (85.76)	0.078
Yes	429	43 (10.02)	386 (89.98)	
Non-medical drug use				
No	396	42 (10.61)	354 (89.39)	0.277
Yes	349	46 (13.18)	303 (86.82)	

4.3 Factors associated with STI-related care-seeking behaviour

The results of the adjusted and unadjusted logistic regression analyses are presented in Table 7.

4.3.1 Unadjusted Logistic Regression

In the unadjusted logistic regression, the following demographic factors were statistically insignificant and not associated with STI-related care-seeking behaviour: age, years in the sex work industry, and country of birth. Under the socioeconomic factors, education level, personal income, and household income were statistically insignificant and not associated with STI-related care-seeking behaviour. The health-related factors: condom use with the last three clients, condom use with the last two non-paying sexual partners, vaginal cleansing before sex, sought medical care for any reason, and non-medical drug use were not statistically significant

and not associated with STI-related care-seeking behaviour. The “yes” category in the variable ‘refused healthcare’ had no observations when cross-tabulated with the ‘no’ category of the outcome, hence the ‘empty’ output. The variable was not removed from the analysis, as literature emphasised the role of stigma and discrimination in the care-seeking behaviour of FSWs.

For the metropolitan city variable, the odds of an FSW seeking STI-related care were 2.27 times higher in Durban, compared to Cape Town, was statistically significant (UOR = 3.27, $p=0.000$, 95% CI: 1.74-6.15). By marital status, FSWs who were single had 1.86 times higher odds of seeking STI-related care than married FSWs (UOR = 2.86, $p=0.002$, 95% CI: 1.45-5.64). Knowledge of STIs other than HIV increased the odds of STI-related care-seeking behaviour by 686% (UOR = 7.86, $p=0.001$, 95% CI: 2.23-27.71). Never reporting condom use with their last two non-paying sexual partners decreased the odds of STI-related care-seeking among FSWs by 36% (UOR = 0.36, $p=0.010$, 95% CI: 0.16-0.78).

4.3.2 Adjusted Logistic Regression

The following demographic variables were statistically insignificant and not associated with STI-related care-seeking behaviour in both the unadjusted and adjusted models (see Table 6): age, years in the sex work industry, and country of birth. The following socioeconomic variables were statistically insignificant and not associated with STI-related care-seeking behaviour in both the unadjusted and adjusted models (see Table 7): education level, personal and household income. The following health-related variables were statistically insignificant and not associated with STI-related care-seeking behaviour in both the unadjusted and adjusted models (see Table 7): condom use with the last three clients, vaginal cleansing before sex, sought medical care for any reason, and non-medical drug use. Refused healthcare, and condom use with the last two non-paying sexual partners were removed from the adjusted model due to collinearity, and insufficient observations in the ‘sometimes’ category, respectively.

For the metropolitan cities, the odds of STI-related care-seeking behaviour in Durban compared to Cape Town were significant in both the unadjusted and adjusted models. The odds of seeking STI-related care decreased slightly in the adjusted model, but still increased the odds compared to FSWs in Cape Town. The odds of STI-related care-seeking among FSWs in Durban increased by 199%, compared to FSWs in Cape Town (AOR = 2.99, $p=0.002$, 95% CI: 1.51-5.89).

By marital status, the odds of STI-related care-seeking behaviour among FSWs who were single remained significant in both the unadjusted and adjusted models. There was a marginal decrease in the odds of STI-related care among single FSWs in the adjusted model. The odds of STI-related care-seeking among FSWs who were single were 1.59 times higher than among married FSWs (AOR = 2.59, $p=0.018$, 95% CI: 1.18-5.67).

Knowledge of STIs other than HIV, increasing the odds of STI-related care-seeking behaviour, was statistically significant in both the unadjusted and adjusted models. The odds of STI-related care-seeking behaviour increased in the adjusted model. The odds of STI-related care-seeking behaviour increased by 809% among FSWs who had knowledge of STIs other than HIV compared to those who did not (AOR = 9.09, $p=0.003$, 95% CI: 2.12-38.96).

Table 7: Factors associated with STI-related care-seeking behaviour among FSWs in South Africa's major metropolitan cities

Characteristics	Unadjusted				Adjusted			
	UOR	p-value	95% CI		AOR	p-value	95% CI	
Demographics								
Metropolitan City								
Cape Town	ref				ref			
Durban	3.27	0.000	1.74	6.15	2.99	0.002	1.51	5.891
Johannesburg	1.16	0.566	0.70	1.91	0.97	0.910	0.53	1.77
Age (years)	1.02	0.179	0.99	1.05	1.03	0.132	0.99	1.08
Years in industry	1.02	0.464	0.97	1.06	1.01	0.759	0.95	1.07
Country of birth								
Other	ref				ref			
South Africa	1.85	0.190	0.74	4.64	1.61	0.371	0.57	4.57
Marital Status								
Married	ref				ref			
Single	2.86	0.002	1.45	5.64	2.59	0.018	1.18	5.67
Divorced	3.43	0.046	1.02	11.46	2.50	0.170	0.68	9.22
Widow	3.86	0.216	0.45	32.93	1.88	0.579	0.20	17.55
Socioeconomic								
Education Level								
Never attended school	ref				ref			
School not completed	2.31	0.565	0.13	39.78	2.29	0.587	0.12	45.11
Primary school (grades 1-7)	8.39	0.135	0.52	135.90	8.19	0.154	0.45	147.59
Secondary school (grades 8-12)	9.13	0.125	0.54	153.63	7.66	0.179	0.39	149.40
Tertiary	5.50	0.290	0.23	128.97	7.41	0.249	0.25	223.34
Personal Income (ZAR)	1.00	0.167	1.00	1.00	1.00	0.398	1.00	1.00

Characteristics	UOR	p-value	95% CI		AOR	p-value	95% CI	
Household Income (ZAR)								
Below R2499	ref				ref			
R2500-4999	1.01	0.967	0.61	1.68	0.98	0.940	0.55	1.74
R5000-9999	1.44	0.264	0.76	2.75	1.41	0.391	0.64	3.11
R10000 or more	1.44	0.516	0.48	4.28	1.06	0.933	0.30	3.76
Health-related								
Refused healthcare								
No	ref				ref			
Yes	1	empty			*			
Knowledge of STIs other than HIV								
No	ref							
Yes	7.86	0.001	2.23	27.7064	9.09	0.003	2.12	38.96
Condom use with last three clients								
Always	ref				ref			
Never	1.42	0.574	0.42	4.79	1.40	0.600	0.40	4.96
Sometimes	1.37	0.248	0.80	2.36	1.55	0.139	0.87	2.76
Condom use with last two non-paying sexual partners								
Always	ref				ref			
Never	0.36	0.010	0.163	0.78	*			
Sometimes	1							
Only have paying sex partners	0.82	0.572	0.40	1.66				
Vaginal cleansing before sex								
No	ref				ref			
Yes	1.24	0.336	0.80	1.94	1.18	0.513	0.71	1.96
Sought medical care for any reason								
No	ref				ref			
Yes	1.49	0.079	0.95	2.33	1.47	0.146	0.88	2.46
Non-medical drug use								
No	ref				ref			
Yes	0.78	0.278	0.50	1.22	0.84	0.504	0.50	1.41

CHAPTER 5: DISCUSSION

5.1 Introduction

The main objective of this research project was to determine the demographic, socioeconomic, and health-related factors that are associated with STI-related care-seeking behaviour among female sex workers in South Africa's major metropolitan cities (Cape Town, Johannesburg, and Durban). This section aims to discuss the findings obtained in the previous chapter and critique them in light of existing literature. Thereafter, the limitations of the study will be discussed.

From the adjusted logistic regression, it was determined that the only significant demographic factors associated with seeking care or advice for a self-reported STI symptom were living in Durban and being single. Age, years in the industry, and country of birth were not associated with STI-related care-seeking behaviour. None of the socioeconomic factors, namely personal income, household income, and level of education, were associated with STI-related care-seeking behaviour. Only knowledge of STIs other than HIV was significant among all the health-related factors. Condom use with the last three clients, condom use with the last two non-paying sexual partners, vaginal cleansing before sex, seeking medical care for any reason, and non-medical drug use were not associated with STI-related care-seeking behaviour.

5.2 Demographic factors

It was unsurprising that residing in Durban significantly increased the likelihood of seeking STI-related care and was positively associated with such behaviour compared to FSWs living in Cape Town. Durban is the epicentre of the HIV epidemic; as such, a large number of resources (funding, advocacy, and research) have been put towards the cause of primarily alleviating the incidence and prevalence of HIV (extended to other STIs) in this city (Allinder & Fleischman, 2019; Makhakhe et al., 2019). These resources have been instrumental in increasing access to healthcare services such as counselling, testing, and treatment for STIs, at no cost, to vulnerable populations like FSWs. An example of a non-governmental organisation providing these STI-related services to FSWs in Durban is the Centre for the AIDS Programme of Research in South Africa (CAPRISA) (Karim et al., 2017).

The lower odds of seeking care or advice for self-reported STIs among FSWs in Johannesburg and Cape Town can be attributed to the comparatively lower number of resources available for sexual and reproductive health services available to FSWs in these cities, compared to Durban (Tomlinson, 2023). Resources are more concentrated in areas where there is a greater need for intervention (Shamu, 2013). The higher the prevalence of STIs in an area, the more resources are aimed at the cause therefore; the lower rates of STIs among the general population in Cape Town and Durban do not necessitate the same level of resources as provided to Durban. Individuals in these cities are likely to need to rely on care services offered by the government; however, the criminalisation of sex work makes it increasingly difficult to access these services by creating social and structural barriers (Makhakhe et al., 2019; Platt et al., 2018). Unequal distribution of resources leads to a lack of de-stigmatised sexual and reproductive health services offered by non-governmental organisations in these cities, which deters FSWs from seeking STI-related care from them (Makhakhe et al., 2019; Mokhwelepa et al., 2024).

Funding has been a crucial element in the implementation and delivery of STI-related care to vulnerable populations. The 2024/2025 budget for HIV and other STIs is R30.48 billion, with 17% of that from funding from the United States of America (USA) and 72% funded by the South African Government. Experts have purported that funding from the USA is more effective than the government's, as it aids both governmental and non-governmental organisations (Tomlinson, 2023). However, in February 2025, the US Agency for International Development (USAID) funding was terminated (Copelyn, 2025).

The effects of these funding cuts will be detrimental to both the public health of the whole of South Africa and populations at high risk of HIV and STIs like FSWs. Thus far, the termination of funding has resulted in widespread clinic closures and a substantial decrease in essential services, including HIV and STI testing, care, and treatment. This has created significant gaps in healthcare provision, particularly affecting vulnerable groups like FSWs. The service reduction may intensify stigma against key populations, like FSWs, potentially decreasing their healthcare engagement and increasing HIV transmission. This disruption could undo years of progress, leading to higher infection rates of HIV, other STIs, and mortality in the near future (UNAIDS, 2025b).

This study could not assess the effect of stigma and discrimination on FSWs' STI-related care-seeking, as the variable was excluded from analysis due to collinearity with the outcome- STI-

related care-seeking behaviour. Hence, existing evidence on its impact could neither be confirmed nor refuted.

The literature is divided on whether marital status affects the care-seeking behaviour of FSWs or not. This study concurs with the findings by Mutambuka et al. (2024) that suggested that married FSWs are less likely to exhibit STI-related care compared to single FSWs (Mutambuka et al., 2024). Supporting studies suggest that single FSWs have a higher likelihood of seeking care, attributing the lower care-seeking behaviour among married FSWs to partner influence (PrEP Communications Advocacy Taskforce, 2019). Though not stated in literature, it can be inferred that being married leads to a shift in the prioritisation of care-seeking among FSWs. This inference is supported by existing literature that indicates that 94% of FSWs express concern about their health and the risk of acquiring STIs (OPTIONS, 2018).

Further research highlights that a male partner's education level influences a woman's autonomy in health decisions, with higher education levels correlating with greater autonomy (Sougou et al., 2020). Additionally, studies suggest that FSWs in relationships may not seek STI-related care in an effort to conceal their line of work from their partner (PrEP Communications Advocacy Taskforce, 2019). Both the educational level of the partners of FSWs and explorations of whether FSWs conceal their occupation from their partners could help provide more insightful reasons as to the differences in STI-related care-seeking behaviours among partnered and single FSWs.

Age was not associated with seeking advice or treatment among FSWs who self-reported STI symptoms, which disagrees with literature that suggests that older FSWs exhibit more STI-related care-seeking behaviours than younger FSWs (Seidu et al., 2023). Even though studies have found that age is associated with the risk of acquiring an STI, they remain divided as to whether older or younger FSWs engage in more risky sexual behaviours (Chen et al., 2016; Tao et al., 2020). The current study could not support or oppose these findings as the determinants of risky sexual behaviours were not part of the scope of this study. Further, in this study, increased years in the sex work industry very minimally increased the likelihood of STI-related care-seeking by 0.09% but this was not statistically significant and therefore not associated with seeking advice or treatment for self-reported STI symptoms. This finding is in contrast with literature that suggests that increased years in the sex work industry increases the care-seeking behaviour of FWSs by 160% ($p = 0.001$) (Phrasisombath et al., 2012a).

The association between longer duration in the sex work industry and increased likelihood of STI-related care-seeking behaviour suggests a potential correlation. It can be inferred that FSWs with more years in the industry are likely older, indicating that both age and extensive experience in sex work may contribute to a higher likelihood of seeking care. This pattern indicates that as FSWs age and accumulate more years in the profession, they may become more proactive in addressing their sexual health needs. Future studies could assess the validity of this inference.

There is strong evidence in literature that suggests that FSWs who are migrants exhibit poorer care-seeking behaviour than FSWs who are not migrants due to fears of deportation (Ngicho, 2013; Wulifan, 2024). However, the findings of this study did not support this, as it was determined that country of birth was not associated with seeking advice or treatment for an observed STI symptom. A key distinction is that previous studies often focus on FSWs with undocumented migrant status, whereas this study does not provide such details (Ngicho, 2013; Wulifan, 2024). Instead, it considers only the country of birth, which may explain the differences in observed associations. In the South African context, this finding may be due to Section 27 of the South African Constitution, which offers free access to sexual and reproductive healthcare in public healthcare facilities to foreign nationals (SECTION27, 2022).

In theory, this provision should create equal access to STI-related care for both South African-born FSWs and those born in other African countries, preventing disparities between the two groups. However, the differences in care-seeking behaviour between South African-born FSWs and FSWs born in other African countries may be attributable to xenophobia, as it has been reported as a salient factor in the refusal of healthcare to foreign nationals in Johannesburg's public healthcare facilities (Mutandiro, 2023). This suggests that obstacles to STI-related care-seeking may not be structural - since services are available through both governmental and non-governmental organizations - but rather be a social phenomenon, shaped by stigma and discrimination, often reinforced by the prejudices of healthcare workers.

Intervention programs should shift their focus toward healthcare workers by incorporating sensitivity training, provided on a regular basis, to ensure they provide non-discriminatory, judgment-free care to key populations, including FSWs and foreign nationals (Geibel et al., 2017). This approach would help mitigate one of the many social barriers that hinder healthcare service utilization among FSWs.

5.3 Socioeconomic factors

FSWs who had completed primary school were 71.81% more likely to seek STI-related care compared to those who had never attended school, with similarly higher odds observed among those with secondary and tertiary education. However, the adjusted odds were statistically insignificant and not associated with STI-related care-seeking behaviour among FSWs who had STIs. These findings suggest that while school-based comprehensive sexual education remains a critical component of individual learning, it may not directly improve STI-related healthcare-seeking behaviours among FSWs already experiencing STI symptoms (Department of Basic Education, 2019).

Instead, numerous studies have demonstrated that peer-led interventions are an effective approach for disseminating knowledge and influencing sexual health behaviours among FSWs (Huschke, 2019). These interventions not only help reduce risky sexual behaviours but also contribute to improved overall well-being (Huschke, 2019; Medley et al., 2009). A study conducted in Mexico among men who have sex with men found that a single 30-minute peer-led STI intervention reduced STI rates by 40% over six months (Shangani et al., 2017). However, some studies have shown that the effectiveness of peer-led interventions is context-specific. This provides opportunities for future studies to incorporate peer-led interventions when assessing what factors contribute to the care-seeking behaviour of FSWs as it relates to STIs (Medley et al., 2009).

The relationship between financial constraints and STI-related care-seeking behaviour among FSWs is complex and context-dependent. A vast majority of literature emphasises the role of poverty in the FSW STI crisis as a driver of sex work, risky sexual behaviour such as engaging in condomless sex, and not visiting healthcare facilities (Phrasisombath et al., 2012b; Platt et al., 2015). In this study, both personal income and household income were not associated with an FSW seeking advice or treatment for observed STI symptoms, showing that finances neither deterred nor promoted the care-seeking behaviour of the FSWs. Finances may not play a role in the STI-related care-seeking behaviour of FSWs because South Africa offers a large number of sources of sexual health care that are at no cost to the patient (Copelyn, 2025; SECTION27, 2022).

However, with ongoing reductions in funding for sexual health interventions and programs, financial constraints may become a significant barrier to care-seeking in the future if the South African government is unable to offset these funding losses. A study conducted in 2019 by Lince-Deroche et al. determined that the annual cost of sexual and reproductive healthcare among females in the general population in South Africa was roughly 52 United States American dollars (Lince-Deroche et al., 2019). This cost can be expected to be higher among FSWs who have high levels of STI-related care-seeking, as it is known that their STI risk is substantially higher than that of females in the general population (Mc Grath-Lone et al., 2014).

Given that the median monthly personal income of FSWs in this study is approximately double the cost of annual sexual and reproductive healthcare, STI-related care-seeking in the absence of adequate funding could lead to financial strain among FSWs. An effect of this could be heightened risky sexual behaviour as a means to boost income or a reduction in care-seeking to avoid the costs of STI treatment (Marcus & Snowden, 2020; Xu et al., 2023). Lowered STI-related care-seeking among FSWs will likely increase STI rates among FSWs, their clients, and the general female population, creating a greater burden on the public health of South Africa (Guddu et al., 2024).

5.4 Health-related factors

This study found that knowledge of STIs transmitted through sex, except for HIV, increased the odds of seeking advice or care for self-reported STI symptoms by 809%, compared to FSWs who did not have this knowledge. This finding was statistically significant and associated with STI-related care-seeking behaviour. Further, the finding was in agreement with literature that suggests that health knowledge and health literacy do not always contribute to the good STI-related care-seeking behaviours of FSWs (Perdomo Sandoval & Goberna-Tricas, 2024; Sousa et al., 2024). If knowledge alone is not sufficient to promote good care-seeking behaviours among FSWs who have self-reported STIs, then perhaps interventions should focus on who delivers the knowledge, as it may be better received and implemented when delivered by peer-educators (Phrasisombath et al., 2012b).

The frequency of condom use with their last three clients was not found to be associated with the STI-related care-seeking behaviour of FSWs. Upon further analysis, it was observed that

even when FSWs consistently used condoms with their last three clients, it did not influence their decision to seek advice or care for self-reported STI symptoms. This finding is supported by existing literature that has also found that there is a lack of an association between condom use and STI-related care-seeking behaviour (Alam et al., 2021). This suggests that among this group of FSWs who had self-reported symptoms and reported inconsistent or no condom use, both their preventative and treatment behaviours were poor. This could explain why much of the literature on FSWs and STIs in South Africa tends to focus on STI prevalence rates and the factors that influence them.

This study could not assess the effect of condom use with non-paying sexual partners on FSWs' STI-related care-seeking, as the variable was excluded from analysis due to having fewer observations than required for analysis. Consequently, its impact could neither be confirmed nor refuted based on the available evidence.

The use of vaginal cleansing methods before sex was not associated with STI-related care-seeking behaviour among FSWs who self-reported an STI symptom. There is a noticeable gap in existing literature regarding the association between the use of vaginal cleansing methods before sex and STI-related care-seeking behaviour among FSWs; hence, a comparison cannot be made between the findings in this study and other studies. This may be because vaginal cleansing methods are used as forms of prevention and self-treatment of STIs (Morar et al., 2003). FSWs who use these methods may perceive them as sufficient STI-related care-seeking practices, potentially reducing their need to seek additional forms of treatment.

Seeking medical treatment for any reason in the past 12 months was not associated with seeking advice or treatment for an observed STI symptom. This suggests that general care-seeking behaviour and STI-related care-seeking behaviour may be distinct and should be treated separately when exploring the factors influencing the decision to seek advice or treatment for an STI symptom. The stigma associated with both STIs and sex work may account for the reluctance of female sex workers to access STI services, even when they actively engage with other components of the healthcare system (Ndung'u, 2016; Seidu et al., 2023). However, studies have found that the factors that lead to general care-seeking and STI-related care-seeking sometimes overlap, and these factors are peer-led interventions, education, and poverty (Afzal et al., 2020; Shewangizaw, 2017). Despite this, both education and poverty have been

found not to be associated with seeking advice or treatment among FSWs who have self-reported STI symptoms in this study.

Non-medical drug use was not associated with seeking advice or treatment for an observed STI symptom in this study. Literature suggests that FSWs who use drugs exhibit poor STI-related care-seeking behaviour and have gone on to suggest that the reason could be that they prioritise drug-seeking behaviours over STI-related care-seeking behaviours (Minzi et al., 2016; Strathdee et al., 2021). Following this, Scheidell et al. (2024) argue that integrating substance abuse treatment with STI care within syringe services programs holds significant promise for enhancing the comprehensive sexual and reproductive health services available to FSWs, effectively addressing both their substance use and STI-related care-seeking behaviour (Scheidell et al., 2024). Programmes in South Africa currently targeting FSWs and their sexual health could become more comprehensive in their approach to improving the health of FSWs by integrating substance abuse, as suggested by Scheidell et al. (2024). Incorporating such integrated approaches into existing programs in South Africa could strengthen efforts to improve the overall health of FSWs and help alleviate the wide array of public health challenges, including substance abuse and STIs, that burden the country (Coovadia et al., 2009; Wand et al., 2020).

5.5 Limitations

This study was cross-sectional in its design, and thus causality could not be inferred (Wang & Cheng, 2020). As a result, the demographic, socioeconomic, and health-related factors examined in this study cannot be said to influence or cause STI care-seeking behaviour or a lack thereof. Additionally, recall bias may have impacted the validity of the data and analyses (Althubaiti, 2016). The FSWs self-reported STI symptoms that may or may not have been reported truthfully, which would affect the overall findings of the study, as participants were required to report symptoms for inclusion.

The study utilized secondary data from the 2018 SAHMS, which limited the variables available for analysis to those included in the primary study. The discussion of the findings in this study raised a few variables that were not available in this dataset, which could have been analysed for their association with STI-related care-seeking behaviour among FSWs. These variables

were the female sex workers' primary sources of STI-related care-seeking information (for example, peer-led interventions) and the education level of their partners. Had these variables been included in the dataset, it would have allowed for a more nuanced determination of the factors associated with STI-related care-seeking.

The study participants were selected using RDS, which is a method typically employed for populations that are difficult to reach, such as FSWs (Wylie & Jolly, 2013). A significant challenge posed by RDS is seed selection bias that assumes that the seed recruits other participants randomly (Navarrete et al., 2022). Seed selection bias occurs when a social network is split into many communities, and an unbalanced representation of the sample occurs (Zhang et al., 2018). Seeds may not recruit randomly but instead choose participants based on certain traits (differential recruitment). For instance, strong incentives may lead them to recruit family members (homophily), while risky activities might cause them to recruit strangers, breaking the reciprocity assumption (Navarrete et al., 2022).

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The objectives of this study were to (1) determine the level of STI-related care-seeking behaviour among female sex workers in South Africa's major metropolitan cities, and (2) to determine the demographic, socioeconomic, and health-related factors associated with STI-related care-seeking behaviour among female sex workers in South Africa's major metropolitan cities. Most of the FSWs in this study who self-reported STI symptoms sought advice or treatment. This shows that the levels of STI-related care-seeking among this study population were high.

The overall inference drawn from this study was that the demographic factors associated with seeking advice or treatment for a self-reported STI symptom(s) were metropolitan city and marital status. FSWs residing in Durban, where concentrated resources—driven by the high HIV burden—enhance access to free, comprehensive healthcare services, are significantly more likely to seek care compared to their counterparts in Cape Town and Johannesburg, where limited resources and structural barriers such as the criminalization of sex work impede access. Further, the partners of FSWs who have self-reported STI symptoms may negatively influence the STI-related care-seeking behaviours of their FSW partners. This could indicate that single FSWs may have more autonomy in their healthcare decisions.

None of the socioeconomic factors (personal income, household income, and education level) were associated with seeking advice or treatment among FSWs who self-reported STI symptom(s). The only health-related factor associated with seeking advice or treatment among FSWs who self-reported STI symptom(s) was knowledge of STIs other than HIV. The use of peer-led interventions may enhance awareness of STIs and promote STI-related care-seeking behaviour. While factors such as education, poverty, and general healthcare-seeking behaviour did not show a direct association with STI-related care-seeking among FSWs, the findings underscore the potential benefits of targeted interventions. Notably, peer-led approaches and integrated programs—such as those that combine substance abuse treatment with STI care—

may offer promising strategies for overcoming persistent barriers and improving sexual and reproductive health outcomes for FSWs. However, recent funding cuts, including the termination of USAID support, threaten to undermine these efforts, potentially exacerbating the burden on South Africa's public health system.

These findings underscore the complex interplay of geographical, social, and health-related factors influencing STI-related care-seeking behaviour among FSWs in Cape Town, Durban, and Johannesburg. They suggest that targeted interventions considering location-specific needs, relationship status, and knowledge of STIs other than HIV could be effective in improving access to and utilization of STI care services among this vulnerable population.

6.2 Recommendations

6.2.1 Further research

Given the often coercive nature of sex work, it would be insightful to explore what proportion of sex workers perform sex work willingly and how many are forced into it at all ages, and compare their patterns of STI-related care-seeking behaviour to better inform sexual health interventions (Tucker et al., 2011). Although many FSWs pursue sex work as a means to achieve economic freedom, research indicates that up to 40% of females are coerced into the industry (George et al., 2011; Silverman et al., 2011). FSWs who do not willingly engage in sex work are likely to have different patterns and determinants of STI-related care-seeking due to their loss of individual autonomy (Zimmerman et al., 2011). Therefore, future studies should differentiate between voluntary and involuntary participation in sex work to develop more nuanced insights into the factors that influence STI-related care-seeking.

Given that both FSWs and their clients significantly contribute to STI transmission rates, future research should concurrently examine the factors influencing STI-related care-seeking behaviours in both groups, rather than attributing the burden solely to FSWs. The burden of blame for the spread or “bridging” of STIs to the general population is placed too often on FSWs alone (Muñoz et al., 2010; Nguyen et al., 2009; Pan et al., 2011). Very seldom do researchers consider the role of the clients of FSWs (CFSWs) in spreading HIV and other STIs

to the general population, who are at a lower risk of acquiring an STI than FSWs and CFSWs (Nguyen et al., 2009).

Like FSWs, CFSWs are also known to have multiple sexual partners, which extends to both FSWs and members of the general population, leading to negative health outcomes (Decker et al., 2008; Fajans et al., 1995; Gomes do Espirito Santo & Etheredge, 2003). The prevalence of STIs among FSWs and CFSWs is between 10 and 20 times higher than in the general population (Nadol et al., 2017). Further, studies have shown that perception and awareness of the risk of HIV and STIs at any level, whether high or low, does not serve as a deterrent for risky sexual behaviour among FSWs and CFSWs (Huang et al., 2011; Nguyen et al., 2009). The romantic partners of FSWs have a positive impact on the sexual and reproductive health of FSWs. FSWs who have romantic partners have been found to have fewer sexual partners and have fewer sexual partners with whom they engage in unprotected sex with than FSWs who do not have romantic partners (Ngugi et al., 2012). This leads to less exposure to risky sexual behaviour and thus fewer opportunities to acquire or spread STIs.

To avoid over-emphasising one group more than the other, future studies could look at both CFSWs and FSWs concurrently to find what factors could jointly or separately encourage FSWs and CFSWs who have STIs from seeking care. Furthermore, STI-related messaging should be gender-inclusive and equitably targeted to all individuals, regardless of gender, in order to address disparities in sexual health communication and improve access to STI services (National Academies of Sciences, 2021).

Literature has evidenced that there are different ways in which individuals seek care for STIs, which may be influenced by the region. Due to the analytical limitations posed by having a binary outcome, future studies could specify and explore the different types of care-seeking behaviour prevalent in specific regions.

6.2.2 Policy recommendations

To address the funding shortcomings of the South African healthcare system, it is essential that South Africa adopts a more transparent and accountable approach to public health financing. A people-centred framework, as recommended by the Lancet Global Health Commission,

emphasizes the alignment of resource allocation with the actual needs and lived realities of the population (Hanson et al., 2022). A people-centred approach fosters greater trust in the healthcare system and enhances service delivery by promoting accessibility, responsiveness, and equity (The American Geriatrics Society Expert Panel on Person-Centered Care, 2016).

Evidence suggests that when healthcare policies are informed by the experiences and preferences of service users, there is an improvement in both uptake and continuity of care (Millenson et al., 2019; Waweru et al., 2020). However, persistent underfunding, combined with frequent misappropriation of resources, undermines the delivery of quality primary healthcare (Hanson et al., 2022; October, 2021). This has direct implications for the country's ability to address STIs, particularly among FSWs who already face structural barriers such as stigma and discrimination. Therefore, addressing mismanagement and advocating for increased investment in people-centred primary healthcare is not only a matter of fiscal responsibility but a necessary step toward achieving universal health coverage and the Sustainable Development Goals (Hanson et al., 2022).

In light of the defunding of UNAIDS and the closure of HIV/STI-related non-governmental organizations that were completely reliant on UNAIDS funding, alternative means of providing sexual health support to vulnerable populations like FSWs are crucial. One study estimated that by 2030, South Africa and other countries affected by the defunding will result in between 4.4 and 10.8 billion new HIV infections, thereby reversing the progress made towards achieving the SDGs by 2030 (Brink et al., 2025). The government of South Africa has shared insight into the possible avenues of mitigating the effects of the defunding, including collaborating with civil society and the private sector (UNAIDS, 2025a).

Building on the strong evidence that peer-led interventions effectively engage FSWs in sexual and reproductive health, it would be valuable for the private sector to invest in the training of FSW peers, equipping them with essential skills to provide comprehensive STI-related care. A large number of studies have supported the claims that FSWs are better engaged in their sexual and reproductive health by peer-led interventions, it would be beneficial for the private sector to begin developing the skills of the FSW peers who lead interventions by equipping them with skills necessary to provide STI-related care (testing, counselling, and treatment) (Medley et al., 2009; Plan International, 2021). Ideally, peers require thorough initial training, spanning over

3 to 5 days, supplemented by regular follow-up sessions, such as every six months, to ensure continuous skill development and knowledge updates (Plan International, 2021).

Another strategy to offset some of the effects of the defunding, and the structural factors contributing to high rates of STIs among sex workers and experiences of physical and sexual violence, would be to implement the decriminalisation of sex work by passing the Criminal Law (Sexual Offences and Related Matters) Amendment Bill (Jewkes et al., 2023; Masuku & Kwanje, 2023). In countries where sex work has been decriminalised as a transformative strategy, the incidence of HIV among this group has decreased by up to 50% and STI incidence rates are reduced by up to 40% among FSWs (Global Network of Sex Work Projects, 2024; Gunderson, 2018). This policy shift would not only improve the well-being of sex workers but also alleviate the burden on the public health system by significantly reducing the number of individuals requiring STI-related care. Ultimately, decriminalizing sex work offers a holistic solution to addressing both health and safety challenges faced by this vulnerable population.

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APPENDICES

Appendix 1: All variables used in study, as presented by primary study

Variable	Code	Definition	Data type
Sample selection criteria			
Observed abnormal discharge from vagina in past 12 months	sti3	Sometimes women experience an abnormal discharge from their vagina. During the last 12 months, have you had an abnormal discharge from your vagina? 2=No 1=Yes 8=Don't Know 7=Refuse to Answer	Categorical
Observed sore/ulcer near or vagina in past 12 months	sti4	Sometimes women have a sore or ulcer on or near their vagina. During the last 12 months, have you had a sore or ulcer on or near your vagina? 2=No 1=Yes 8=Don't Know 7=Refuse to Answer	Categorical
Outcome variable			
Sought treatment or advice for sore, ulcer, or discharge near or on vagina within the past 12 months	sti5	If had discharge, sore or ulcer: The last time you had this problem did you seek any kind of advice or treatment? 2 = No 1 = Yes 8 = Don't Know 7 = Refuse to Answer	Categorical
Explanatory Variables			
Site	site	1 = Cape Town 2 = Durban 3 = Johannesburg	Categorical
Age	demage1	AGE is calculated from the response given in the format "mm/dd/yyyy" using the following command in Stata- "AGE(DEMAGE1, TODAY)".	Continuous

Variable	Code	Definition	Data type
Country of birth	czn2	In what country were you born? 1 = Zimbabwe 2 = Mozambique 3 = South Africa 4 = Nigeria 5 = Botswana 6 = Namibia 7 = Lesotho 8 = Swaziland 9 = Other(specify) 98 = Don't Know 97 = Refuse to Answer	Categorical
Marital Status	marital4	What is your current marital status: widowed, divorced, or separated? 1 1 = Widowed 2 = Divorced 3 = Separated 7 = Refuse to Answer	Categorical
Years in industry	sxwk1a	How many years have you been a sex worker for? 0 – 96: range	Continuous
Personal Income	incom4	How much money did you personally earn last month? (Total income from all sources in ZAR) 0 – 100000: range 999998 = Don't Know 999997 = Refuse to Answer	Categorical
Household Income	income	What is your overall monthly household income? (Total income from all sources in ZAR) 0 = Below R2499 1 = R2500-4999 2 = R5000-9999 3 = R10000-19999 4 = R20000 or more 8 = Don't Know 7 = Refuse to Answer	Categorical

Variable	Code	Definition	Data type
Highest Level of Education Completed	dem_edu2	What is the highest level of school you completed? 1 = Never attended school 2 = Attended school, but never completed any level 3 = Primary School (grades 1-7) 4 = Secondary school (grades 8-12) 5 = Non-university tertiary level 6 = University level 7 = Postgraduate 8 = Other (specify) 98 = Don't Know 97 = Refuse to Answer	Categorical
Refused Healthcare	stigm1	In the past 12 months, have you been refused healthcare because someone believed you to be a sex worker? 2 = No 1 = Yes 8 = Don't Know 7 = Refuse to Answer	Categorical
Knowledge of STI symptoms	sti1	Could you describe the symptoms of STI? 2 = No 1 = Yes 8 = Don't Know 7 = Refuse to Answer	Categorical
Knowledge of STIs transmitted through sex except HIV	sti1	Apart from HIV, have you heard about other infections that can be transmitted through sexual contact? 1 2 = No 1 = Yes 7 = Refuse to Answer	Categorical
Sought medical care for any reason in the past 12 months	health1	During the last twelve months have you sought medical care for any reason? 2 = No 1 = Yes 8 = Don't Know 7 = Refuse to Answer	Categorical
Use of drugs for non-medical reasons within the past 12 months	non-medical drug use	During the last 12 months have you consumed any drugs without having a medical reason? 2 = No 1 = Yes 8 = Don't Know 7 = Refuse to Answer	Categorical

Variable	Code	Definition	Data type
Use of vaginal cleansing methods before sex	sxwk11	In the past month how often have you done anything to dry, clean, or tighten your vagina before having sex? 0 = Every time 1 = Sometimes 2 = Once 3 = Never 8 = Don't Know 7 = Refuse to Answer	Categorical
Condom use with client at last sex	Client 1 p1_fasx4 Client 2 p2_fasx4 Client 3 p3_fax4	The last time you had sex (vaginal or anal) with this person was a condom used? 2 = No 1 = Yes 8 = Don't Know 7 = Refuse to Answer	Categorical
Condom use with non-paying sexual partner at last sex	Client 1 mp1fas4 Client 2 mp2fas4	The last time you had sex (vaginal or anal) with this person was a condom used? 2 = No 1 = Yes 8 = Don't Know 7 = Refuse to Answer	Categorical

Appendix 2: Model fitness tests

Goodness of fit test output

Variable: STI-related care-seeking
Number of observations = 745
Number of covariate patterns = 744
Pearson $\chi^2(1754) = 776.56$
Prob > $\chi^2 = 0.0743$

Link test output

Logistic regression	Number of obs = 745			
LR chi2(2) = 58.67				
Prob > chi2 = 0.0000				
Log likelihood = -202.60966	Pseudo R2 = 0.1084			
STI-related care-seeking	Coefficient	P> z	[95% conf. interval]	
_hat	1.146524	0.001	.455673	1.37079
_hatsq	-.0468562	0.634	-.1035963	.1593111

Pair-wise correlation coefficient output

	binSTI~B	SITE	age	COB__	M~__STAT	sxwk1a	EDU__LVL
binSTI__HCSB	1.0000						
SITE	0.0169	1.0000					
age	0.0493	-0.0248	1.0000				
COB__	0.0487	-0.1303	-0.0195	1.0000			
MARITAL__S~T	0.0862	-0.0805	0.1990	0.0264	1.0000		
sxwk1a	0.0268	-0.0351	0.5439	0.0648	0.0509	1.0000	
EDU__LVL	0.0855	0.2277	-0.0223	-0.0909	0.0277	-0.1166	1.0000
incom4	0.0507	-0.0771	0.0203	-0.0764	0.1219	0.0429	0.1743
HH__INCOME	0.0417	0.0593	-0.0595	-0.0632	-0.0374	-0.0315	0.1474
STI__KNOWL	0.1380	0.0216	-0.0215	-0.0243	0.0330	0.0040	-0.0051
HCSB	0.0646	-0.1384	0.0170	0.0796	0.0138	0.0457	0.0028
DRUGS	-0.0398	-0.2552	-0.1885	0.0609	-0.0369	0.0004	-0.1078
PP_CON_USE	0.0441	0.0886	-0.0382	-0.0479	-0.0060	-0.0242	0.0358
DOUCHE_b	0.0353	0.0184	-0.0869	0.0529	-0.0540	0.0033	0.0224
	incom4	HH__IN~E	STI_KN~L	HCSB	DRUGS	PP_CON~E	DOUCHE_b
incom4	1.0000						
HH__INCOME	0.5345	1.0000					
STI__KNOWL	0.0113	0.0246	1.0000				
HCSB	-0.0649	-0.0177	0.0415	1.0000			
DRUGS	0.0440	0.0550	0.0160	0.0927	1.0000		
PP_CON_USE	-0.0034	-0.0049	-0.0303	-0.0534	-0.0323	1.0000	
DOUCHE_b	0.0209	0.0743	0.0266	0.1818	-0.0453	-0.0305	1.0000