

ASSESSING THE KNOWLEDGE OF, ATTITUDES TO AND STIGMA  
TOWARDS PrEP AMONG SOUTH AFRICAN WOMEN

BOITSHOKO MOCHE

A mini-thesis submitted in partial fulfilment of the requirements for the  
degree of Master of Public Health at the School of Public Health.

University of the Western Cape

Supervisor: Prof Hanani Tabana

Co-supervisor: Prof Lucia Knight



MARCH 2023  
UNIVERSITY of the  
WESTERN CAPE

## **KEYWORDS:**

Pre-exposure prophylaxis, HIV Prevention, Women, Knowledge, Attitude, Acceptability, Stigma, Community, Access to information, Support

## **ABBREVIATIONS AND ACRONYMS**

ARV	Antiretroviral drug
ART	Antiretroviral therapy
AVAC	Global advocacy for HIV Prevention
CBO	Community-based organisations
HBV	Hepatitis B virus
HIV	Human immunodeficiency virus
MSM	Men having sex with men
NDOH	South African National Department of Health
NGO	Non-government organisations
NSP	South African National Strategic Plan
PEP	Post exposure prophylaxis
PLHIV	Persons living with HIV
PrEP	Pre-exposure prophylaxis
SRH	Sexual and reproductive health
TDF	Tenofovir disoproxil fumarate
TDF/FTC	Tenofovir disoproxil fumarate/Emtricitabine
UNAIDS	The Joint United Nations Programme on HIV and AIDS
WHO	World Health Organisation

## DEFINITION OF TERMS

*This defines the terms and how they are applied in the study*

Adult women	Females over the age of 18 years
Substantial risk	HIV incidence greater than 3 per 100 person-years in the absence of PrEP
PrEP	The use of antiretroviral drugs by HIV-negative people prior to potential exposure to prevent HIV infection
PEP	The use of antiretroviral drugs within 72 hours of exposure to potentially HIV infected body fluids to prevent HIV infection; the course for PEP is 28 days.
Combination HIV Prevention	Combination of behavioural, biomedical, and structural interventions for HIV prevention to achieve the maximum impact on reducing HIV transmission
Key Populations	Populations which are deemed to be at high risk of HIV infection; includes men having sex with men (MSM), sex workers, transgender, and sero-discordant couples
Attitudes	opinions and feelings that one has about PrEP. It can be favourable, when one accepts and supports the use of PrEP, or unfavourable, when one rejects the idea of using PrEP.
PrEP Knowledge	The information about HIV PrEP prior to the study.
PrEP stigma	The perception of one towards PrEP. Measured by shame regarding PrEP use, judgement towards people who are using PrEP and the perceived social support of people or taking PrEP.
PrEP Acceptability	The willingness of PrEP use for self-and/or recommending it for someone close.

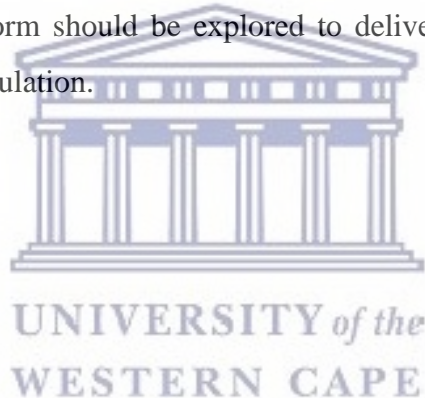
## ABSTRACT

Background: Pre-exposure prophylaxis (PrEP) is a biomedical prevention option proven to be effective in preventing HIV transmission. It is offered in public and private health facilities in South Africa although PrEP uptake remains low in populations that could potentially benefit from it including women in South Africa, the population reported to have a high HIV prevalence. While PrEP services are being expanded to the broader population, there is limited information on its acceptability. The aim of this study was to assess the knowledge of, attitudes to PrEP, and stigma which may be potential barriers to PrEP uptake among South African women.

**Methods:** A cross-sectional online survey was distributed to women aged 18 years and older in the South African general population between December 2020 and May 2021. The questionnaire was distributed to potential participants through snowball referral on email and social media platforms. The study was conducted only in English due to time limitations. The responses were saved on Google forms, extracted to Excel and the data analysis was done in the SPSS statistical software. The descriptive characteristics and the levels of knowledge, attitudes to and stigma towards PrEP are presented. The Chi-square was used to determine the association between PrEP attitudes and PrEP acceptability with PrEP knowledge. Correlations were done to establish a relationship between PrEP stigma factors and PrEP acceptability as well as to establish relationship between PrEP attitudes with PrEP knowledge, experience, and recommendations.

**Results:** Overall, 389 responses were analysed. The participants were mainly aged 18-24 years, 63.5% were of African black origin, single (63.5%), lived in the urban areas (72.5%) and mostly in the Western Cape province (55.6%) of South Africa. Most of the participants had heard of PrEP prior to the study (64.3%) of which 8% had PrEP experience. The attitude towards PrEP was mostly positive with a mean of 1.6; the acceptability of PrEP was positive, the majority were willing to use, recommend and access PrEP from their medical aid. The study reported positive stigma towards PrEP which correlated with both willingness to use and willingness to recommend PrEP. Women agree that PrEP can reach its potential of reducing HIV infection when there is support given to PrEP users by loved ones and the general population.

**Conclusion:** Women are becoming aware of PrEP; they are open to using and recommending PrEP. To reduce the negative stigma and attitudes towards PrEP, a multidimensional platform should be explored to deliver positive messaging about PrEP in the general population.



## DECLARATION

I declare that *Assessing the knowledge of, attitudes to and stigma towards PrEP among South African women* is my work, has not been submitted for any degree or examination at any other university, and that all the sources I have used have been indicated in text and acknowledged in the references section.

Full Name: Boitshoko Thabitha Moche

Date: 23 March 2023

Signature: 



## ACKNOWLEDGEMENTS

Firstly, I would like to thank God, my Creator, and the source of my strength through this journey and every day.

I would also like to extend and express my gratitude to the following people who offered my support:

- My husband, Phumlani Michael Grootboom. I wouldn't have made it without your support and understanding, running the household while I was busy with academics.
- My children, Khanya, Keletso and Khumo for allowing me to take time from the home time and dedicate it to studying. We have grown closer and stronger through this journey of life lessons learnt
- My supervisor, Prof. Hanani Tabana, for your patience and guidance as I navigated through multiple research topics and life changes.



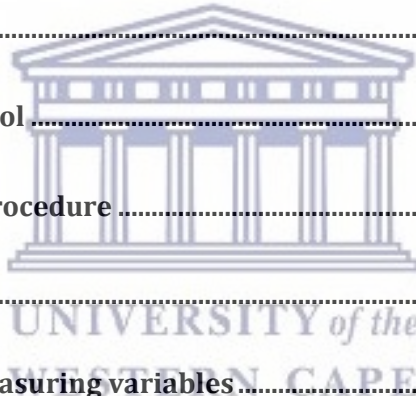
## TABLE OF CONTENTS

<b>KEYWORDS:</b> .....	<b>1</b>
<b>ABBREVIATIONS AND ACRONYMS</b> .....	<b>1</b>
<b>DEFINITION OF TERMS</b> .....	<b>2</b>
<b>ABSTRACT</b> .....	<b>3</b>
<b>DECLARATION</b> .....	<b>5</b>
<b>ACKNOWLEDGEMENTS</b> .....	<b>6</b>
<b>TABLE OF CONTENTS</b> .....	<b>7</b>
<b>LIST OF TABLES</b> .....	<b>10</b>
<b>LIST OF FIGURES</b> .....	<b>10</b>
<b>CHAPTER 1: INTRODUCTION</b> .....	<b>11</b>
<b>1.1 Background</b> .....	<b>11</b>
<b>1.2 Problem Statement</b> .....	<b>12</b>
<b>1.3 Study Aim and Objectives</b> .....	<b>13</b>
<b>CHAPTER 2: LITERATURE REVIEW</b> .....	<b>14</b>
<b>2.1 Introduction</b> .....	<b>14</b>
<b>2.2 Background on PrEP</b> .....	<b>14</b>
<b>2.2.1 Potential PrEP candidates</b> .....	<b>14</b>
<b>2.2.2 Pre-requisites of PrEP</b> .....	<b>15</b>
<b>2.2.3 Overview of PrEP research</b> .....	<b>15</b>





2.2.4 Access to PrEP .....	16
2.3 Knowledge about PrEP .....	17
2.4 Attitudes towards PrEP use .....	19
2.5 HIV stigma related to PrEP.....	21
<b>CHAPTER 3: RESEARCH METHODOLOGY.....</b>	<b>23</b>
3.1 Introduction .....	23
3.2 Study Design .....	23
3.3 Study population and sampling .....	23
3.4 Data collection.....	24
3.4.1 Data collection tool.....	24
3.4.2 Data collection procedure .....	25
3.5 Data Analysis.....	26
3.5.1 Procedure for measuring variables.....	26
3.6 Validity .....	28
3.7 Reliability .....	28
3.8 Ethical Considerations.....	29
<b>CHAPTER 4: RESULTS.....</b>	<b>30</b>
4.1 Introduction .....	30
4.2 Characteristics of the study participants.....	30



4.3 PrEP Knowledge.....	33
4.4 PrEP attitudes .....	35
4.4.1 Relationship between PrEP knowledge and PrEP attitudes.....	36
4.4.2 Relationship between PrEP acceptability and PrEP knowledge.....	38
4.4.3 Correlation of PrEP attitudes with PrEP knowledge, PrEP experience, PrEP recommendation and PrEP willingness.....	39
4.5 Stigma .....	41
4.5.1 Participants responses to the HIV PrEP stigma scale (HPSS) items.....	41
4.5.2 Exploratory factor analysis.....	43
4.5.3 Reliability, Mean and Standard deviation of PrEP stigma factors.....	45
4.5.4 Correlation between PrEP stigma factors, willingness to use PrEP and PrEP recommend.....	45
<b>CHAPTER 5: DISCUSSION</b> .....	<b>47</b>
5.1 Study limitations .....	52
5.2 Conclusions.....	52
5.3 Recommendations .....	54
REFERENCES .....	56
<b>ANNEXURES</b> .....	<b>63</b>
Annexure I: PrEP Survey Cover letter .....	63
Annexure II: Information sheet and Consent.....	65

<b>Annexure III: Survey questionnaire .....</b>	<b>69</b>
<b>Annexure IV: UWC Ethical Approval Letter.....</b>	<b>80</b>
<b>Annexure V: UWC Permission to conduct research and agreement.....</b>	<b>82</b>

## **LIST OF TABLES**

Table 4.1: Characteristics of study participants
Table 4.2 Prior PrEP knowledge by socio-demographic characteristics
Table 4.3 PrEP attitude responses
Table 4.4: Chi-square analysis of PrEP attitude and PrEP knowledge
Table 4.5: Chi-square analysis of PrEP acceptability and PrEP knowledge
Table 4.6: Correlation coefficients to quantify the relationships between PrEP attitudes with PrEP knowledge, experience, and recommendations
Table 4.7: Exploratory Factor Analysis (EFA) Loadings of PrEP stigma
Table 4.8: Cronbach alpha, standard deviation and mean of PrEP stigma factors
Table 4.9 Correlation between PrEP stigma factors and PrEP acceptability

## **LIST OF FIGURES**

Figure 4.1 Participants responses: PrEP positive statement responses in percentages
Figure 4.2: PrEP negative stigma statements responses in percentages

## **CHAPTER 1: INTRODUCTION**

### **1.1 Background**

HIV is a major global public health issue. According to the (UNAIDS, 2020) report, there were 38 million people estimated to be living with HIV globally by the end of 2019, and of these, 1.7 million were new HIV infections. The East and Southern African region are the most affected regions in the world. In 2019, 20.7 million people were reported to be living with HIV and of these, 730 000 were new infections (UNAIDS, 2020).

South Africa (SA) has similar trends to the rest of the world. In 2019, 200 000 new HIV infections were reported and of these, 120 000 were women aged 15 years and older (UNAIDS, 2020). The HIV epidemic in SA is largely driven by heterosexual transmission, with underlying socio-behavioural, biological, and structural factors. These factors influence HIV transmission risk predisposing women at higher risk of HIV infection (Hodges-Mameletzis et al., (2019), PEPFAR (2021). HIV prevalence and incidence in SA is significantly varied across the country with more than half of people living with HIV (PLHIV) residing in KwaZulu Natal and Gauteng provinces (PEPFAR, 2021).

In 2015, the World Health Organisation (WHO) implemented their Pre-exposure prophylaxis (PrEP) guidelines and South Africa was among the first countries to adopt a PrEP programme in 2016. There have since been drives and campaigns in SA to increase the demand and uptake of PrEP, but the awareness and uptake remains low (NDOH, 2020). PrEP was initially rolled out in a phased approach with the focus on key populations starting with men having sex with men (MSM) and sero-discordant couples. In 2020 the South African National department of health (NDOH) extended the access of PrEP to include any person who self-identifies with high HIV infection risk and requests PrEP, as well as people with more than one sexual partner (NDOH, 2020).

In line with the South African National strategic plan (NSP), which aims to reduce new HIV infections to 100 000 by 2022, the NDOH strives to offer PrEP as part of a comprehensive combination prevention package by incorporating it into sexual and reproductive health (SRH) services, as well as collaborating with more community-based organisations (CBO) and non-government organisations (NGO) to reach populations that do not habitually use health facilities (SANAC, 2017). The South African HIV Clinicians Society (SAHIVCS) has also launched a project for PrEP services to be offered in community pharmacies to improve access for the general population (SAHIVCS, 2020).

PrEP has been made available in public clinics and more research is being conducted through implementation studies. However, the HIV incidence among South African women older than 15 years remains high. One of the key issues is whether the women have adequate knowledge, the right attitudes and if there is stigma towards PrEP.

## **1.2 Problem Statement**

According to (PrEPWatch, 2021) there were approximately 100 000 PrEP users in South Africa reported from all projects collectively as of April 2021 and the target for PrEP users for 2021 was set at 250 000.

The incidence of HIV infections remains the highest among South African women (UNAIDS,2020). Extending PrEP to more facilities in the communities can reach the women in the general population. However, little is known about levels of awareness and information about attitudes to PrEP as well as stigma towards PrEP among women of all ages which could undermine the potential of PrEP. Most studies about PrEP focused on target populations (Ajayi et al., 2019; Dunbar et al., 2018). These gaps provided an opportunity to do a study on these issues in women in the general population.

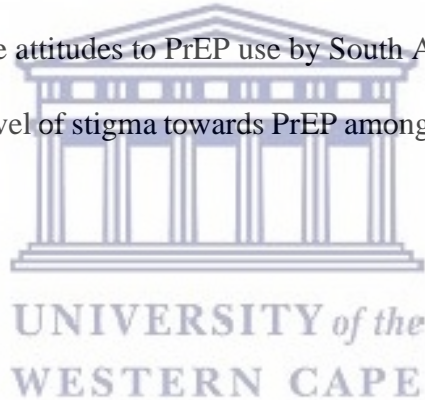
To achieve the greatest HIV prevention impact, interventions should include a mix of behavioural change strategies that include broader communities in which the PrEP users live. Increased awareness within the general population is important for stigma reduction (Makusha, T., Feizzadeh, A., Velasquez., Zungu, N & van Rooyen, 2020).

### **1.3 Study Aim and Objectives**

The aim of this study was to assess the knowledge of, attitudes to and stigma towards PrEP among South African women older than 18 years.

The specific objectives of the study were:

- To determine the level of PrEP knowledge among South African adult women
- To determine the attitudes to PrEP use by South African adult women
- To assess the level of stigma towards PrEP among South African adult women



## **CHAPTER 2: LITERATURE REVIEW**

### **2.1 Introduction**

HIV is a global public health problem. It has been estimated that almost one fourth of the South African women in childbearing age (15-49 years) are HIV positive. PrEP is an HIV prevention method which has the potential to reduce HIV incidence especially to all at risk of HIV acquisition including women. Even though the study focuses on women as the sub-group of the population at risk, this literature review provided a general background on PrEP, its implementation globally and in South Africa. The chapter also focuses on the literature review on knowledge of PrEP, attitudes to, acceptability of as well as stigma towards PrEP.

### **2.2 Background on PrEP**

#### **2.2.1 Potential PrEP candidates**

Pre-exposure Prophylaxis (PrEP) is the use of antiretroviral drugs by proven HIV negative people who are at substantial risk of HIV infection, prior to the potential exposure, to prevent the acquisition of HIV (WHO, 2017). Potential PrEP candidates should be individuals who recognise their own risk, be willing to take PrEP and be motivated to continue PrEP. PrEP should be available for anyone who requests it (NDOH, 2021). However, the characteristics/behaviours that increase the individual's risk for contracting HIV include persons who have sex without a condom, with multiple partners and with a partner that is either HIV positive or whose status is unknown (NDOH, 2021). Additionally, persons who have been diagnosed with a sexually transmitted infection, often pregnant, and breastfeeding women as well as young women in age disparate relationships are at higher risk of contracting HIV (NDOH, 2020).

### **2.2.2 Pre-requisites of PrEP**

The preferred PrEP regimen in South Africa currently is Tenofovir/Emtricitabine (TDF/FTC) combination as a fixed dose combination (NDOH, 2020). It is indicated for persons older than 15 years of age, weighing 35kg and more. HIV testing is a pre-requisite at initiation, and it is done regularly during PrEP use. Regular HIV testing provides an opportunity to identify and counsel persons with acute HIV infection, identify early HIV infection during PrEP use and minimise the risk of drug (ARV) resistance should the user seroconvert (Dunbar et al., 2018).

The TDF/FTC regimen requires normal renal function with the creatinine clearance above 60mL/min. Renal function testing is done prior to initiation and quarterly thereafter. Should there be renal insufficiency then PrEP should be discontinued, and renal insufficiency should be investigated further (NDOH, 2020). TDF and FTC have anti Hepatitis B activity and discontinuation of PrEP may cause liver damage due to reactivation of Hepatitis B virus (HBV). Furthermore, persons with Hepatitis B co-morbidity should be monitored closely when PrEP is discontinued, and they should remain on TDF for HBV management (NDOH, 2020).

### **2.2.3 Overview of PrEP research**

As per (WHO, 2012) the first recommendation for PrEP was in 2012; at that point there was evidence for two groups, men, and transgender women, who have sex with men; and sero-discordant heterosexual couples. The evidence for the daily oral PrEP effectiveness was based on the clinical trials which focused on two regimens; fixed-dose combination of tenofovir disoproxil fumarate (TDF) 300mg and emtricitabine (FTC) as well as TDF 300mg alone (WHO, 2012).



As the HIV prevention research progressed and more trials were conducted, there was sufficient evidence in 2015 which demonstrated oral PrEP efficacy in reducing HIV infection risk for all populations. The level of protection was correlated to adherence and was similar for all ages, gender, regimen (TDF/FTC compared to TDF), as well as the mode of HIV transmission, whether it was rectal, penile, or vaginal (Fonner et al., 2016; WHO, 2015).

Research trials were conducted, and some are ongoing on alternative PrEP formulations including Dapivirine vaginal ring, long-acting injectable Cabotegravir CAB for PrEP dual prevention pill (TDF/FTC/combined oral contraceptives) and Ad26 preventive vaccine (AVAC, 2021). In January 2021, WHO (2021) recommended the dapivirine vaginal ring (DPV-VR) as a new alternative for prevention of HIV transmission for women based on results from two Phase III randomized controlled trials. The trials found that using the DPV-VR reduced the risk of HIV infection in women and long-term use was well-tolerated. The Ring Study demonstrated a 35% versus, ASPIRE study's 27% reduction in HIV risk among women using DPV-VR (WHO, 2021).

South Africa has since approved and registered CAB for PrEP and DPV-VR for PrEP use as at November 2022 (PrEPWatch, 2022).

#### **2.2.4 Access to PrEP**

Accessibility of PrEP provides an opportunity for the potential users to access sexual health services; therefore, extending PrEP beyond the key populations has the potential to reduce HIV incidence. McGillen et al., (2016) concur that scaling up PrEP as part of combination HIV prevention is widely recognised as vital for ensuring progress against the HIV infections. PrEP should be promoted as a positive choice among people for whom it is suitable and their communities, in conjunction with other appropriate prevention interventions (NDOH, 2020).

The next section reviewed the studies which have been conducted on knowledge of, attitudes to and stigma related to PrEP which may have an impact on the low PrEP uptake. The literature reviewed included all populations as there is limited literature on women and PrEP. Most of the literature focused on the key populations and was based on implementation studies globally.

### **2.3 Knowledge about PrEP**

Lack of knowledge of PrEP is one of the barriers to PrEP uptake. In a study conducted by Vazquez et al. (2019) on PrEP perceptions among young (aged 18 to 24 years) pregnant women in rural KwaZulu-Natal found that none of them had heard of PrEP. Interestingly, over 97% of them were interested in PrEP after they learnt about it. The study further showed that 95% of these women suspected that their partners might have HIV or have other sexual partners yet most expressed that they were not able to negotiate condom use during sexual intercourse (Vazquez et al., 2019).

Similarly, Auerbach et al. (2015) reported that of all potential at-risk women, only 10% had heard of PrEP; all participants found PrEP attractive once they heard of it and they expressed anger that they had not been made aware of it before. Respondents in a Zimbabwean study expressed that being informed of and offered PrEP had empowered them to control their HIV prevention (Gombe et al., 2020). Furthermore, the respondents advised that they were more confident in their sexual relationships and had reduced stress linked with condom use negotiation, and those in sero-discordant relationships felt that PrEP provided them with the opportunity to safely conceive (Gombe et al., 2020).

A study conducted by Ajayi et al. (2019) disclosed that at Fort Hare university, students had investigated PrEP awareness gaps. Less than 20% of both male and female respondents were aware of PrEP. The study also showed that respondents who had adequate family support were more aware of PrEP than those with inadequate family support, suggesting that family support is an important determinant of PrEP awareness (Ajayi et al., 2019).

As some of the respondents in the study by Gombe et al. (2020) missed their appointments due to side effects, the authors recommended that the health care provider's training should be refined to be able to counsel clients on PrEP continuation effectively. PrEP programmes in Zimbabwe should have advertisements targeting the key messages to improve the PrEP users' experience (Gombe et al., 2020). A study conducted by Begnel et al. (2020) in Kenya among the general population showed that 84% of the respondents reported to have heard of PrEP; however, 17% of them mistook PrEP for ART or Post Exposure Prophylaxis (PEP), while 23% of the respondents had not heard of PrEP.

A study conducted by Pasipanodya et al. (2021) on knowledge and attitudes towards PrEP among cisgender women in San Diego and Los Angeles found low awareness of PrEP and no PrEP experience among the women. The women expressed interest in PrEP use, and anticipated benefits such as control over sexual health and reduced worry about HIV transmission. The potential barriers reported by the respondents that may impact PrEP uptake and adherence were limited PrEP access and competing priorities (Pasipanodya et al., 2021). Conversely facilitators for PrEP as reported by respondents included support from loved ones, healthcare providers, other cisgender women and PLHIV (Pasipanodya et al., 2021).

A study in Chicago found that for each year, approximately 72% of the black heterosexual respondents were largely unaware of PrEP and they trusted the community organisations for PrEP information, which provides an opportunity to disseminate PrEP information to the most affected population (Jones et al., 2020).

Okeke et al., (2021) conducted a study on students in two U.S based universities, 52% of the respondents were aware of PrEP and 3% were PrEP users. The study reported that the most common sources of PrEP information were health services on campus (24%) and non-social media advertising (15%). Interestingly, 58% of the respondents reported that they would take PrEP if they were at risk (Okeke et al., 2021).

## **2.4 Attitudes towards PrEP use**

Attitudes towards PrEP use in this study include the acceptability of PrEP use for oneself and recommendation to someone close. The study conducted by Jones et al. (2020) in two health centres in Chicago, USA, assessed the general community attitudes towards PrEP, their trusted source of PrEP information as well as the association between PrEP knowledge and attitudes and trusted source of information. Over 75% of respondents agreed that PrEP should be given to anyone who requests it while the respondents were split when asked whether PrEP would make people less responsible (Jones et al., 2020). Moreover, the respondents who trusted health experts for PrEP information scored low percentages on negative PrEP attitude statements (Jones et al., 2020).

Possible side effects on PrEP were the recurring barriers for PrEP uptake, which were reported in several studies. Shamu et al., (2021) reported that the concern of possible side effects was associated with males and low PrEP awareness. Fear of possible side effects ranging from reduced sexual performance and generalised body weakness was reported and these fears were instilled by the false information from the communities, which further emphasise the need for PrEP knowledge and awareness sharing with the general community (Muhumuza et al., 2021).

Willingness to use PrEP and convenient access channels are necessary to scale up PrEP uptake among the women who are at substantial risk of HIV transmission. The study by Shamu et al., (2021) showed that the main barrier to PrEP willingness was lack of PrEP knowledge and in both districts higher PrEP knowledge was associated with being female and media use. The authors recommend that to promote youth's PrEP awareness needs a diversified media promotion strategy (Shamu et al., 2021). Jones et al., (2020) agree that interventions to promote PrEP awareness, knowledge and positive attitudes can contribute positively towards PrEP uptake in communities with high HIV prevalence.

Young people in Uganda, Zimbabwe and South Africa indicated that PrEP is an acceptable HIV prevention method; however, there are interventions needed to make PrEP uptake a success (Muhumuza et al., 2021). Included in the barriers were institutional factors such as long waiting times at the clinics and attitudes of the health care providers (Dietrich et al., 2021; Muhumuza et al., 2021).

Auerbach et al. (2015) indicated that the women in the study conducted in America were more comfortable about discussing PrEP with their doctor for quality information and felt that PrEP would improve their sex lives by relieving the anxiety of contracting HIV while the Kenyan general population reported that 38% of the respondents would prefer to receive PrEP from pharmacies (Begnel et al., 2020).

Interestingly, the South African females indicated public health clinics as a preferred PrEP facility in one study (Minnis et al., 2020). Similarly, in another South African study 51.2% of the respondents (both males and females) also preferred public clinics for PrEP indicating familiarity and trust towards those services (Shamu et al., 2021). This is supported by the finding in the ECHO trial that showed that including PrEP as part of the comprehensive prevention package would make PrEP provision more feasible and practical (Beesham et al., 2020). In the ECHO study, 17.2% of the women who initiated PrEP were older than 25 years, were more likely to be unmarried, not living with a partner and earning their own income (Beesham et al., 2020). The study suggests that to promote PrEP uptake, the service should be integrated with contraceptive services and suggests that services should ideally be woman-centred, grounded in informed choice and be youth friendly (AVAC, 2020).

Integration of PrEP into existing SRH services as part of the comprehensive combination package may also potentially reduce the stigma (Vazquez et al., 2019). The comprehensive combination package includes, but is not limited to, contraception, HIV testing, post-exposure prophylaxis (PEP), pregnancy screening and syndromic sexually transmitted infections (STI) services (NDOH, 2020).

In another study that focused on discrete choice experiment (DCE), the study demonstrated that the young adults preferred collecting PrEP in a less intimidating facility such as a private pharmacy or a mobile clinic (Dietrich et al., 2021). The participants also indicated that PrEP adherence would be improved when the more discrete routes of administration are available such as injectables or implants (Dietrich et al., 2021). Furthermore, stigma and discrimination are the common barriers that make young adults less likely to attend the public health facilities (Dietrich et al., 2021). These will be discussed in more detail below.

### **2.5 HIV stigma related to PrEP**

Stigma undermines three key determinants of health: access to resources, access to social support, and resulting in psychological and behavioural reactions; it encourages exclusion, discrimination, stress, and minimised socioeconomic engagement (Hatzenbuehler et al., 2013).

Some studies among targeted populations indicated similar findings (di Giuseppe et al., 2019; Eakle et al., 2019; Elope et al., 2018; Vazquez et al., 2019) that over half of respondents identified perceived HIV stigma as an obstacle to PrEP uptake. The stigma was associated with fear of being identified as being HIV positive and the fear could discourage women from sharing information and accessing PrEP (Vazquez et al., 2019).

In the HPTN082 study which explored the impact of HIV-related stigma on PrEP adherence, the young women reported that PrEP was associated with sexual stigma, and it may promote sexual promiscuity (Velloza et al., 2020). Furthermore, the participants indicated that support and understanding of PrEP by their close contacts is important, as well as the expanded knowledge of PrEP by the communities in influencing their adherence (Velloza et al., 2020).

Farthing et al., (2019) in their study which evaluated the stigma surrounding HIV and comfort discussing HIV with close people among people living with HIV found that 66.4% of the participants reported to never having heard of PrEP, and once they had been educated on PrEP, 86% reported that they would be recommending PrEP to their sexual partners (Farthing et al., 2019). They suggested that partner education to increase PrEP uptake should address HIV stigma (Farthing et al., 2019).

Muhumuza et al. (2021) reported that community factors such as peer influence and social stigma linked PrEP to being promiscuous. Parents' lack of knowledge and buy-in on PrEP, were the barriers to accessing PrEP (Muhumuza et al., 2021). PrEP facilitators included having adequate PrEP information in the communities and having social support from family and friends, as well as structural factors including access and availability of PrEP in an enabling environment (Muhumuza et al., 2021). Furthermore, the participants mentioned that the association of PrEP with ARVs has an HIV-related stigma, and it is a key barrier, as they linked taking daily ARV medication to PLHIV rather than for prevention (Muhumuza et al., 2021).

Siegler et al. (2020) concurred that stigma related to PrEP was a limiting factor and they have developed an HIV PrEP Stigma Scale (HPSS) to determine the level of stigma in individuals, specific populations and in communities. The findings identified possible solutions for stigma reduction and scales can be used to monitor progress on stigma over time.

The literature reviewed from around the world supported the notion that the factors identified such as strong community awareness of PrEP, fear of possible side effects, support by family and friends as well as stigma do have an impact on PrEP uptake and continuation. It provided an opportunity to understand how the South African women in the general population perceive PrEP.

## **CHAPTER 3: RESEARCH METHODOLOGY**

### **3.1 Introduction**

The previous chapter provided a discussion on the literature reviewed on PrEP. The findings from the literature assisted in developing the study design methodology. This chapter focused on the research methodology that was used, which includes the study design, population and sampling, data collection, data analysis, reliability, validity, and ethical considerations.

### **3.2 Study Design**

The study was a cross-sectional survey which was distributed online to women aged 18 years and older in the South African general population through snowball referral sampling. The survey was distributed through email and social media platforms. The design was suitable to examine a health issue; it was an appropriate and cost-effective method to facilitate data collection at a particular time, in this case, the knowledge, and attitudes about access to and use of PrEP, as well as the perceptions of stigma related to PrEP in a defined population of South African women between December 2020 and May 2021 (Stockemer, 2019).

### **3.3 Study population and sampling**

The study population was South African women who have access to the internet, situated in any of the nine South African provinces; they may have been current PrEP users, potential PrEP users and the community where current or future PrEP users may live regardless of their HIV sero-status. Participants had to have access to the survey link (Stockemer, 2019). No prior knowledge of PrEP was required for inclusion in the study.

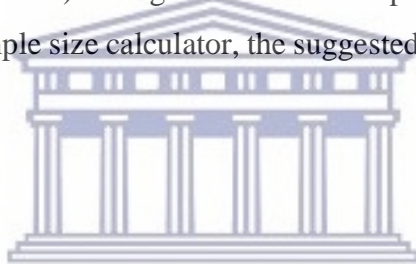


Optimum sample size is an essential component of any research (Bryman, 2012). The following formula from Fluid Surveys website was used to calculate the sample size: Sample Size = (Distribution of 50%) / ((Margin of Error% / Confidence Level Score Squared)

$$= (0.5 \times (1-0.5)) / ((0.05 / (1.96 \times 1.96)))$$
$$= 384.16 \sim 385$$

A 95% confidence interval was used and a margin of error of 5% (0.05). The confidence level score is the standard deviation value for the confidence level/interval, for 95% the confidence level score would equal 1.96.

According to the Statistics South Africa mid-year population estimates 2020 report, there were 30 493 475 females in South Africa and approximately 20 million were over 20 years (StatsSA, 2019). Using the estimate of a population of 20 million on the Fluid Survey online sample size calculator, the suggested sample size was a minimum of 385.



### **3.4 Data collection**

#### **3.4.1 Data collection tool**

The data was collected using a structured online questionnaire which was deployed on Google forms (Annexure III). The questionnaire had four sections with 38 questions in total. The sections were divided as follows; A: demographics of the respondents (10 questions); B: Knowledge of PrEP (4 questions); C: Attitudes towards PrEP use (8 questions) and Acceptability of PrEP use (4 questions) as well as section D focusing on HIV-related PrEP stigma (12 questions).

The attitudes section included attitudes to PrEP in general and acceptability of PrEP use by the participants. The questionnaire provided brief information about what PrEP is and how the PrEP services can be accessed for those not familiar.

The PrEP knowledge and attitudes questions were adapted from the Context Matters survey (Jones et al., 2019) and was validated in the South African setting (Mabaso et al., 2019); the HIV PrEP stigma scale (HPSS) is adapted from Siegler et al (2020) and some were the researcher's own questions. PrEP stigma is an emerging concept and most of the studies done in South Africa were of qualitative design (Velloza et al., 2020).

### **3.4.2 Data collection procedure**

The questionnaire was pilot tested with 10 South African women within the researcher's network to get feedback on how long the survey would take to complete. Feedback was received and it took between 10-15 minutes to complete the survey, the language and content in the questionnaire were clear and measured the constructs as intended; no changes were made to the questionnaire (Bryman, 2012). The pilot responses were excluded from the final sample.

The snowball sampling was used in the study (Stockemer, 2019). Sampling started with the convenience sample of initial participants being women within the researcher's network, who were mainly female colleagues at Momentum Health and they were requested to share with their networks to recruit participants until the required sample size was reached (WHO, CDC, UNAIDS, FHI 360., 2017). The permission to conduct the research was obtained from the University of the Western Cape HS20/9/27 (see Annexure V) to reach a wider population and the survey was distributed by the university's communication department. The survey distribution started in December 2020 and the sample size was reached by mid-May 2021.

### **3.5 Data Analysis**

The responses on the Google form were extracted into an Excel spreadsheet; the 25 responses where no consent was given, and where there were no responses beyond a demographic data were removed from the extracted data. There were 389 responses which were valid and analysed in the study.

The data extracted onto the Excel spreadsheet was sorted, categorised, and coded then imported into the Statistical Package for social Sciences (SPSS) 27.0 and TIBCO (2020) version 14 for analysis.

Descriptive and inferential statistics were used to analyse the data. Frequencies and percentages were used to describe the distribution of the respondents. The data was categorical, the percentages and proportions of knowledge and attitudes to PrEP were determined. Cross tabulations and Chi square tests were conducted to determine the association between PrEP attitudes and PrEP knowledge. Furthermore, the Spearman's correlation coefficients were used to quantify the association between PrEP attitudes and other constructs being PrEP Knowledge, experience, and recommendation. The level of statistical significance for all tests was set at  $<0.005$ .

To analyse the HIV PrEP Stigma Scale (HPSS) performance in this study, exploratory factor loading was conducted to identify the stigma factors, their mean and standard deviations was calculated. Pearson correlation coefficient was conducted to quantify the association between PrEP stigma factors and willingness to use as well as recommend PrEP.

#### **3.5.1 Procedure for measuring variables**

The demographic variables explored in the study included race, age, demographic location, income range, education level, marital status, religion, and access to healthcare. The variables were categorised at data collection.

PrEP knowledge was assessed by asking; “have you heard of PrEP prior to this” with options Yes, No and I may have heard of PrEP. For the analysis of data in the study, the participants who answered I may have heard of PrEP were combined Yes responses and these participants were categorised as having prior PrEP knowledge. The question was adapted from similar studies conducted in South Africa (Ajayi et al., 2019; Fleurs & Bekker, 2016).

Further questions were asked to the participants with prior PrEP knowledge; to assess PrEP information sources; “Where did you learn about PrEP?” with options internet, social media, friends/family, doctor and other. The aim of the question was to establish the PrEP information source among participants.

To assess PrEP experience: “Have you ever used PrEP?” with options Yes, I am currently on PrEP and No; the question was adapted from studies conducted by Ajayi et al., (2019). Participants who answered Yes, I have stopped, and I am currently on PrEP were categorised as PrEP experienced.

PrEP effectiveness was assessed by; “to your best ability, how effective do you think PrEP is at preventing HIV infection if a person takes their pills every day?” with 5 options. However, the responses were further reduced to two categories being more than 90% effective and less than 90% effective. The question is the researcher’s own to assess how many of the participants who were PrEP aware knew of PrEP effectiveness.

PrEP attitudes were assessed by seven (7) questions taken from the HIV-PrEP Stigma Scale (HPSS) developed and validated by Tejal et al (2020). It was derived from the Information- behaviour- motivation model such as “PrEP should only be given to people who are unable to make their partners use condoms” and “I worry about the side effects of PrEP medications” with the response options of Agree (1), Disagree (2) and undecided (3). The responses were coded to numbers to calculate the mean and standard deviation.

PrEP acceptability was assessed by three questions, “would you use PrEP, would you recommend PrEP and would you consider PrEP from your medical scheme if covered”, with response options Yes, No and Maybe.

PrEP stigma was assessed by 12 questions adapted from HPSS; it was a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The questions were adapted from studies conducted by (Siegler et al., 2020) in the US and validated by similar studies conducted in South Africa (Muhumuza et al., 2021 and Velloza et al., 2020).

### **3.6 Validity**

Validity is the accuracy and the extent to which an instrument measures what it is intended to measure (Bryman, 2012). Content validity in this study was ensured by adapting questionnaires which have been validated in previous similar studies for the bulk of the questionnaire (Stockemer, 2019). The questionnaire was pre-tested prior to the actual data collection on 10 participants to ensure face validity, that the study measures what it aims to measure (Bryman, 2012).

### **3.7 Reliability**

Reliability in this study was improved by standardising the data collection tool used on the survey; the same questions were posed using the same format to all participants ensuring that the results are recorded in the same layout (Stockemer, 2019).

The pilot study responses are used to determine the precision of the questionnaire and are excluded from the study; for this study no changes needed to be made on the questionnaire after the pilot test. The respondents reported that the questions were readable and understandable.

Reliability analysis was conducted on the stigma items using Exploratory factor analysis (EFA) with the aim to calculate the reliability coefficient (Cronbach alpha), identify factors and to measure the relationship between the variables (Mdletye et al., 2014).

### **3.8 Ethical Considerations**

Ethical approval for the study was obtained from the University of the Western Cape Human and Social Sciences Research Ethics Committee, HS20/9/27 (Annexure IV). An Information Sheet and consent (Annexure II) describing the study, potential risks and benefits and contact details of the researcher was shared with the participants on the first screen of the online survey and they were required to click two submitted options to ensure they understood and provided informed consent.

The Information Sheet compiled in English was made available, assuring the participants of their confidentiality. Participation in the study was voluntary and participants had the option to withdraw from the study at any stage without any consequences. As all studies with human interactions and talking about self or others carry some amount of risk, the participants were assured that the anticipated risks in the study were minimal. In the event where some mental health counselling was needed, the contact details of organisations offering support were provided at the end of the survey. The data is to be stored by the researcher in a password-protected Excel spreadsheet. The electronic version of the questionnaire will be stored for the minimum period of five years for validation and audit purposes.



UNIVERSITY of the  
WESTERN CAPE

## CHAPTER 4: RESULTS

### 4.1 Introduction

The chapter described the results of the study, and it is divided into several sections namely characteristics of the study participants, PrEP knowledge, attitude to PrEP and acceptability of PrEP use as well as stigma towards PrEP among the study participants.

### 4.2 Characteristics of the study participants

As shown in Table 4.1 below, most of the participants were young adults aged 18-24 years (45.8%), African black (63.5%), single (63.5%) of Christian religion (74.5%) lived in urban areas (72.5%) mostly in the Western Cape (55.6%). Furthermore, most of the participants had university degrees (41.6%), followed by students (38.3%); approximately 40.10% were employed, had a combined household income of more than R20 000 (44.70%) and belonged to a medical aid scheme utilising private healthcare services (57.8%).

Most of the participants, 64.3% (n=250) had heard something about PrEP prior to the study, of whom only 8% (20) had used/are using PrEP. Only 63.6% (n=159) of the participants who had heard of PrEP knew the correct effectiveness of PrEP and the internet was the main source of the PrEP information 35.6% (n=89) among participants followed by family/friends 19.6% (n=49).

**Table 4.1:**

*Characteristics of study participants (n=389).*

Variable	Frequency (389)	Percentage
<b>Age</b>		
18- 24	178	45.80%
25- 34	91	23.40%
35-49	102	26.20%
>50	18	4.60%
<b>Race</b>		
African Black	247	63.50%

<b>Variable</b>	<b>Frequency (389)</b>	<b>Percentage</b>
Asian	11	2.80%
Coloured	80	20.60%
Other	6	1.50%
White	45	11.60%
<b>Religion</b>		
African spirituality	24	6.20%
Christianity	296	76.10%
Hinduism	5	1.30%
Muslim	13	3.30%
Other	51	13.10%
<b>Marital status</b>		
Single, never married	247	63.50%
Married	99	25.40%
co-habiting with partner	22	5.70%
Divorced	10	2.60%
Other	7	1.80%
Widowed/widow	1	0.30%
<b>Province</b>		
Eastern Cape	69	17.70%
Free State	6	1.50%
Gauteng	55	14.10%
KwaZulu-Natal	15	3.90%
Limpopo	9	2.30%
Mpumalanga	11	2.80%
North West	8	2.10%
Western Cape	216	55.50%
<b>Type of Area</b>		
Rural	24	6.20%
Semi-rural	30	7.70%
Semi-urban	53	13.60%
Urban	282	72.50%
<b>Education</b>		
Completed Matric/Grade 12	149	38.30%
Post matric qualification	69	17.70%
Some high school education	9	2.30%
University degree	162	41.60%
<b>Employment status</b>		





Variable	Frequency (389)	Percentage
Employed	156	40.10%
Retired	8	2.10%
Self-employed	11	2.80%
Student	193	49.60%
Unemployed	21	5.40%
<b>Household Income</b>		
Less than R5000	37	9.50%
More than R20 000	174	44.70%
No income	42	10.80%
R10 000 – R20 000	83	21.30%
R5000 – R10 000	53	13.60%
<b>Healthcare Access</b>		
Belong to a medical aid scheme and consult private	225	57.80%
Pay cash for private services	67	17.20%
Use government facilities	97	25.00%
<b>PrEP Knowledge</b>		
Yes	250	64.30%
No	139	35.70%
<b>PrEP experience (n=250)</b>		
Yes	20	8%
No	230	92%
<b>PrEP effectiveness knowledge (n=250)</b>		
>90 effective – correct	91	63.60%
<90% effective – incorrect	159	36.40%
<b>PrEP information source (n=250)</b>		
Internet	89	35.60%
Social media	32	12.80%
My doctor	10	2.50%
Friends/family	49	19.60%
Work	37	14.80%
Other	36	14.40%
<b>Suggested PrEP information distribution (n=338)</b>		
Social media	121	35.80%
Community campaigns	86	25.40%
Inclusion in school curriculum and talks	50	14.80%
Include in TV and radio content	41	12.1%
Health promotion in public and private sectors	40	11.80%



Variable	Frequency (389)	Percentage
<b>Preferred healthcare provider to discuss PrEP</b>		
Doctor	320	82.30%
Pharmacist	31	8.00%
Pharmacy nurse	11	2.80%
Family planning nurse	24	6.20%

### 4.3 PrEP Knowledge

Table 4.2 below displayed a comparison of respondents' prior knowledge of PrEP according to their sociodemographic characteristics. As mentioned earlier, the level of prior PrEP knowledge was 64.3%.

All sociodemographic variables were compared, there were no significant statistical differences except for respondents with education higher than Grade 12 ( $p < 0.003$ ) and of African black origin ( $p < 0.001$ ) who were likely to have prior knowledge of PrEP.

**Table 4.2**

*Prior PrEP knowledge by socio-demographic characteristics*

Socio demographic	I have heard			Total	p-value
	Yes	No	No		
<b>Age</b>					
18- 24	73 (42.4%)	39 (50%)	39 (50.0%)	178 (45.8%)	0.869
25- 34	44 (25.6%)	14 (17.9%)	14 (17.9%)	91 (23.4%)	
35-49	47 (27.3%)	21 (26.9%)	21 (26.9%)	102 (26.2%)	
>50	8 (4.7%)	4 (5.1%)	6 (4.3%)	18 (4.6%)	
<b>Race</b>					
African Black	110 (64.0%)	66 (84.6%)	71 (51.1%)	247 (63.5%)	0.003
Asian	8 (4.7%)	1 (1.3%)	2 (1.4%)	11 (2.8%)	
Coloured	30 (17.4%)	7 (9.0%)	43 (30.9%)	80 (20.6%)	
Other	3 (1.7%)	1 (1.3%)	2 (1.4%)	6 (1.5%)	
White	21 (12.2%)	3 (3.8%)	21 (15.1%)	45 (11.6%)	
<b>Religion</b>					
African spirituality	12 (7.0%)	7 (9.0%)	5 (3.6%)	24 (6.25)	0.203
Christianity	124 (72.1%)	65 (83.3%)	107 (77.0%)	296 (76.1%)	
Hinduism	4 (2.3%)	0 (0.0%)	1 (0.7%)	5 (1.3%)	

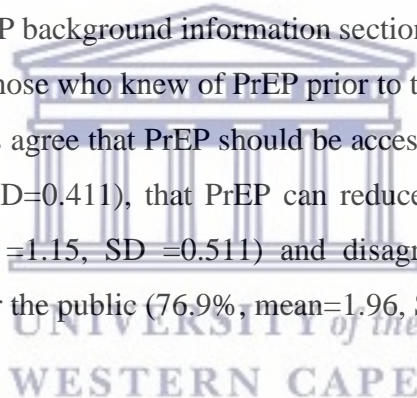
<b>Socio demographic</b>	<b>Yes</b>	<b>I have heard</b>	<b>No</b>	<b>Total</b>	<b>p-value</b>
Muslim	6 (3.5%)	2 (2.6%)	5 (3.6%)	13 (3.3%)	
Other	26 (15.1%)	4 (5.1%)	21 (15.1%)	51 (13.1%)	
<b>Marital status</b>					0.373
Single, never married	113 (65.7%)	53 (67.9%)	81 (58.3%)	247 (63.5%)	
Married	37 (21.5%)	19 (24.4%)	43 (30.9%)	99 (25.4%)	
co-habiting with partner	12 (7.0%)	3 (3.8%)	7 (5.0%)	22 (5.7%)	
Divorced	5 (2.9%)	1 (1.3%)	4 (2.9%)	10 (2.6%)	
Other	4 (2.3%)	0 (0.0%)	3 (2.2%)	7 (1.8%)	
Widowed/widow	1 (0.6%)	0 (0.0%)	0 (0.0%)	1 (0.3%)	
<b>Province</b>					0.792
Eastern Cape	34 (19.8%)	16 (20.5%)	19 (13.7%)	69 (54)	
Free State	4 (1.7%)	0 (0.0%)	3 (2.2%)	7 (3.9%)	
Gauteng	24 (14.0%)	12 (15.4%)	19 (13.7%)	55 (14.1%)	
KwaZulu-Natal	8 (1.7%)	2 (2.8%)	5 (3.6%)	15 (8.1%)	
Limpopo	3 (1.7%)	1 (1.3%)	5 (3.6%)	9 (2.3%)	
Mpumalanga	5 (2.9%)	1 (1.3%)	5 (3.6%)	11 (2.8%)	
North West	4 (2.3%)	3 (3.8%)	1 (0.7%)	8 (1.7%)	
Western Cape	91 (52.9%)	43 (55.1%)	82 (59.0%)	216 (55.5%)	
<b>Type of Area</b>					0.789
Rural	8 (4.7%)	7 (9.0%)	9 (6.5%)	24 (6.2%)	
Semi-rural	12 (7.0%)	8 (10.3%)	10 (7.2%)	30 (7.7%)	
Semi-urban	26 (15.1%)	9 (11.5%)	18 (12.9%)	53 (13.6%)	
Urban	126 (73.3%)	54 (69.2%)	102 (73.4%)	282 (72.5%)	
<b>Education</b>					0.00
Completed					
Matric/Grade 12	62 (36.0%)	29 (37.2%)	58 (41.7%)	149 (38.3%)	
Post matric qualification	27 (15.7%)	21 (26.9%)	21 (15.1%)	69 (17.7%)	
Some high school education	0 (0.0%)	7 (9.0%)	2 (1.4%)	9 (2.3%)	
University degree	83 (48.3%)	21 (26.9%)	58 (41.7%)	162 (41.6%)	
<b>Employment status</b>					0.943
Employed	72 (41.9%)	29 (37.2%)	55 (39.6%)	156 (40.1%)	
Retired	4 (2.3%)	1 (1.3%)	3 (2.2%)	8 (2.1%)	
Self-employed	6 (3.5%)	1 (1.3%)	4 (2.9%)	11 (2.8%)	
Student	41 (52.6%)	41 (52.6%)	71 (51.1%)	193 (49.6%)	
Unemployed	6 (7.7%)	6 (7.7%)	6 (4.3%)	21 (5.4%)	
<b>Household Income</b>					0.692
Less than R5000	17 (9.9%)	8 (10.3%)	12 (8.6%)	37 (9.5%)	
More than R20 000	81 (47.1%)	29 (37.2%)	64 (46.0%)	174 (44.7%)	

<b>Socio demographic</b>	<b>Yes</b>	<b>I have heard</b>	<b>No</b>	<b>Total</b>	<b>p-value</b>
No income	14 (8.1%)	13 (16.7%)	15 (10.8%)	42 (10.8%)	
R10 000 – R20 000	39 (22.7%)	16 (20.5%)	28 (20.1%)	83 (21.3%)	
R5000 – R10 000	21 (12.2%)	12 (15.4%)	20 (14.4%)	53 (13.6%)	
<b>Healthcare Access</b>					
Belong to a medical aid scheme and consult private	99 (77.6%)	40 (51.3%)	86 (61.9%)	225 (57.8%)	0.254
Pay cash for private services	36 (20.4%)	11 (14.1%)	21 (15.1%)	68 (17.5%)	
Use government facilities	37 (21.5%)	27 (34.6)	32 (23.0%)	96 (24.7%)	

#### 4.4 PrEP attitudes

This section measured how the respondents viewed PrEP as an HIV prevention method. Table 4.3 below showed their attitudes towards PrEP. The attitude questions were asked post the PrEP background information section, which was provided for all respondents including those who knew of PrEP prior to the survey.

Most of the respondents agree that PrEP should be accessible to anyone who wants it (92.8%, mean= 1.11, SD=0.411), that PrEP can reduce HIV infections among SA women (91.8%, mean =1.15, SD =0.511) and disagreed that there is sufficient information on PrEP for the public (76.9%, mean=1.96, SD=0.48).



**Table 4.3***PrEP attitude responses*

Attitude	Agree (1)	Disagree (2)	Undecided (3)	Mean	SD
PrEP should be given to people who cannot make their partners use condoms	62.5	18.5	19	1.57	0.792
PrEP is risky as it is difficult for people to take a pill everyday	31.4	49.1	19.5	1.88	0.704
PrEP will encourage more unprotected sex leading to sexually transmitted infections (STIs)	43.7	40.1	16.2	1.72	0.724
I worry about the side effects of PrEP	45	28.5	26.5	1.81	0.826
PrEP should be accessible to anyone who wants to take it	92.8	3.6	3.6	1.11	0.411
PrEP can reduce the HIV infections in South Africa, especially among women	91.8	1.5	6.7	1.15	0.511
In your view, there is sufficient information on PrEP for the public?	13.6	76.9	9.5	1.96	0.48
Overall mean score:	1.6				

#### 4.4.1 Relationship between PrEP knowledge and PrEP attitudes

To establish if there is a relationship between prior PrEP knowledge and the PrEP attitudes, bivariate analysis as shown in table 4.4 was conducted. There was a statistically significant association between PrEP knowledge and the following attitudes: ‘PrEP will encourage unprotected sex’ ( $\chi^2=8.945$ ,  $p=0.013$ ) and ‘PrEP can reduce HIV infections’ ( $\chi^2=8.77$ ,  $p=0.008$ ).

**Table 4.4***Chi-square analysis of PrEP knowledge and PrEP attitudes*

PrEP Attitude	PrEP Knowledge			chi square	p-value
	No	Yes	Total		
PrEP should be given to people who cannot make their partners use condoms*					
Agree	97	146	243		
Disagree	23	49	72		
Undecided	19	55	74	5.562	0.064
PrEP is risky as it is difficult for people to take a pill everyday					
Agree	42	80	122		
Disagree	61	130	191		
Undecided	36	40	76	5.77	0.051
PrEP will encourage unprotected sex leading to sexually transmitted infections (STIs)					
Agree	72	98	170		
Disagree	42	114	156		
Undecided	25	38	63	8.945	0.013
I worry about the side effects of PrEP					
Agree	58	117	175		
Disagree	35	76	111		
Undecided	46	57	103	4.939	0.087
PrEP should be accessible to anyone who wants to take it for HIV prevention					
Agree	129	232	361		
Disagree	4	10	14		
Undecided	6	8	14	0.622	0.781
PrEP can reduce the HIV infections in South Africa, especially among women					
Agree	120	237	357		
Disagree	3	3	6		
Undecided	16	10	26	8.77	0.008
In your view, there is sufficient information on PrEP for the public?					
Agree	30	23	53		
Disagree	298	101	299	4.928	0.295
Undecided	22	15	37		

#### 4.4.2 Relationship between PrEP acceptability and PrEP knowledge

To establish if there was an association between prior knowledge and PrEP acceptability, the Chi square test was computed as displayed in table 4.5 below and it shows that there was a statistically significant association between prior PrEP knowledge and recommending PrEP to someone ( $\chi^2=8.074$ ,  $p=0.003$ ). Prior PrEP knowledge has an influence on how the participants answered.

**Table 4.5**

*Chi-square analysis of PrEP acceptability and PrEP knowledge*

PrEP Acceptability	PrEP Knowledge		Total	chi square	p-value
	No	Yes			
If you ever consider yourself to be at risk of acquiring HIV, would you consider using PrEP?					
Yes	116	220	336	3.855	0.147
No	3	9	12		
Maybe	20	21	41		
Would you recommend PrEP to someone close to you, even if it's your child?					
Yes	104	215	319	8.074	0.003
No	4	6	10		
Maybe	31	29	60		
PrEP from Medical aid					
Yes	221	111	332	5.654	0.057
No	6	4	10		
Maybe	23	24	47		

#### **4.4.3 Correlation of PrEP attitudes with PrEP knowledge, PrEP experience, PrEP recommendation and PrEP willingness.**

Spearman rank correlation was performed to assess if there are relationships between PrEP attitudes and the 3 variables (PrEP knowledge, PrEP experience and PrEP recommendation), and the results are displayed in table 4.5. The statistical significance was set at  $p < 0.05$  and the items marked with red are statistically significant.

PrEP knowledge had a positive relationship with attitudes; PrEP should be given to people who cannot make their partners use condoms ( $r=0.119$ ) and PrEP can reduce HIV infections in South Africa ( $r=0.149$ ), the more knowledgeable the respondent is on PrEP the more they agreed with the positive attitude statements. Similarly, there was a positive relationship between the variable/statement “PrEP can reduce HIV infections” with constructs, PrEP experience and PrEP recommendation. The respondents with PrEP experience and the respondents who were more likely to recommend PrEP agreed with the statement.

The variable “PrEP recommend” had a negative relationship with statements; PrEP is risky as it is difficult for people to take a pill everyday ( $r=-0.131$ ,  $p=0.01$ ) and PrEP will encourage more unprotected sex leading to STIs ( $r=-0.105$ ,  $p=0.04$ ). Respondents who were more likely to recommend PrEP disagreed with the statements. Moreover, it had a positive relationship with PrEP should be accessible ( $r=0.192$ ,  $p=0.00$ ). The respondents who were likely to recommend PrEP agreed that PrEP should be accessible to anyone who wants it.

The Spearman correlation coefficient was below the 0.3 and -0.3 range which shows that the correlation between the PrEP attitudes with PrEP knowledge, experience and recommendation is very weak.



**Table 4.6**

*Correlation coefficients to quantify the relationships between PrEP attitudes with PrEP knowledge, experience, and recommendations*

PrEP attitude	PrEP Knowledge	PrEP Experience	PrEP Recommend
PrEP should be given to people who cannot make their partners use condoms*	0.119	-0.096	0.084
PrEP is risky as it is difficult for people to take a pill everyday	-0.074	0.063	-0.131
PrEP will encourage more unprotected sex leading to sexually transmitted infections (STIs)	0.081	-0.070	-0.105
I worry about the side effects of PrEP	-0.084	0.070	-0.025
PrEP should be accessible to anyone who wants to take it for HIV prevention	-0.001	-0.004	0.192
PrEP can reduce the HIV infections in South Africa, especially among women	0.149	0.142	0.179
In your view, is there sufficient information on PrEP for the public?	0.027	-0.036	0.027

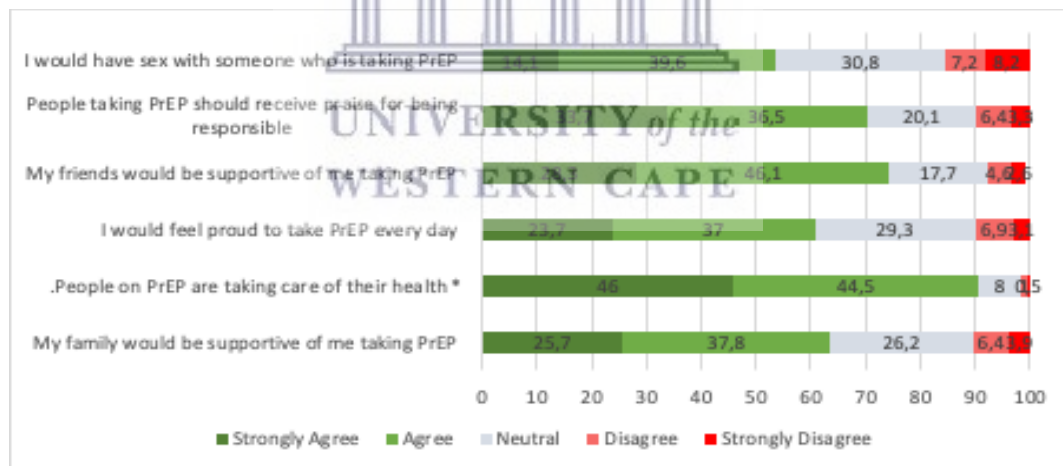
## 4.5 Stigma

### 4.5.1 Participants responses to the HIV PrEP stigma scale (HPSS) items

The HPSS questionnaire was adapted from Siegler et al. (2020). Figure 1 shows the percent distribution of participants' responses to Likert scale items, it was a 5-point scale ranging from strongly disagree (1) to strongly agree (5). The overall Likert scale mean was 3.62, the respondents agreed (4) with most statements. The HPSS items were split into PrEP positive stigma and PrEP negative stigma statements on figure 4.1 and figure 4.2, respectively.

As shown in Figure 4.1 many of the respondents (90.5%) agreed that “people on PrEP are taking care of their health”, “should receive praise for being responsible (70.2%) and that their friends (74.4%) and their family (63.7%) would be supportive of them taking PrEP. The average mean of the positive stigma is 3.84 ~4, the respondents mostly agreed with the PrEP attitudes.

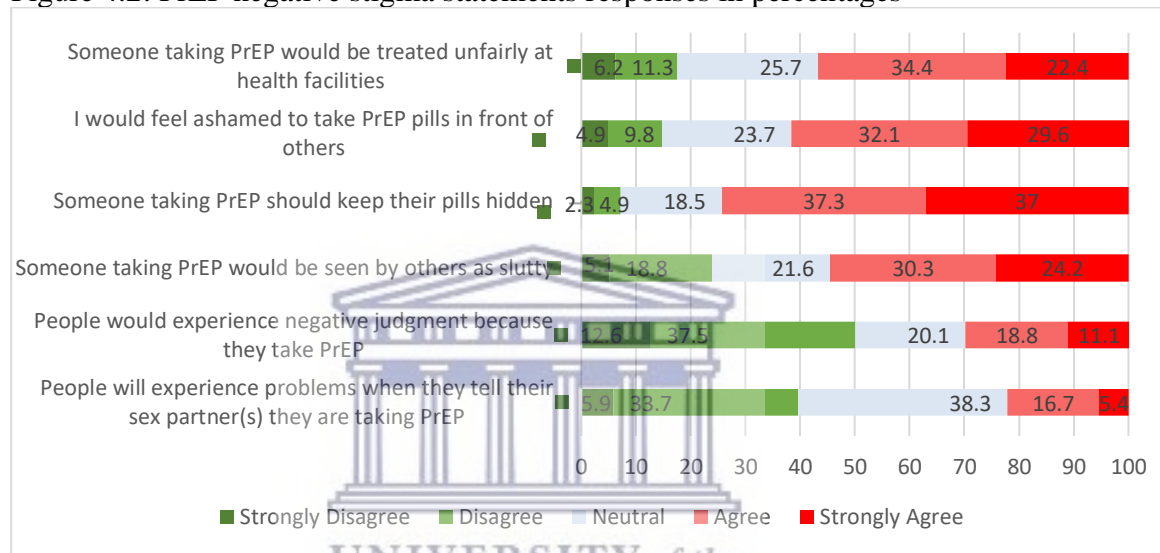
Figure 4.1 Participants response: PrEP positive statement responses in percentages



Note: The green indicates non-stigmatising responses and red indicates stigmatising responses

Conversely there were stigmatising responses from the participants as shown in figure 4.2, for instance, that *Someone taking PrEP should keep their pills hidden* (74.3%), as *they would feel ashamed to take PrEP pills in front of others* (61.7%) and anticipated that *someone taking PrEP would be treated unfairly at health facilities* (56.8%). The mean score of the negative stigma score is 3.39 which showed that the respondents had some level of stigma towards PrEP.

Figure 4.2: PrEP negative stigma statements responses in percentages



Note: The green indicates non-stigmatising responses and red indicates stigmatising responses.

#### **4.5.2 Exploratory factor analysis**

The exploratory factor analysis was used to determine the factor structure of the stigma items. The analysis of the 12 items on the scale produced three eigenvalues ranging from 1.05, 2.0 and 3.26 accounting for 52.6% of the variance. The threshold for factor was set at 0.4. Results from the factor analysis are provided in Table 4.6 and factor loadings range from 0.45 to 0.86, no item was dropped in the analysis. Three factors were identified and were named character judgements of people on PrEP (factor 1), which measures perceived negative stigma; social support for taking PrEP (factor 2) which measured anticipated stigma and shame on PrEP use (factor 3), which measured internalised stigma.



**Table 4.7:***Exploratory Factor Analysis (EFA) Loadings of PrEP stigma scale (n=389)*

Item*	Factor loadings			
	Character judgements of people on PrEP (perceived)	Social support for taking PrEP (anticipated)	Shame on PrEP use (internalised)	Uniqueness
People will experience problems when they tell their sex partner(s) they are taking PrEP	<b>0.80</b>	-0.10	0.05	0.32
People would experience negative judgement because they take PrEP	<b>0.78</b>	0.04	-0.18	0.37
Someone taking PrEP would be treated unfairly at health facilities	<b>0.57</b>	-0.07	-0.28	0.27
Someone taking PrEP would be seen by others as slutty	<b>0.57</b>	-0.04	-0.41	0.18
I would feel proud to take PrEP every day	-0.20	<b>0.75</b>	0.17	0.30
People on PrEP are taking care of their health	-0.04	<b>0.69</b>	0.16	0.23
People taking PrEP should receive praise for being responsible	0.11	<b>0.67</b>	-0.24	0.22
My friends would be supportive of me taking PrEP	0.06	<b>0.59</b>	0.22	0.23
I would have sex with someone who is taking PrEP	-0.02	<b>0.57</b>	0.02	0.28
My family would be supportive of me taking PrEP	-0.36	<b>0.45</b>	0.23	0.45
Someone taking PrEP should keep their pills hidden	0.03	-0.08	<b>0.86</b>	0.32
I would feel ashamed to take PrEP pills in front of others	0.28	-0.10	<b>0.71</b>	0.27
Cronbach alpha	0.70	0.70	0.65	

#### 4.5.3 Reliability, Mean and Standard deviation of PrEP stigma factors.

Cronbach alpha ( $\alpha$ ) is used to measure the internal consistency of the scale, the scale demonstrated a good overall internal consistency reliability. The Cronbach alpha values for factor 1 and factor 2 is 0.70 which indicates good reliability, while it was 0.65 for factor 3 indicating fair reliability (Zikmund et al. (2013). The PrEP related stigma mean score is highest for the positive social support at 3.85 (SD 0.62), the respondents are slightly more PrEP positive as compared to mean for character judgements of people which is 2.84 (0.82) and the lowest mean on “*shame on PrEP use*” is 2.13 (SD=0.90).

**Table 4.8**

*Cronbach alpha, standard deviation and mean of PrEP stigma factors.*

Factors	Cronbach alpha	Std.Dev.	Mean
1. Character judgements of people on PrEP	0.70	0.90	2.84
2. Social support for taking PrEP	0.70	0.62	3.85
3. Shame on PrEP use	0.65	0.82	2.15
Overall score	0.72		2.94

#### 4.5.4 Correlation between PrEP stigma factors, willingness to use PrEP and PrEP recommend.

Pearson’s correlation coefficients (r.) were calculated to determine the relationships and displayed in table 4.8 below, the significance level was set at  $p < 0.05$ . The significant variables are marked in red below.

Support for taking PrEP positively correlates to willingness to use PrEP ( $r=0.48$ ) and willingness to recommend PrEP ( $r=0.66$ ), the participants who are in support for taking PrEP were more likely to recommend PrEP to someone close and consider using PrEP for themselves. As expected, support for PrEP use has a negative correlation with the PrEP negative stigma factors, it is a weak negative relationship.

**Table 4.9**

*Correlation between PrEP stigma factors and PrEP acceptability*

Correlation Matrix of PrEP stigma factors, willingness to use PrEP and PrEP recommend.					
	Character judgements of people on PrEP	Social support for taking PrEP	Shame on PrEP use	Willingness to use PrEP	PrEP recommend.
Character judgements of people on PrEP	1	-0,20	0,43	-0.28	0.17
Social support for taking PrEP	-0,20	1	-0,24	0,48	0,66
Shame on PrEP use	0,43	-0,24	1	-0.25	-0.26
Willingness to use PrEP	-0.28	0,48	-0.25	1	0,40
Willingness to recommend PrEP	-0.17	0,66	-0.26	0.40	1

## CHAPTER 5: DISCUSSION

PrEP has the potential to reduce HIV incidence among South African women when there is sufficient knowledge and acceptability for PrEP use by the general population. The time frames of the current study coincided with the South African PrEP guidelines update to include persons of all ages to access PrEP (NDOH, 2020). This chapter discusses the pertinent findings from the study.

Overall findings of the study suggest that women are becoming aware of PrEP as many study respondents indicated having prior PrEP knowledge, while their attitude to PrEP use were positive with notable concerns. Respondents were willing to use and recommend PrEP. However, stigma was a potential barrier to PrEP success. This is in line with studies conducted in other countries as well as in other parts of South Africa (Jones et al., 2019; Celum et al., 2021).

The knowledge of PrEP among the study respondents (64.3%) was higher in comparison to a study conducted on young university students in the Eastern Cape which reported 18% of PrEP awareness and another study among community members in the USA which reported 28% prior PrEP knowledge (Ajayi et al., 2019; Jones et al., 2020). The high level of prior PrEP knowledge may be attributed to the education level of the participants. Most of them had education beyond high school as well as the timing of the study as there had been numerous campaigns by the South African health department to market PrEP to key populations (SANAC, 2017).



The study showed that less than half of the study respondents knew that PrEP is more than 90% effective at preventing HIV if taken as prescribed, which indicated that further PrEP education and understanding is needed and only 8% of the respondents had PrEP use experience. The finding is similar to those reported in the population-led survey conducted in Kenya where 84% of participants had ever heard of PrEP while 59% of them showed PrEP understanding and one-fifth of the study respondents were taking PrEP (Begnel et al., 2020).

The study sample consisted of predominantly black African, educated, unmarried, and urban women. This may be attributed to snowball referral method, which was used to collect data since the investigator's initial set of respondents were predominantly black African and educated. The majority were aged between 18-35 which forms part of the key population that was targeted by PrEP campaigns to promote awareness. This is line with the strategy that was developed by SANAC (2016).

Most of the respondents had access to private healthcare and indicated that the internet is their main source of PrEP information followed by social media. The finding around the source of information is in contrast with the U.S study conducted in predominantly black communities which indicated that healthcare workers were the trusted source of PrEP information (Tejal et al., 2020). Additionally, the finding contrasts with another U.S study conducted by Okeke et al., (2021) where students at two universities reported that their main PrEP source was from student health clinics and health promotion events on their campuses. Social media as a source accounted for 15% of the students (Okeke et al., 2021).

Encouragingly, the study found that women displayed positive attitudes towards PrEP, supporting that PrEP should be made accessible to all. An interesting fact emerged that there isn't sufficient information on PrEP for the public and the suggested methods of distributing PrEP information were through social media campaigns, inclusion in the school curriculum, general community campaigns and television/radio talks to reach the general public. It is important to reach younger children to empower them before they start engaging in sex. The finding is aligned to those of a study conducted on Adolescent Girls and Young Women in Cape Town where a mobile, community-based health facility which delivered PrEP and Sexual and Reproductive Health services was introduced (Rosseau et al., 2021). The study reported that the location of the PrEP facility within the community will improve PrEP access for the users and increase awareness of PrEP within the community (Rosseau et al., 2021; Muhumuza et al., 2021).

Women forge networks and participate actively in multimedia platforms, leading to them gaining awareness on matters affecting them and the community. This is in line with the findings by Shamu et al (2021) that one media platform is not sufficient to distribute PrEP knowledge and that multi-level interventions are necessary to promote PrEP uptake, effectiveness, and benefits to the society (Muhumuza et al., 2021).

Women with prior PrEP knowledge had concerns that PrEP might encourage unprotected sex which might lead to STIs ( $p=0.013$ ). The finding supports those from other studies where the participants expressed concerns that PrEP might potentially lead to increased condomless sex (Auerbach., 2015, Jones et al., 2020). Encouragingly, the prior PrEP knowledge was associated with agreement that PrEP can reduce HIV infections in South Africa. The finding is similar to a study which showed that PrEP awareness is linked to improved understanding and connection with HIV prevention services (Cohen et al., 2015, Nyblade et al., 2022).

The respondents who had prior PrEP knowledge showed concerns that PrEP encourages unprotected sex which might lead to STIs, however, they were in support that PrEP can have an impact in reducing HIV infections. The findings are similar to other studies conducted around on PrEP (Vazquez et al., 2019; Shamu et al., 2021, Begnel et al., 2020). The findings are also in line with the recommendations by the South African department of health, that facilities should provide comprehensive health service addressing all sexual health matters and not offer PrEP in isolation (NDOH., 2020).

The finding that women would recommend PrEP to others is encouraging and similar to what others reported in their studies (Ajayi et al, 2018, Gombe et al, 2020). Shamu et al., (2020) also reported that the more knowledge one has on PrEP, the higher the willingness to use it.

Access to PrEP services is an important factor to PrEP uptake and continuation (Shamu et al., 2021). Majority of the participants in the study indicated that their preferred healthcare provider for PrEP was their family doctor, a clear link between having medical aid which in turn implies accessing private health care. An analysis done by PrEPwatch (2019) in South Africa reported that private doctors are a high priority opportunity to offer PrEP services as they have capacity to deliver confidential, convenient, and quality care consistently, similar to what others found (Jones et al., 2020).

In order to enhance the PrEP uptake and shift the negative attitudes towards PrEP use in both private and public healthcare sectors, it is necessary that the healthcare providers are aware of and are able to encourage its use to those who can benefit from it. Fleurus and Bekker (2016) found that 74% of doctors were willing to prescribe PrEP and their willingness was associated with enquiry from the patient at least once.

Stigma has been identified in multiple studies as a potential barrier to PrEP uptake and success (Atkins et al., 2022, Siegler et al 2020, Nyblade et al., 2022). The contrasting findings that PrEP users should hide their pills and be ashamed to take PrEP publicly and that people on PrEP are taking care of their health can be attributed to women seeing the potential of and willingness to use PrEP but not wanting to be seen doing it. It is in support of the findings in the study by Minnis (2020) where most users indicated that they would prefer to use discrete and long-acting formulation of PrEP.

The questionnaire for the stigma section was HIV Prevention Stigma Scale (HPSS) adopted from a study done by Siegler et al (2020). Similar to their study, the three factors; perceived shame, character judgements and social support from the exploratory factor analysis align closely with those in a similar study conducted in Kenya (Atkins et al., 2022).

Willingness to use PrEP had a positive, moderate correlation with willingness to recommend PrEP and the positive factor, social support for taking PrEP, which were anticipated. Similarly, Siegler et al., (2020), reported a correlation of willingness to use PrEP with PrEP factors. The study showed positive, medium correlation with willingness to use PrEP. Both studies were aimed at users and non-users of PrEP, their response to PrEP may be based on their source of PrEP, which could include personal experiences, discussion among the community and observations of other people using PrEP.

## 5.1 Study limitations

As the online surveys are open to all interested respondents, to minimise the error the initial question requested the participants to confirm that they are South African women older than 18 years. The survey was web-based, which limits the study to those who have access to the internet and who wish to partake in the study. The data collection method thus created a potential selection bias limiting the population that can participate. The snowball sampling limited the reach of women outside of the participants' networks, which resulted in over-representation of participants from the Western Cape, Gauteng, and Eastern Cape provinces of South Africa. This thus means the findings cannot be generalised to all South African women. The study did not cover the HIV status and HIV testing patterns of the women which may be a missed opportunity to establish the reasons for the low PrEP use. The quantitative nature of the survey might have provided limited understanding on the researched topic and could have been complemented by qualitative research for a more in-depth understanding of the findings.

## 5.2 Conclusions

The study found that the majority of the respondents (64%) had heard of PrEP prior to the study and the main source of PrEP information was the internet. Less than half knew the PrEP effectiveness, which shows lack of in-depth understanding on how PrEP works. The evidence can be used to develop interventions to promote PrEP education to reach women in all socio-economic statuses.

The majority of the study respondents agreed that there isn't sufficient information on PrEP for the public and the suggested methods of distributing PrEP information were mainly through social media campaigns, inclusion in the school curriculum, general community campaigns and television/radio talks to reach the general public. Further research to explore the social media campaigns would benefit the PrEP uptake. Moreover, to reach younger girls, it would be beneficial to conduct further research and incorporate HIV prevention, specifically PrEP, into the school curriculum. In my view, the PrEP education would reach the target population and empower them before their sexual debut. This would have an impact on the Integrated school health policy.

Majority of the respondents displayed positive attitudes towards PrEP and agreed that PrEP should be accessible to all and can reduce HIV infections in South Africa. These were associated with prior PrEP knowledge. Despite the positive attitudes, the main concern identified was increased STIs due to unprotected sex. PrEP education drives should incorporate the sexual and reproductive services to address these concerns.

Family doctor was identified as the most preferred PrEP provider. The community doctors can play an important role in educating the community about PrEP. Furthermore, most of the respondents accessed private healthcare utilising medical aid benefits and were open to accessing PrEP from their medical aids. PrEP programme administrators in the private sector can use the evidence to promote PrEP to both the family doctor and the members on the medical scheme. PrEP is an under-utilised benefit/service on most medical aids (CMS, 2019).

The study revealed that respondents are willing to use PrEP and importantly, willing to recommend PrEP to someone close; these were linked with social support of PrEP use. It can be deduced that social support by partner and/or family member plays a vital role in PrEP uptake.

The study reported an encouragingly high positive stigma. However, the negative stigma towards PrEP and negative messaging around PrEP have an impact on how it is perceived by the public. These can be addressed by positive messaging of PrEP for the communities and potential PrEP users.

In conclusion, PrEP as a concept and an HIV prevention alternative was well accepted regardless of prior PrEP knowledge in this study. With that said, further PrEP education is needed, and discrete PrEP formulations could have a significant impact on PrEP uptake.

### **5.3 Recommendations**

The following strategies are recommended to improve knowledge of attitudes to and stigma towards PrEP.

- Multidimensional campaigns to disseminate PrEP information to the general community. PrEP implementers should consider a behaviour change communication campaign for community members of all ages. Community discussion approaches could be employed to address some of the negative perceptions. The campaign can also be filtered to social media.
- Health promotion school talks to drive the positive messaging on PrEP can be facilitated by school nurses or community-based organisations.
- Further research and possible update of the Integrated school health policy to include detailed HIV prevention, specifically PrEP in school curriculum is needed.
- PrEP programme administrators in the private health sector can utilise the research to develop communication interventions aimed at private doctors and the medical aid members.

Future research studies could:

- Extend the study to a larger population and include questions on HIV testing and status. PrEP services should be promoted more in the communities beyond the key populations especially in the private sector
- Extend the study to a diverse population and employ a different sampling method, to reach those with no internet access.
- to assess the attitudes and stigma towards PrEP among other races.
- Conduct a qualitative study to get in-depth information on PrEP knowledge, attitudes and stigma.





## REFERENCES

- Ajayi, A. I., Mudofi, E., Yusuf, M. S., Adeniyi, O. V., Rala, N., & Goon, D. ter. (2019). Low awareness and use of pre-exposure prophylaxis among adolescents and young adults in high HIV and sexual violence prevalence settings. *Medicine (United States)*, 98(43). <https://doi.org/10.1097/MD.00000000000017716>
- Algarin, A. B., Shrader, C. H., Hackworth, B. T., Varas-Diaz, N., Fennie, K. P., Sheehan, D. M., & Ibañez, G. E. (2021). Development and validation of the community prep-related stigma scale (Community-PSS). *AIDS Education and Prevention*, 33(2). <https://doi.org/10.1521/aeap.2021.33.2.120>
- Atkins, K., Kan, L., Musau, A., Reed, J., Were, D., Mohan, D., & Corresponding, §. (2022). Adaptation and psychometric evaluation of a scale to measure oral pre-exposure prophylaxis-related stigma among key and vulnerable populations in Kenya. *Journal of the International AIDS Society*, 2022(S1), 25929. <https://doi.org/10.1002/jia2.25929/full>
- Auerbach, J. D., Kinsky, S., Brown, G., & Charles, V. (2015). Knowledge, attitudes, and likelihood of pre-exposure prophylaxis (PrEP) use among us women at risk of acquiring HIV. *AIDS Patient Care and STDs*, 29(2), 102–110. <https://doi.org/10.1089/apc.2014.0142>
- AVAC. (2020). *Understanding the Results of the ECHO Study*.
- AVAC. (2021). *Track the Research*.
- Beesham, I., Welch, J. D., Heffron, R., Pleaner, M., Kidoguchi, L., Palanee-Phillips, T., Ahmed, K., Baron, D., Bukusi, E. A., Louw, C., Mastro, T. D., Smit, J., Batting, J. R., Malahleha, M., Bailey, V. C., Beksinska, M., Donnell, D., Baeten, J. M., Kiarie, J., ... Phiri Kasaro, M. (2020). Integrating oral PrEP delivery among African women in a large HIV endpoint-driven clinical trial. *Journal of the International AIDS Society*, 23(5). <https://doi.org/10.1002/jia2.25491>

- Begnel, E. R., Escudero, J., Mugambi, M., Mugwanya, K., Kinuthia, J., Beima-Sofie, K., Dettinger, J. C., Baeten, J. M., John-Stewart, G., & Pintye, J. (2020a). High pre-exposure prophylaxis awareness and willingness to pay for pre-exposure prophylaxis among young adults in Western Kenya: results from a population-based survey HHS Public Access. *Int J STD AIDS*, *31*(5), 454–459. <https://doi.org/10.1177/0956462420912141>
- Begnel, E. R., Escudero, J., Mugambi, M., Mugwanya, K., Kinuthia, J., Beima-Sofie, K., Dettinger, J. C., Baeten, J. M., John-Stewart, G., & Pintye, J. (2020b). High pre-exposure prophylaxis awareness and willingness to pay for pre-exposure prophylaxis among young adults in Western Kenya: results from a population-based survey. *International Journal of STD & AIDS*, *31*(5). <https://doi.org/10.1177/0956462420912141>
- Bryman, A. (2012). Social Research methods. In *Oxford University Press* (Issue 3).
- Calabrese, S. K. (2020). Understanding, Contextualizing, and Addressing PrEP Stigma to Enhance PrEP Implementation. In *Current HIV/AIDS Reports* (Vol. 17, Issue 6). <https://doi.org/10.1007/s11904-020-00533-y>
- Celum, C. I., Hosek, S., Tsholwana, M., Kassim, S., Mukaka, S., Dye ID, B. J., Pathak, S., Mgodli, N. I., Bekker, L.-G., Donnell ID, D. J., Wilson, E. I., Yuha, K. I., Anderson, P. L., Agyei, Y. I., Noble, H., Rose, S. M., Baeten, J. M., Fogel ID, J. M., Adeyeye, A., ... Delany-Moretlwe, S. I. (2021). *PrEP uptake, persistence, adherence, and effect of retrospective drug level feedback on PrEP adherence among young women in southern Africa: Results from HPTN 082, a randomized controlled trial*. <https://doi.org/10.1371/journal.pmed.1003670>
- di Giuseppe, K., Kasoka, K., & Dunkley, Y. (2019). Investigating Preexposure Prophylaxis (PrEP) Uptake Among Black African Communities in East London and Hertfordshire: A Brief Report of a Mixed Methods Study. *International Journal of Sexual Health*, *31*(3), 291–296. <https://doi.org/10.1080/19317611.2019.1634174>

- Dietrich, J. J., Atujuna, M., Tshabalala, G., Hornschuh, S., Mulaudzi, M., Koh, M., Ahmed, N., Muhumuza, R., Ssemata, A. S., Otjombe, K., Bekker, L. G., Seeley, J., Martinson, N. A., Terris-Prestholt, F., & Fox, J. (2021). A qualitative study to identify critical attributes and attribute-levels for a discrete choice experiment on oral pre-exposure prophylaxis (PrEP) delivery among young people in Cape Town and Johannesburg, South Africa. *BMC Health Services Research*, *21*(1). <https://doi.org/10.1186/s12913-020-05942-8>
- Dunbar, M. S., Kripke, K., Haberer, J., Castor, D., Dalal, S., Mukoma, W., Mullick, S., Patel, P., Reed, J., Subedar, H., Were, D., Warren, M., & Torjesen, K. (2018). Understanding and measuring uptake and coverage of oral pre-exposure prophylaxis delivery among adolescent girls and young women in sub-Saharan Africa. *Sexual Health*, *15*(6), 513–521. <https://doi.org/10.1071/SH18061>
- Eakle, R., Weatherburn, P., & Bourne, A. (2019). *Understanding user perspectives of and preferences for oral PrEP for HIV prevention in the context of intervention scale-up: a synthesis of evidence from sub-Saharan Africa*. <https://doi.org/10.1002/jia2.25306/full>
- Elopre, L., McDavid, C., Brown, A., Shurbaji, S., Mugavero, M. J., & Turan, J. M. (2018). Perceptions of HIV Pre-Exposure Prophylaxis among Young, Black Men Who Have Sex with Men. *AIDS Patient Care and STDs*, *32*(12), 511–518. <https://doi.org/10.1089/apc.2018.0121>
- Farthing, H., Rodriguez, A., Armstrong, M., Iyengar, S., Nigh, E., Potter, J., & Doblecki-Lewis, S. (2019). Discomfort discussing HIV/AIDS and lack of awareness are barriers to partner-to-partner pre-exposure prophylaxis education. *International Journal of STD & AIDS*, *30*(2). <https://doi.org/10.1177/0956462418799174>
- Fonner, V. A., Dalglish, S. L., Kennedy, C. E., Baggaley, R., O'Reilly, K. R., Koechlin, F. M., Rodolph, M., Hodges-Mameletzis, I., & Grant, R. M. (2016). Effectiveness and safety of oral HIV preexposure prophylaxis for all populations. *Aids*, *30*(12), 1973–1983. <https://doi.org/10.1097/QAD.0000000000001145>

- Gombe, M. M., Cakouros, B. E., Ncube, G., Zwangobani, N., Mareke, P., Mkwamba, A., Prescott, M. R., Bhatasara, T., Murwira, M., Mangwiro, A. Z., & Prust, M. L. (2020). Key barriers and enablers associated with uptake and continuation of oral pre-exposure prophylaxis (PrEP) in the public sector in Zimbabwe: Qualitative perspectives of general population clients at high risk for HIV. *PLoS ONE*, *15*(1), 1–18. <https://doi.org/10.1371/journal.pone.0227632>
- Hatzenbuehler, M. L., Phelan, J. C., & Link, B. G. (2013). Stigma as a Fundamental Cause of Population Health Inequalities. *Public Health*, *103*, 813–821. <https://doi.org/10.2105/AJPH>
- Jones, J. T., Smith, D. K., Thorne, S. L., Wiener, J., Michaels, S., & Gasparac, J. (2020). Community Members' Pre-exposure Prophylaxis Awareness, Attitudes, and Trusted Sources for PrEP Information and Provision, Context Matters Survey, 2015-2016. *AIDS Education and Prevention: Official Publication of the International Society for AIDS Education*, *32*(2), 2015–2016. <https://doi.org/10.1521/aeap.2020.32.2.102>
- Mabaso M, Sokhela Z, Mohlabane N, Chibi B, Zuma K, Simbayi L. (2018) Determinants of HIV infection among adolescent girls and young women aged 15–24 years in South Africa: a 2012 population-based national household survey. *BMC Public Health*. 2018; 18:183. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5787232/>
- Mabaso, M., Makola, L., Naidoo, I., Mlangeni, L. L., Jooste, S., & Simbayi, L. (2019). HIV prevalence in South Africa through gender and racial lenses: results from the 2012 population-based national household survey. *International Journal for Equity in Health*, *18*(1), 167. <https://doi.org/10.1186/s12939-019-1055-6>
- Makusha, T., Feizzadeh, A., Velasquez, C., & Zungu, N., van Rooyen, H. (2020). *The impact of HIV prevention interventions targeted at adolescent girls and young women (AGYW) on HIV incidence and other biomedical, behavioural, and structural outcomes in sub-Saharan Africa: A systematic review.*
- Mayer, K. H., & Allan-Blitz, L. T. (2019). PrEP 1.0 and Beyond: Optimizing a Biobehavioral Intervention. In *Journal of acquired immune deficiency syndromes (1999)* (Vol. 82, Issue 2, pp. S113–S117). NLM (Medline). <https://doi.org/10.1097/QAI.0000000000002169>

- McGillen, J. B., Anderson, S.-J., & Hallett, T. B. (2016). PrEP as a feature in the optimal landscape of combination HIV prevention in sub-Saharan Africa. *Journal of the International AIDS Society*, *19*, 21104. <https://doi.org/10.7448/ias.19.7.21104>
- Minnis, A. M., Atujuna, M., Browne, E. N., Ndwayana, S., Hartmann, M., Sindelo, S., Ngcwayi, N., Boeri, M., Mansfield, C., Bekker, L. G., & Montgomery, E. T. (2020). Preferences for long-acting Pre-Exposure Prophylaxis (PrEP) for HIV prevention among South African youth: results of a discrete choice experiment. *Journal of the International AIDS Society*, *23*(6), 1–10. <https://doi.org/10.1002/jia2.25528>
- Muhumuza, R., Ssemata, A. S., Kakande, A., Ahmed, N., Atujuna, M., Nomvuyo, M., Bekker, L.-G., Dietrich, J. J., Tshabalala, G., Hornschuh, S., Maluadzi, M., Chibanda-Stranix, L., Nematadzira, T., Weiss, H. A., Nash, S., Fox, J., & Seeley, J. (2021). Exploring Perceived Barriers and Facilitators of PrEP Uptake among Young People in Uganda, Zimbabwe, and South Africa. *Archives of Sexual Behavior*. <https://doi.org/10.1007/s10508-020-01880-y>
- Nakasone, S., Chimbindi, N., Mthiyane, N., Nkosi, B., Zuma, T., Baisley, K., Dreyer, J., Pillay, D., Floyd, S., Birdthistle, I., Seeley, J & Shahmanesh, M (2020) “They have this not care – don’t care attitude:” A Mixed Methods Study Evaluating Community Readiness for Oral PrEP in Adolescent Girls and Young Women in a Rural Area of South Africa. *AIDS Res Ther* *17*, 55. <https://doi.org/10.1186/s12981-020-00310-2>
- NDOH. (2020). Guidelines for the Provision of Pre-Exposure Prophylaxis (PrEP) to Persons at Substantial Risk of HIV Infection, National department of Health, 22.
- Okeke, N., McLaurin, T., Gilliam-Phillips, R., Wagner, D., Barnwell, V., Johnson, Y., James, O., Webb, P., Parker, S., Hill, B., McKellar, M., & Mitchell, J (2021) Awareness and acceptability of HIV pre- exposure prophylaxis (PrEP) among students at two historically Black universities (HBCU): a cross-sectional survey. *BMC Public Health* *21*:943 <https://doi.org/10.1186/s12889-021-10996-2>
- Pasipanodya, E. C., Stockman, J., Phuntsog, T., Morris, S., Psaros, C., Landovitz, R., Amico, K. R., Moore, D. J., & Blumenthal, J. (2021). “PrEP”ing for a PrEP demonstration project: understanding PrEP knowledge and attitudes among cisgender women. *BMC Women’s Health*, *21*(1). <https://doi.org/10.1186/s12905-021-01348-8>

- PEPFAR. (2021). *Country Operational Plan (COP/ROP) 2021 Strategic Direction Summary*. <https://www.prepwatch.org/wp-content/uploads/2022/07/South-Africa-COP-2021.pdf>
- PrEPWatch (2021). *South Africa – PrEPWatch*. <https://www.prepwatch.org/country/south-africa/>
- Reinius, M., Wiklander, M., Wettergren, L., Svedhem, V., & Eriksson, L. E. (2018). The Relationship Between Stigma and Health-Related Quality of Life in People Living with HIV Who Have Full Access to Antiretroviral Treatment: An Assessment of Earnshaw and Chaudoir's HIV Stigma Framework Using Empirical Data. *AIDS and Behavior*, 22(12). <https://doi.org/10.1007/s10461-018-2041-5>
- SAHIVCS. (2020). *Southern African HIV Clinicians Society*. <https://sahivsoc.org/SubHeader?slug=pimart-online-course>
- SANAC. (2017). *South Africa's National Strategic Plan for HIV, TB and STIs 2017-2022*. [https://sanac.org.za/wp-content/uploads/2017/06/NSP\\_FullDocument\\_FINAL.pdf](https://sanac.org.za/wp-content/uploads/2017/06/NSP_FullDocument_FINAL.pdf)
- Shamu, S., Shamu, P., Khupakonke, S., Farirai, T., Chidarikire, T., Guloba, G., & Nkhwashu, N. (2021). Pre-exposure prophylaxis (PrEP) awareness, attitudes, and uptake willingness among young people: gender differences and associated factors in two South African districts. *Global Health Action*, 14. <https://doi.org/10.1080/16549716.2021.1886455>
- Siegler, A. J., Wiatrek, S., Mouhanna, F., Amico, K. R., Dominguez, K., Jones, J., Patel, R. R., Mena, L. A., & Mayer, K. H. (2020). Validation of the HIV Pre-exposure Prophylaxis Stigma Scale: Performance of Likert and Semantic Differential Scale Versions. *AIDS and Behavior*, 0123456789. <https://doi.org/10.1007/s10461-020-02820-6>
- Stockemer, D. (2019). Quantitative Methods for the Social Sciences. In *Quantitative Methods for the Social Sciences*. Springer International Publishing. <https://doi.org/10.1007/978-3-319-99118-4>
- TIBCO. (2020). *TIBCO Software Inc* (No. 14). Data Science Workbench. <http://tibco.com>
- UNAIDS. (2020). *AIDSinfo | UNAIDS*. Global Factsheet 2019. <http://aidsinfo.unaids.org/>

- Vazquez, L., Moll, A. P., Kacin, A., Ndlovu, N. E., & Sheno, S. v. (2019). Perceptions of HIV Preexposure Prophylaxis among Young Pregnant Women from Rural KwaZulu-Natal, South Africa. *AIDS Patient Care and STDs*, 33(5), 214–219. <https://doi.org/10.1089/apc.2018.0242>
- Velloza, J., Khoza, N., Scorgie, F., Chitukuta, M., Mutero, P., Mutiti, K., Mangxilana, N., Nobula, L., Bulterys, M. A., Atujuna, M., Hosek, S., Heffron, R., Bekker, L. G., Mgodini, N., Chirenje, M., Celum, C., & Delany-Moretlwe, S. (2020). The influence of HIV-related stigma on PrEP disclosure and adherence among adolescent girls and young women in HPTN 082: a qualitative study. *Journal of the International AIDS Society*, 23(3), 1–10. <https://doi.org/10.1002/jia2.25463>
- WHO. (2012). *HIV/AIDS Programme GUIDANCE ON PRE-EXPOSURE ORAL PROPHYLAXIS (PrEP) FOR SERODISCORDANT COUPLES, MEN AND TRANSGENDER WOMEN WHO HAVE SEX WITH MEN AT HIGH RISK OF HIV: Recommendations for use in the context of demonstration projects*. <http://www.who.int/about/licensing/>
- WHO. (2015). *GUIDELINE ON WHEN TO START ANTIRETROVIRAL THERAPY AND ON PRE-EXPOSURE PROPHYLAXIS FOR HIV GUIDELINES*.
- WHO. (2017). *Strategic planning and implementation tool for Pre-Exposure Prophylaxis (PrEP) of HIV infection*. July.
- WHO. (2021, January 21). *WHO recommends the dapivirine vaginal ring as a new choice for HIV prevention for women at substantial risk of HIV infection*.

## ANNEXURES

### Annexure I: PrEP Survey Cover letter

Dear South African woman,

You are invited to participate in the research study conducted by Boitshoko Moche. It is a mini- thesis towards a Master's degree in Public Health at the University of the Western Cape.

The study aims to assess the knowledge of, attitudes to and stigma to PrEP among South African women who are older than 18 years. You do not need to have prior knowledge of PrEP to participate; basic information about PrEP will be provided in the survey. The survey is anonymous and will take approximately 15 minutes to complete.

Ethics clearance was obtained from the Human and Social Sciences Research Ethics Committee at UWC. An information sheet describing the research study in detail, benefits of the study, the rights of the participant, and contact details of the researcher is included on the first page of the questionnaire. Please read it carefully and select the options if you provide your consent to participate and share your information?

To participate in the study, please click *Next* below and proceed to the questionnaire.

For any questions, please contact Boitshoko Moche ([3813250@myuwc.ac.za](mailto:3813250@myuwc.ac.za)).

Thank you for your time and willingness to assist in this research. We would be very grateful if you helped us distribute this survey by forwarding it to your networks.



Kind regards,

Boitshoko Moche

Email: [3813250@myuwc.ac.za](mailto:3813250@myuwc.ac.za)

Supervisor: Dr Hanani Tabana

Email: [htabana@uwc.ac.za](mailto:htabana@uwc.ac.za)

Co-Supervisor: Prof Lucia Knight

Email: [lknight@uwc.ac.za](mailto:lknight@uwc.ac.za)



UNIVERSITY *of the*  
WESTERN CAPE

## Annexure II: Information sheet and Consent



# UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa  
*Tel: +27 21 959 2809 Fax: 27 21 959 2872*

E-mail: [soph-comm@uwc.ac.za](mailto:soph-comm@uwc.ac.za)

### INFORMATION SHEET

**Project Title:** Assessing knowledge of, attitudes to and stigma towards PrEP among South African women.

#### **What is this study about?**

This is a research project being conducted by Boitshoko Moche at the University of the Western Cape towards a Master of Public Health. We are inviting you to participate in this research project because you are a South African woman 18 years and older living in any of the South African provinces. The purpose of the study is to describe the knowledge of, attitude to and stigma towards PrEP among South African women in general population, it assesses the association between the knowledge of, stigma towards and the attitude to use of PrEP. No prior knowledge of PrEP is required to participate in the study.

### **What are the benefits of this study?**

The results of the study may help the researcher to learn more about the knowledge of, attitude to, their views on stigma towards PrEP and the willingness to use and/or recommend PrEP. The self-assessment on your personal knowledge might trigger you to learn more about PrEP and its benefits.

The study can help in creating appropriate interventions to promote awareness, reduce PrEP related stigma in community-based organisations, the study may also provide insights on PrEP demand creation for programme managers focusing on women's health.

### **What will I be asked to do if I agree to participate?**

Give informed consent before you participate.

You will be asked to complete an online questionnaire which has structured questions with predetermined response options you can choose from and one open question. It will take no longer than 15 minutes to complete.

The study has four (4) sections, demographic questionnaire, PrEP Knowledge, and Attitude assessing your knowledge and the attitude towards use of PrEP, attitude to PrEP use measuring your view on PrEP use for yourself and/or others as well as measuring HIV PrEP stigma scale (HPSS) measuring your personal views on stigma related to PrEP.

### **Will my identity be kept confidential?**

The researchers undertake to protect your identity and the nature of your

contribution. The survey is anonymous and will not contain information that may personally identify you.

The responses will be used only for the purposes of the research.

**What are the risks of this research?**

All human interactions and talking about self or others carry some number of risks.

We will nevertheless minimise such risks and act promptly to assist you if you experience any discomfort, psychological or otherwise during the process of your participation in this study. Where necessary, an appropriate referral will be made to a suitable professional for further assistance or intervention.

**Do I have to be in this research, and may I stop participating at any time?**

Your participation in this research is completely voluntary. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.

**What if I have questions?**

This research is being conducted by Boitshoko Moche, a Master of Public Health student at the University of the Western Cape. If you have any questions about the research study itself, please contact Boitshoko Moche at 0788681466 or [3813250@myuwc.ac.za](mailto:3813250@myuwc.ac.za).

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

Prof Uta Lehmann

Head of Department: School of Public Health

University of the Western Cape

Private Bag X17

Bellville 7535

[ulehmann@uwc.ac.za](mailto:ulehmann@uwc.ac.za)

Prof Anthea Rhoda

Dean: Faculty of Community and Health Sciences

University of the Western Cape

Private Bag X17

Bellville 7535

[chs-deansoffice@uwc.ac.za](mailto:chs-deansoffice@uwc.ac.za)



This research *has been* approved by the University of the Western Cape's Humanities and Social Sciences Research Ethics Committee.

Humanities and Social Sciences Research Ethics Committee

University of the Western Cape

Private Bag X17

Bellville

7535

Tel: 021 959 4111

e-mail: [research-ethics@uwc.ac.za](mailto:research-ethics@uwc.ac.za)

### **Consent**

I understand what the study requires of me, and I consent to proceed.

- Yes
- No

I identify myself as a South African woman

- Yes
- No



## **Annexure III: Survey questionnaire**

### **A. Demographics section**

Please provide some personal information about yourself

A1. How old are you (in years)? \*

- 18- 24
- 25- 34
- 35- 49
- >50

A2. What race do you classify yourself as? \*

- White
- African Black
- Asian
- Coloured
- Other

A3. Which province do you live in? \*

- Gauteng
- Western Cape
- Free State
- North West
- Northern Cape
- Eastern Cape
- Limpopo
- Mpumalanga
- KwaZulu-Natal



A4. How would you classify where you live?

- Urban
- Rural
- Semi-rural
- Semi-urban

A5. What is your highest level of qualification?

- No schooling
- Some high school education
- Completed Matric/Grade 12
- Post matric qualification
- University degree

A6. What is your current employment status?

- Employed
- Unemployed
- Student
- Retired
- Self-employed

A7. What is your household level income (income per month)?

- No income
- Less than R5000
- R5000 – R10 000
- R10 000 – R20 000
- More than R20 000



UNIVERSITY of the  
WESTERN CAPE

A8. What is your current marital status?

- Married
- co-habiting with partner
- Single, never married
- Divorced
- Separated
- Widowed/widow
- Other

A9. What is your religion?

- Christianity



- Muslim
- African spirituality
- Hinduism
- Other

A10. How do you access healthcare?

- Belong to a medical aid scheme and consult private
- Use government facilities
- Pay cash for private services
- Other

## B. PrEP Knowledge

(This section assesses your current knowledge of PrEP)

B1. Have you ever heard of PrEP prior to this?

- Yes
- I have had something about PrEP but not too familiar with it
- No (proceed to PrEP background information)

## B. PrEP Knowledge cont

B2. Where did you learn about PrEP? (Please select all that apply)

- Internet
- Social media
- My doctor
- Friends/family
- Work
- Other

B3. Have you ever used PrEP?

- Yes, and I stopped
- No, haven't used it
- I am currently on PrEP

B4. To your best ability, how effective do you think PrEP is at preventing HIV infection if a person takes their pills every day?

- More than 90% effective
- 75-89% effective
- 50-74% effective
- 35-49% effective
- 20-34% effective
- Less than 20% effective

## PrEP Background Information

*Please read background information below about PrEP; it will be important for you to think about when you answer the next set of questions:*

Pre-exposure prophylaxis is a single antiretroviral pill taken daily to prevent HIV infection for HIV-negative people for as long as one took the medication. PrEP is taken before you think you might be exposed to HIV; you need to take the pill once a day for at least 7 days before you are fully protected.

HIV-negative people who take PrEP every day can lower their risk of HIV by more than 90%. PrEP has been shown to be safe and can be used with contraceptives and other medicine; however, it only protects from HIV, and you can still be exposed to sexually transmitted infections and fall pregnant. Condoms should ideally be used with PrEP where possible.

Some people might experience mild side effects such as nausea, headache, and tiredness when they start PrEP, but they go away within a few weeks.

PrEP is available at some public health facilities including university clinics; PrEP will soon be expanding into family planning services and the PrEP trained pharmacists will be able to offer it in private pharmacies. It is covered by most medical aids keeping in mind that each medical aid will have its rules.

MyPrEP, [www.myprep.co.za](http://www.myprep.co.za) is a website created by the Department of Health and SheConquers; it aims to provide general knowledge regarding oral PrEP, as well as specific knowledge for current PrEP users and PrEP providers. From the [myprep.co.za](http://myprep.co.za) website, you can identify a facility within 50km radius of your location where they can get PrEP. You can get more information on the MyPrEP Facebook page as well.

As an additional support, you will be able to ask any question related to PrEP and HIV prevention to the chatbox on the website; MyPrEP Facebook messenger as well as WhatsApp on 0844939430.

The MyPrEP contact information will be provided again at the end of the survey.

### C. PrEP Attitude

UNIVERSITY of the

This section measures how you view PrEP as a HIV prevention method

C1. PrEP should be given to people who cannot make their partners use condoms\* \*

- Undecided
- Agree
- Disagree

C2. PrEP is risky as it is difficult for people to take a pill everyday \*

- Agree
- Disagree
- Undecided

C3. PrEP will encourage more unprotected sex leading to sexually transmitted infections (STIs) \*

- Agree
- Disagree
- Undecided

C4. I worry about the side effects of PrEP \*

- Agree
- Disagree
- Undecided

C5. PrEP should be accessible to anyone who wants to take it for HIV prevention

- Agree
- Disagree
- Undecided

C6. PrEP can reduce the HIV infections in South Africa, especially among women

- Agree
- Disagree
- Undecided

C7. In your view, there is sufficient information on PrEP for the public? \*

- Agree
- Disagree
- Undecided

C8. What do you think is the best way to get PrEP information to reach the public?  
.....

**C. Acceptability/Attitude towards PrEP use**

Please provide your view on PrEP use for yourself and/or others

C9. If you ever consider yourself to be at risk of acquiring HIV, would you consider using PrEP?

- Yes
- No
- Maybe

C10. Would you recommend PrEP to someone close to you, even if it's your child?

- Yes
- No
- Maybe

C11. Would you consider getting PrEP from your medical aid scheme, if covered?

- Yes
- No
- Maybe

C12. Assuming these professionals are fully trained to start PrEP, who would you be most comfortable to discuss PrEP with?

- Your doctor
- Pharmacist
- Pharmacy nurse
- Family planning sister in government clinic



#### D. Stigma related to PrEP

Please provide your opinion on the following to assess the stigma related to the use of PrEP.

D1. I would feel ashamed to take PrEP pills in front of others

- Strongly Disagree
- Disagree
- Neutral
- Agree

- Strongly Agree

D2. People would experience negative judgment because they take PrEP

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

D3. Someone taking PrEP should keep their pills hidden

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

D4. I would have sex with someone who is taking PrEP

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree



D5. Someone taking PrEP would be seen by others as slutty

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

D6. People taking PrEP should receive praise for being responsible

- Strongly Disagree
- Disagree

- Neutral
- Agree
- Strongly Agree

D7. My friends would be supportive of me taking PrEP

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

D8. Someone taking PrEP would be treated unfairly at health facilities \*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

D9. People will experience problems when they tell their sex partner(s) they are taking PrEP \*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree



D10. I would feel proud to take PrEP every day

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

D11. People on PrEP are taking care of their health \*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

D12. My family would be supportive of me taking PrEP

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**Thanks for your time on the survey; your response has been recorded.**

*For Counselling support services, please contact:*

Cipla Mental Health Line: 0800 4567 789 or WhatsApp 076 88 22 775

For a suicidal Emergency: 0800 567 567

Destiny Helpline for Youth & Students: 0800 41 42 43

*For more information on PrEP:*

Please visit [www.myprep.co.za](http://www.myprep.co.za) or My PrEP on Facebook.

MyPrEP WhatsApp: 0844939430, Facebook Messenger or the chatbox on the website.

Please check out these 5 powerful videos on PrEP awareness created MTVShuga: Down South actresses on <https://www.prepwatch.org/prep4youth/>



**Annexure IV: UWC Ethical Approval Letter**

20 November 2020



Ms B Moche

School of Public Health

**Faculty of Community and Health Sciences**

**Ethics Reference Number:** HS20/9/27

**Project Title:** Assessing the knowledge of, attitude to and stigma towards Pre-exposure Prophylaxis (PrEP) among South African women.

**Approval Period:** 18 November 2020 – 18 November 2023

I hereby certify that the Humanities and Social Science Research Ethics Committee of the University of the Western Cape approved the methodology and ethics of the above-mentioned research project.

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

**Please remember to submit a progress report by 30 November each year for the duration of the project.**

*The permission to conduct the study must be submitted to HSSREC for record keeping purposes.*

The Committee must be informed of any serious adverse event and/or termination of the study.

*Ms Patricia Josias*

*Research Ethics Committee Officer University of the Western Cape*



NHREC Registration Number: HSSREC-130416-049 Director: Research Development University of the Western Cape Private  
Bag X 17 Bellville 7535 Republic of South Africa Tel: +27 21 959 4111 Email: research-ethics@uwc.ac.za



UNIVERSITY *of the*  
WESTERN CAPE

## Annexure V: UWC Permission to conduct research and agreement

The University of the Western Cape is a Public Higher Education institution established and regulated by the Higher Education Act, No. 101 of 1997 (Republic of South Africa), with the language of instruction being English. The University is duly accredited by the Council on Higher Education and its degrees and diplomas are registered on the National Qualifications Framework in terms of the South African Qualifications Authority Act, No. 58 of 1995.



### REQUEST FOR PERMISSION TO CONDUCT RESEARCH AT THE UNIVERSITY OF THE WESTERN CAPE

This serves as acknowledgement that you have obtained and presented the necessary ethical clearance and your institutional permission required to proceed with the project referenced below:

Name of Researcher  
BOITSHOKO MOCHE

Research topic  
Assessing the knowledge of, attitudes to and stigma towards PrEP among South African women

Period permission is valid for  
20 January 2021 – 18 November 2023  
(or as determined by the validity of your ethics approval)

Reference code  
UWCRP010221BM

Ethics reference  
University of the Western Cape HS20/9/27

You are required to engage this office in advance if there is a need to continue with research outside of the stipulated period. The manner in which you conduct your research must be guided by the conditions set out in the annexed agreement: *Conditions to guide research conducted at the University of the Western Cape.*

Please be at liberty to contact this office should you require any assistance to conduct your research or require access to either staff or student contact information.

Yours sincerely

DR AHMED SHAIKJEE  
DEPUTY REGISTRAR  
UNIVERSITY OF THE WESTERN



UWCRP010221BM  
Page 1 of 3



UWC Permission to  
Conduct Research Per