Students' perception of Pre-Exposure Prophylaxis as a prevention strategy for reducing HIV/AIDS incidences at Rhodes University

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by

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24 April 2024

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ABSTRACT

South Africa has the largest number of people living with HIV/AIDS compared to the rest of the world, with young people most at risk. The World Health Organisation (WHO) recommends the use of Pre-Exposure Prophylaxis (PrEP) in key populations at a higher risk of exposure to HIV/AIDS. The HIV/AIDS pandemic remains a pressing issue among higher education institutions, with a need for a comprehensive understanding of barriers and facilitators associated with the use of PrEP. The Higher Education AIDS (HEAIDS) plays a pivotal role in the mitigation of the spread of HIV/AIDS in Higher Education Institutions (HEIs). In this study, Rhodes University serves as a focal point for exploring PrEP implementation and acceptance.

This qualitative study examines Rhodes University students' PrEP knowledge, perception, practice, and roll-out preference. More evidence is required to measure progress among students. A study was conducted involving sixteen (16) in-depth semi-structured interviews with students and health care workers, as well as a focus group consisting of three (3) students aged between 20-60 years. This study used the Socio-Ecological Model and Health Belief Model as theoretical frameworks.

Participants in the study identified both the barriers and the facilitators to the use of PrEP. The findings show that there is a lack of knowledge and low perception among students about PrEP. The study found that lack of knowledge was the source of the stigma and misconception about PrEP. Most participants expressed the need for more information to differentiate between the ARVs in PrEP and the ARV medication for HIV-positive people. However, they further expressed a willingness to embrace PrEP if they had information about it. The study highlights that the use of PrEP is linked to individual and environmental factors, which are crucial for PrEP roll-out. These factors include access to PrEP in a friendly manner, supportive family and friends, and the reduction of stigma and misconception. Therefore, when addressed, the said factors can foster the use of PrEP and mitigate barriers. For students to fully realise the benefits of HIV/AIDS prevention strategies like PrEP, there is a need for informed educational efforts. A well-informed student body is important for the successful adoption and use of PrEP. The findings suggest that the health care workers were knowledgeable and conscious about the use of PrEP. However, there were inconsistencies in the information provided by the health care workers regarding the recommended period for taking PrEP before testing again and taking the three-month course. The inconsistencies raise questions regarding the accuracy and reliability of the information provided.

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ACRONYMS

ABC	Abstinence Be faithful Condomise
AIDS	Acquired Immunodeficiency Syndrome
AGYW	Adolescent Girls and Young Women
ARVs	Antiretrovirals
CDC	Centres for Disease Control and Prevention
CHERTL	Centre for Higher Education Research, Teaching and Learning
DoH	Department of Health
FDA	Food and Drug Administration
FTF	First Things First
GAD	Gender and Development
HBM	Health Belief Model
HCC	Health Care Centre
HCT	HIV Counselling and Testing
HEAIDS	Higher Education and Training HIV/AIDS Programme
HEIs	Higher Education Institutions
HIV	Human Immunodeficiency Virus
MSM	Men who have Sex with Men
NDP	National Development Plan
NSP	National Strategic Plan
PEP	Post-Exposure Prophylaxis
PrEP	Pre-Exposure Prophylaxis
RU	Rhodes University
SANAC	South African National AIDS Council
SEM	Social Ecological Model
SAMRC	South African Medical Research Council
STI	Sexually Transmitted Infections
TB	Tuberculosis
UNAIDS	Joint United Nations Programme on HIV/AIDS
VCT	Voluntary Counselling and Testing
WHO	World Health Organisation

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CHAPTER ONE
INTRODUCTORY CHAPTER

1. The Context of the Research

The primary goal of this study is to examine Rhodes University students' Pre-Exposure Prophylaxis (PrEP)[1] knowledge, perception, practice, and roll-out preference. This research is undertaken within the sociology of health and illness. PrEP is an intervention strategy that reduces the risk of HIV transmission from one individual to another by up to 95% (Centres for Disease Control and Prevention [CDC], 2019: 1). The research was prompted by the South African National Development Plan 2030, which focuses on ending HIV/AIDS as a health care threat by 2030, with the use of PrEP (Haffejee *et al*., 2023b: 467). PrEP is an antiretroviral drug that mitigates where there are barriers to safe sex; thus, it can be used by HIV-negative people to reduce their risk of becoming infected by HIV (Koechlin *et al*., 2016: 1325). The Human Immunodeficiency Virus (HIV) is a virus that causes HIV infection and AIDS (World Health Organisation [WHO], 2021: 3).

Accessing quality health care is a constitutional obligation in South Africa. Several concerns around access to health care have encouraged the South African government to come up with numerous developments and strategies to improve health care (Maphumulo & Bhengu, 2019: 1). There have been significant changes in health policies and legislation to ensure access to quality health in South Africa and around the world (WHO, 2022: 1). The Sustainable Development Goals 2030 set out universal health coverage and safe sex education as a requisite for improving wellbeing and perception of HIV (United Nations Acquired Immuno-Deficiency Syndrome [UNAIDS], 2023a: 1).

In 2015, WHO released the updated PrEP recommendations in South Africa (WHO, 2015: 1). The South African roll-out of PrEP to the rest of the population in 2016 was very slow and inadequate (Haffejee *et al*., 2023a: 2). According to Makhakhe *et al*. (2022: 10), there was lack of consistency in PrEP roll-out. This created uncertainty and a lack of legitimacy of PrEP. PrEP as an ARV was rolled out within a space where HIV/AIDS was still stigmatised (Duby *et al*., 2023: 143). Therefore, PrEP, like HIV, has been labelled to fall into the category of socially unacceptable behaviour or promiscuity (Bekker *et al*., 2022: 1412). Moreover, another stigma

[1] Unless indicated otherwise, PrEP in this thesis refers to oral PrEP.

on PrEP resulted from its roll-out targeting particular groups of the population, such as men who have sex with men and sex workers. This, in turn, subjected PrEP to public scrutiny, hence making its use less attractive.

In 2017, the Higher Education and Training HIV/AIDS (HEAIDS) national programme further introduced PrEP to seven South African universities, namely, Nelson Mandela University, University of Limpopo, University of Venda, University of Free-State, University of Zululand, Vaal University of Technology and Rhodes University (Child, 2017: 1). This was due to the evidence in a study conducted by HEAIDS, which concluded that approximately 14% of university and college students are involved in transactional sex, take alcohol, and are regular users of drugs, which put them at high risk of contracting HIV (Haffajee *et al*., 2023a: 1). Also, students' use of condoms is deficient, which makes them suitable candidates to access PrEP (Child, 2017: 1).

Muhumuza *et al*. (2021: 1730) maintain that there has also been a decline in the use of condoms among young South African men, and the risk of HIV has not motivated the use of condoms. There are still stigmas and myths around condom use and sex for cash relationships that make it difficult for females to negotiate the use of condoms (Haffajee *et al*., 2023a: 1). The HIV prevalence rate was approximately 12,6% among the population in 2018 (Statistics South Africa, 2018: 7). By 2021, the number of people living with HIV had increased to approximately 19,5% of adults between 15-49 years (Statistics South Africa, 2022: 1). Rhodes University has about 7845 students (Rhodes University, 2023), who are mostly a vibrant and impressionable group of young people. This group is prominent for risky behaviour like drinking alcohol, which is argued to be connected to risky sexual behaviour (Weston, 2006: 49)

Most existing literature on PrEP focuses on the samples of people that have been constructed to fall under risk categories, for example, men who have sex with men (MSM), sex workers, and adolescent girls and young women (AGYW) (Ndzinisa, 2017: 29; Dayton *et al.,* 2023: 3234; Kayesu *et al*., 2022: 441). A few studies have focused on higher education institution students' perception of PrEP as a prevention opportunity for reducing HIV/AIDS (Shamu *et al*., 2021: 2; Semata *et al*., 2022: 2; Masyuko *et al*., 2018: 579).

The urgency for PrEP roll-out has focused on adolescent girls and young women's experiences of HIV/AIDS and uptake of PrEP (Mudzingwa *et al*., 2022: 3727). This is understandable, as a substantial body of literature has revealed that AGYW are more vulnerable to HIV/AIDS

than their male counterparts (Duby *et al*., 2023: 143; George *et al.,* 2022: 2; Stoner *et al*., 2021: 2046). However, addressing gender gaps in prevention strategies is core to ending HIV/AIDS (UNAIDS, 2022: 23). Men are usually almost absent in HIV/AIDS policies and prevention strategies, yet they form part of the communities affected and infected by HIV/AIDS (Berner-Rodoreda *et al*., 2021: 2; Shamu *et al*., 2021: 2). There is a growing body of research on PrEP in South Africa (Tsope, 2020; Mavhika, 2019; Ntshinga, 2019) Eswatini (Barnighausen *et al*., 2020; Inghels *et al*., 2022), Zimbabwe (Parmley *et al*., 2022; Muhumuza *et al*., 2021), and Lesotho (Karletsos *et al*., 2020; Nonyana *et al*., 2022) examining the perception and uptake of PrEP among AGYW and in higher learning institutions.

Tsope (2020: 41) argues that perception, stigma, and discrimination around HIV/AIDS have created barriers to preventing and treating the virus, which remain intact. Ajayi *et al*. (2019: 1) state that there is a need for regular research to assess PrEP perception and awareness to establish whether groundwork has been done in educating people about PrEP and HIV/AIDS. In addition, research by Muhumuza *et al*. (2021: 1730) advances that PrEP perception and acceptability among young people in Sub-Saharan Africa remains unclear as most research on PrEP is on high-risk adult populations. Their research in Uganda, Zimbabwe, and South Africa found that most participants would not take PrEP because of the misconceptions and lack of knowledge associated with PrEP. The fear was that PrEP was associated with antiretroviral (ART) drugs, and people might think they were positive (Muhumuza *et al*., 2021: 1732; Nonyana *et al*., 2022: 7). Ntshinga (2019: 17) supports the findings and asserts that any education on PrEP should address the misunderstanding and misconception around PrEP uptake and acceptability.

Medina-Marino *et al*. (2021), Tsope (2020), Mavhika (2019), and Ntshinga's (2019) research and findings have provided a baseline understanding of HIV/AIDS and PrEP in the Eastern Cape, Makhanda, and among Rhodes University students. These studies provide evidence that HIV/AIDS incidences are excessively high among adolescents and young adults, especially girls. Additionally, these studies build on understanding social and medical factors to be considered in the roll-out of an HIV/AIDS prevention strategy in South Africa. The studies have also identified lack of knowledge, misconception, stigma, and inadequate access to resources as the core issues to address.

A study by Medina-Marino *et al*. (2021) examines PrEP adherence and community-based prevention among AGYW in the Eastern Cape. The study looks at the feasibility and

acceptability of community-based platforms, which aims to increase adherence and easy access to PrEP. In the study, Medina-Marino *et al*. (2021: 489) emphasise that peer education and norms are essential in shaping behaviour among adolescents and young people. Muhumuza *et al*. (2021: 1737) indicated that most participants said PrEP knowledge and uptake among young people were linked to peer knowledge. The study also argues that awareness and adherence are shaped by perception.

Mavhika (2019) scrutinises students' perceptions of HIV/AIDS and intervention strategies in Makhanda. The study investigates the role of NGOs and the Department of Health (DoH) in addressing HIV and AIDS in the context of gender inequality. Most participants in the study said that the government has failed to provide updated knowledge and awareness programmes that are essential in reducing HIV/AIDS. Mavhika (2019: 46) found that most resources that can be used as prevention strategies are outdated and not tailored to the context. Mavhika (2019: 21) further argues that updated programmes on HIV/AIDS "cannot be effective without a gendered component."

Ntshinga (2019) explores the legal framework of HIV/AIDS and PrEP at Rhodes University. The study points out that the university policy aims to promote HIV/AIDS education as a human right. However, Ntshinga (2019: 17) states that PrEP education has not addressed the misunderstanding and misconception of PrEP among students at Rhodes University. Ntshinga's (2019: 38) study found that most students did not have knowledge of PrEP, and lack of knowledge affects its distribution and practice. Nevertheless, those who knew about PrEP did not understand why it was taken (Ntshinga, 2019: 38). Moreover, most students argued that HIV/AIDS programmes at Rhodes University were boring and not tailored for them (Ntshinga, 2019: 43). This finding was later confirmed in Tsope's (2020: 42) study, which proclaims that access to PrEP is a barrier to HIV/AIDS prevention because there is lack of education, awareness, and support around PrEP. The participants in the study pointed out that they never knew that the university was offering ARVs, PEP, or PrEP support groups. Most participants said they only knew of testing and condom support and did not know where to go for other services (Tsope, 2020: 45). However, this study contributes to the existing knowledge on PrEP.

This study is informed by the Social-Ecological (SEM) and the Health Belief Models (HBM). SEM argues that health is directly affected by the interaction between an individual, their society, and their environment (Baral *et al*., 2013: 215; Gilbert & Walker, 2002: 652).

According to SEM, an individual has four levels of influence. Yakob & Ncama (2016: 2) say that at the first level, an individual is the main actor, and social peers and their environment influence their PrEP uptake and perceptions. In their study, Muhumuza *et al*. (2021: 1737) found that peer influence and social support played a vital role in PrEP uptake. The second level is whereby the community's misunderstanding, stigma, or misconception of PrEP influences how an individual perceives PrEP or HIV/AIDS (Dyson *et al.*, 2018: 54). In third position is the institutional level, which encompasses the health care workers and systems, how these institutions are structured will affect adherence to PrEP, whether they are user-friendly or if health care workers are approachable (Zuma *et al*., 2022b: 2668). Finally, the structural level looks at how the accessibility of PrEP will influence PrEP uptake and acceptance (Yakob & Ncama, 2016: 2).

SEM looks at influences that lead to health response behaviour. At the same time, the HBM was created to explain why people fail to participate in activities designed to respond to or prevent disease (Borowski & Tambling, 2015: 420). Both models complement each other because of the understanding that health behaviour or PrEP uptake is affected by several interacting factors, including the perceptions of threat and benefit, cues to action, and the person's own sense of capacity to perform the behaviour (Van Gerwen *et al*., 2022: 3).

1.2 Goals of the Research

The primary goal of this study is to examine PrEP knowledge, perception, practice, and roll-out preference at Rhodes University.

The study is informed by the following interrelated objectives:

1. To assess students' awareness of Rhodes University HIV/AIDS prevention programmes.
2. To explore the implementation of PrEP at Rhodes University.
3. To explore health care workers' perspectives of PrEP knowledge and use among Rhodes University students.

The research is primarily a qualitative study. A qualitative study emphasises on the individual as the creator of their own meaning (Aspers & Corte, 2019: 157). Data was collected through in-depth semi-structured interviews and one focus group. In-depth semi-structured interviews focus on the individual thoughts and feelings to explore their perspective on the issue

(DeJonckheere & Vaughn, 2019:2). Focus groups allow participants to engage with one another to provide conflicting perspectives and opinions about the topic (Rahman, 2017: 110). Convenience sampling was used to recruit participants. Convenience sampling is selecting people who are readily accessible (Martinez-Mesa *et al*., 2016: 327). The study included four health care workers and fifteen student participants: the student sample comprised ten undergraduate and five postgraduate students enrolled across various disciplines and academic years at Rhodes University, including both South African nationals and international students. Data was analysed using thematic analysis, which is the interpreting and reporting of key themes from the data (Kiger & Varpio, 2020: 847). The key themes in the interview schedule were both the barriers and the facilitators of PrEP among students. The study observed Rhodes University's ethical guidelines. Given the sensitivity of the information obtained from students and health care workers, the researcher approached this study with an appreciation of the vulnerabilities and risks involved in exploring the students' and health care workers' perceptions of PrEP.

1.3 Structure of the Thesis

This thesis is divided into five chapters, that are structured as follows:

Chapter One: Is an introductory chapter. It provides an overview of this study, focusing on the research statement, research objectives, and methodology. A brief description of the research methodology is presented. However, an elaborate discussion of the research methodology is in Chapter Three.

This chapter provides an overview of the structure of the thesis as outlined below:

Chapter Two: Covers the relevant literature in relation to the research topic. The core themes of this chapter include the historical overview of the HIV/AIDS pandemic globally and in South Africa, Pre-Exposure Prophylaxis (PrEP) globally and in South Africa, the higher education and training prevention initiatives, Rhodes University's HIV/AIDS Policy and the conceptual framework that underpins this study, namely, the Social-Ecological Model (SEM) and the Health Belief Model (HBM).

Chapter Three: Presents the research methodology used in the current study. Which covers the research design, study population and sampling, instrument of data collection, ethical considerations, data analysis, and challenges and limitations of the study

Chapter Four: Covers data presentation and analysis. The core themes are divided into barriers and facilitators, which were categorised into factors at the individual, interpersonal, community, institutional, and structural levels.

Chapter Five: presents the conclusion.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

The global impetus for the prevention of HIV/AIDS has witnessed a major paradigm shift, with an increasing emphasis on preventive strategies such as Pre-Exposure Prophylaxis (PrEP). This shift is particularly notable within the academic sphere, where institutions like South Africa's Rhodes University have become focal points for implementing and understanding prevention efforts. As HIV/AIDS prevalence remains a critical public health issue, exploring the perception of PrEP as a prevention strategy among students becomes imperative. The HIV/AIDS prevalence among students remains an urgent concern, necessitating a comprehensive understanding of knowledge, attitudes, and potential barriers to the use of PrEP. As a higher education institution, Rhodes University serves as a microcosm to explore the multifaceted dimensions that influence students' acceptance and use of PrEP. This literature review aims to delve into existing research and examine Rhodes University students' PrEP knowledge, perception, practice, and roll-out preference. By synthesising the current scholarship, this literature review aims to contribute to a comprehensive understanding of the factors influencing the acceptance and use of PrEP as a primary means of preventing the spread of HIV/AIDS in the student community.

This literature review is structured into five sections. The first section provides a historical overview of the HIV/AIDS pandemic globally and in South Africa, including a focus on factors contributing to youth vulnerability to HIV/AIDS. The second section focuses on PrEP globally and in South Africa, with a focus on knowledge about PrEP, access to PrEP, HIV/AIDS stigma related to PrEP, attitudes towards the use of PrEP, and evidence from the clinical trials. The third section looks at higher education and training, which includes curriculum response to HIV/AIDS and the efforts of HIV/AIDS campaigns such as the First Things First campaign. The fourth section examines Rhodes University's HIV/AIDS Policy and describes its HIV/AIDS prevention programmes, which include condom distribution, Voluntary Counselling and Testing (VCT), and PrEP. The fifth section covers the theoretical framework that informs this study, namely, the Health Belief Model (HBM) and the Socio-Ecological Model (SEM). Combining the theoretical framework provides a comprehensive understanding of the complexity between individual and societal factors that influence students' beliefs and

attitudes towards PrEP adoption (Borowski & Tambling, 2015: 420). The last part presents the conclusion.

2.2 The HIV and AIDS Pandemic: A Historical Overview

The contextual understanding of the HIV/AIDS pandemic is critical in understanding the importance of an effective HIV/AIDS strategy or intervention. HIV is a virus that causes AIDS if not treated over time. Acquired Immunodeficiency Syndrome (AIDS) is a disease that attacks the body's white blood cells, causing a shutdown of the immune system to fight life-threatening diseases such as cancers and infections (Kapila *et al.,* 2016: 69). The first cases of the pandemic were reported in the early to mid-1980s in the United States (US) and confined mainly to homosexual men, but later found in other population groups (Gilbert & Walker, 2002: 654). The Human Immunodeficiency Virus (HIV) has spread across the globe, particularly in sub-Saharan Africa, but also in other developing countries across the world (AIDSinfo, 2019: 1).

The impact of the HIV/AIDS pandemic extends far beyond the scope of individuals and families, encompassing entire communities and nations, leaving behind a distressing trail of death and societal upheaval while also inflicting economic disruptions (Gilbert & Walker, 2002: 651). Globally, approximately 38 million people were living with HIV/AIDS, with an estimated 1.7 million new HIV infections in 2019 (WHO, 2020: 1). In 2023, the number of people living with HIV/AIDS was approximately 39.5 million with an estimated 1.5 million new HIV infections (UNAIDS, 2023b: 1). AIDS-related deaths stood at approximately 690,000 in 2019 (WHO, 2020: 1) and at an estimated 630, 000 in 2023 worldwide (WHO, 2023: 1). There has been a slow decline in the number of both new infections and AIDS-related deaths, signifying the need for more efforts to accelerate preventive and treatment measures to lower the prevalence of HIV/AIDS globally (UNAIDS, 2023b: 1; WHO, 2023: 1). Furthermore, in 2019, approximately 25.4 million people were on antiretroviral therapy (ART) globally (WHO, 2020: 1). By 2023, an estimated 29 million were on ART, reflecting a positive increase in the number of people on ARVs worldwide, but signifying the need for prevention before infection (WHO, 2023: 1).

In 2019, the global count of adolescents aged 15 to 24 living with HIV/AIDS was around 1.7 million, with approximately 170,000 new infections reported (UNAIDS, 2020: 11). However, by 2022, the number had gone up, with about 37.5 million adolescents aged 15 and above living

with HIV/AIDS worldwide, and approximately 1.2 million new infections in 2022 alone (UNAIDS, 2023b: 3; WHO, 2023: 1). The contrast between 2019 and 2022 highlights a notable surge in the prevalence of HIV/AIDS among adolescents on a global scale. These statistics signify the scale of the crisis and highlight the urgent need for widespread awareness, prevention, and support initiatives to combat this devastating global health challenge.

Since the beginning of the HIV/AIDS pandemic in the 1980s, there has been a persistent quest for a cure, resulting in the identification of various intervention strategies that have effectively curtailed the global impact of the virus (UNAIDS, 2008: 12). However, it is crucial to acknowledge that the dwindling funding support, both from foreign and domestic sources, has led to a reduction in HIV/AIDS resources in 2022 (WHO, 2023: 1). Foreign assistance for HIV/AIDS witnessed a significant decline in 2022, with 58% originating from bilateral funding by the US government and approximately 29% sourced from contributions by the Global Fund to Fight HIV/AIDS, Tuberculosis, and Malaria (UNAIDS, 2023b: 1). According to WHO (2023: 1), the remaining portion from other international contributors has dropped substantially, decreasing from nearly US$ 3 billion in 2010 to US$ 1.2 billion in 2022, marking a 61% decline. Concurrently, there has been a contraction in domestic funding as well (WHO, 2023:1). This reduction in financial support is alarming given the escalating prevalence of HIV/AIDS among adolescents, underscoring the need for sustained funding to continue the battle against the virus and its consequences (WHO, 2023:1).

2.3 An Overview of HIV/AIDS in South Africa

South Africa has had to deal with several challenges relating to HIV/AIDS. According to Dlamini (2021: 22), South Africa has the most significant number of people living with HIV/AIDS compared to the rest of the world; approximately 8.45 million people were living with HIV/AIDS in 2023, compared to an estimated 7,7 million in 2019. (UNAIDS, 2023b: 1; Bisnauth, 2023: 1). Youth mortality from HIV/AIDS remains high, making prevention and early diagnosis of HIV/AIDS infection among young people crucial (Naidoo *et al*., 2022: 1). According to UNAIDS (2019), there were approximately 71,000 AIDS-related deaths among young people aged 15 to 49 in South Africa, accounting for 23% of all HIV/AIDS-related deaths in this age group in 2019 worldwide. These statistics highlight the urgent need for targeted interventions and comprehensive support systems to address the unique challenges facing young South Africans in the fight against HIV/AIDS.

The first case of HIV/AIDS infection in South Africa was reported in 1982 and this signalled the start of the first wave of the HIV/AIDS pandemic, which was limited to the gay community and persons receiving unsafe blood transfusion (Abdool-Karim & Abdool-Karim, 2002: 38; Dlamini, 2021: 22). The first case of HIV/AIDS infection among the black South African population was only recorded in 1987; by 1992, new infections among women and men were heralded by the heterosexual transmission of the disease (Gilbert & Walker, 2002: 655; Fadane, 2019: 8). It is important to note that the absence of data on HIV/AIDS among black South Africans before 1987 does not necessarily mean that the disease did not exist (Abdool-Karim & Abdool-Karim, 2002: 38). The lack of recorded cases was due to several factors, including limited access to health care, stigma associated with the disease, and inadequate data collection and reporting due to the apartheid government placing black South Africans in rural areas and Bantustans with limited services (Zwi & Bachmayer, 1990: 319).

The apartheid era was characterised by systematic discrimination and unequal access to health services, which left a legacy of health inequalities (Makhakhe, 2021: 17). During apartheid, responsibility for health care in areas where black Africans had been designated to live was delegated to the "Bantustans", resulting in limited resources for health care (Abdool-Karim & Abdool-Karim, 2002: 38). Bantustans were separate territories set aside for black South Africans, as a tool of racial segregation during apartheid (Abdool-Karim & Abdool-Karim, 2002: 38). Due to economic disparities, black communities were unable to adequately finance their health care (Bell *et al*., 2022: 3). In the early 1990s, South Africa faced a significant challenge in the fight against the HIV/AIDS pandemic, as the apartheid regime failed to ensure effective leadership and undermined its severity (Abdool-Karim & Baxter, 2016: 1152). Consequently, this resulted in HIV/AIDS awareness and educational programmes that were scarce at the time (Dlamini, 2021: 22; Abdool-Karim & Baxter, 2016: 1152). The historical imbalances in service delivery became a benchmark against which health care services were delivered (Coovadia *et al*., 2009: 819).

South Africa's democratic government inherited significant health problems from the apartheid government, particularly in response to the HIV/AIDS pandemic (Abdool-Karim *et al*., 2009:923). The new government faced a fragmented health system, insufficient resources, and a lack of infrastructure to effectively combat the accelerating pandemic (Abdool-Karim & Baxter, 2016: 1152). In addition, HIV/AIDS-related stigma and denial were prevalent, hindering public awareness and prevention efforts (Coovadia *et al*., 2009: 819). Challenges

inherited from the apartheid era have hampered the initial response to HIV/AIDS, highlighting the complex interplay of historical injustice and public health crises (Abdool-Karim & Baxter, 2016: 1152). To overcome historical inequality and take practical steps, it is essential to address the social factors influencing the spread of the virus through a comprehensive approach (Gilbert & Walker, 2002: 651).

Having inherited a fragmented and challenged health care system which was divided along racial lines, the government could not respond effectively to the growing HIV/AIDS pandemic (Makhakhe, 2021: 17). What further contributed negatively to the health system in the new democratic government was the Growth, Employment and Redistribution (GEAR) strategy which were implemented during the administration of President Thabo Mbeki (Baker, 2010: 81). GEAR had a significant impact on the provision of free health care and access to antiretroviral (ARV) therapy (Fourie *et al*., 2011: 117). GEAR emphasised the fiscal discipline and market-oriented reforms that led to fiscal limits in the health sector (Tsheola, 2002: 82). The priority of economic goals over social welfare caused a strain on public health care, which mainly affected the provision of free health services and the availability of ARV drugs for the treatment of HIV/AIDS (Simelela & Venter, 2014: 249). President Mbeki and the government were criticised for their initial reluctance to acknowledge the link between HIV and AIDS, further complicating efforts to combat the pandemic (Fadane 2019: 8; Fourie *et al*., 2011: 117).

2.3.1 Factors Contributing to Youth Vulnerability to HIV/AIDS in South Africa

Although there is an overall HIV/AIDS pandemic in South Africa, some of the country's population is at a higher risk of contracting HIV/AIDS (Joshi *et al*., 2021: 1). Several studies have shown that young people have a higher risk of contracting HIV/AIDS (Joshi *et al*., 2021: 1; Koch & Wehmeyer, 2021: 2; Muhumuza *et al*., 2021: 1738; Munthali *et al*., 2022: 3951). According to Bruce (2019:20), young adults must be key stakeholders for a successful HIV/AIDS prevention strategy because it is at this stage that they make poor sexual decisions. Furthermore, they engage in intergenerational transactional sex and alcohol abuse, which leads to unsafe sex (UNAIDS, 2018: 6). It is, therefore, essential to ensure that HIV/AIDS prevention services in all parts of South Africa are tailored to specific needs, based on comprehensive and appropriate intervention packages (DoH, 2016a: 7).

Adolescent girls and young women's experiences of HIV/AIDS and prevention have been the focus (Muhumuza *et al*., 2021: 1738; Munthali *et al*., 2022: 3951), as girls and young women have been defined as being most at risk. Globally, women and girls (of all ages) accounted for

46% of all new HIV infections in 2022, while in sub-Saharan Africa, women and girls accounted for 63% of all new HIV infections (UNAIDS 2023b: 1; Zuma *et al.,* 2022a: 2). In addition, in 2022, 4,000 adolescent girls and young women (AGYW) between the ages of 15 and 24 were infected every week globally. Of these infections, 3,100 occurred in sub-Saharan Africa (UNAIDS 2023b: 1).

Socioeconomic factors such as poor access to health care, poverty, and unemployment have increased sex for money among teenage girls and young women (Muhumuza *et al*., 2021: 1738; Govender, 2021: 296; Gilbert & Walker, 2002: 652). Cultural norms in most societies in South Africa have placed men as having power and control over sexual intercourse in relationships, leaving women in positions of having to bargain or negotiate safe sex (Joshi *et al*., 2021: 1). As specified by UNAIDS (2018: 6), transactional sex is more popular than sex work today, and it is one of the factors which fuel the increase in the spread of HIV/AIDS. Transactional sex refers to how young women exchange sex for financial or material support (Duby *et al*., 2021: 3239). Research indicates that the majority of AGYW get HIV/AIDS from an older sexual partner and that they then spread the virus to other males in their age group (UNAIDS, 2017: 3; Abdool-Karim & Baxter, 2016: 1151). Studies have shown that most of the transactional sex in universities is affected by the social pressure of the new social culture to deal with the economic inequality between individuals and other students (Miri, 2021:18; Okeke *et al*., 2021: 6; Velloza *et al*., 2020: 2; Nyblade *et al*., 2022: 2). Students find themselves in these unequal power relationships with older men who in return support their needs to survive their new environment (UNAIDS, 2017: 3).

UNAIDS (2022: 23) contends that closing the gender gap in the prevention of HIV/AIDS is central to ending the pandemic; thus, men need to be included in the equation. McIlwaine & Datta (2003: 371), in their book Gender and Development (GAD), declare that the participation of both men and women is vital in any development project because society consists of both sexes. Men are usually almost absent from HIV/AIDS policies and prevention strategies (Berner-Rodoreda *et al*., 2021: 2), so their contribution to the active promotion of HIV/AIDS prevention measures is important (Chetty-Makkan *et al*., 2021: 2). In most cases, the prevalence of HIV/AIDS among men and boys goes unnoticed because this population group is less likely to receive an HIV test, get ARV treatment or visit a health facility (UNAIDS, 2022: 23, Hlongwa *et al*., 2022: 2).

Nicol *et al.* (2023: 2) maintain that 55% of adolescent boys and young men (ABYM) aged 15-24 were reported to be receiving ARVs in 2022 compared to 52% of adolescent girls and young women (AGYW) globally. AGYW aged 15-24 and ABYM aged 15-34 are one of the population groups in South Africa mostly at risk of contracting HIV/AIDS (Mfecane, 2008: 1). Adeagbo & Naidoo (2021:2) state that there is an increase in child sex and low condom use among young men, while unprotected sex is increasing among young women and older men (Muhumuza *et al*., 2021: 1738). Most South African men do not only have unsafe sex but also have multiple partners (UNAIDS, 2017: 1). UNAIDS (2017: 1) states that most men aged 15-49 have two or more sexual partners.

Over the years, HIV/AIDS prevention policies and strategies have evolved significantly in South Africa, characterised by a shift to a multifaceted approach (Dlamini, 2021: 2). Initially, prevention efforts focused mainly on promoting safe sex and raising awareness (Dasheka *et al*., 2021: 98). However, our understanding of the virus has deepened, and so has our arsenal of preventative measures (Dlamini, 2021: 2). Today, the holistic approach includes a variety of behavioural and pharmacological strategies aimed at reducing the risk of infection, particularly in vulnerable populations such as youth (Ndzinisa, 2017: 29).

2.4 Pre-Exposure Prophylaxis

In an initiative to reduce HIV/AIDS infection in South Africa, WHO made recommendations in 2012 to offer daily PrEP[2] to individuals at higher risk of HIV/AIDS infection (Department of Health (DoH), 2021: 7). Furthermore, the 2023 World AIDS Conference highlighted PrEP as a vital biomedical HIV/AIDS prevention strategy that must be expanded as part of the global initiatives to reduce new HIV/AIDS infections (UNAIDS, 2023b: 39). This section of the literature review begins with an overview of PrEP and its global implementation before examining its relevance in South Africa. It then focuses on how PrEP can effectively respond to the challenges faced by young people.

2.4.1 Background on Pre-Exposure Prophylaxis

PrEP is a proven and evidence-based intervention strategy designed to prevent HIV/AIDS infection through chemoprophylaxis[3] (Grant *et al*., 2010: 2588; Baldwin *et al*., 2021: 1713).

[2] Unless indicated otherwise, PrEP in this thesis refers to oral PrEP.
[3] The giving of medication to stop an illness from developing.

The efficacy of PrEP has been demonstrated in three global randomised clinical trials involving diverse populations, gay men, serodiscordant couples[4], and heterosexual men and women (Auerbach *et al*., 2015: 102; WHO, 2021: 1). Consistent use of PrEP has been shown to reduce the risk of HIV/AIDS transmission from one individual to another by up to 95% (Bekker *et al*., 2020: 1).

In 2012, the United States of America (USA) Food and Drug Administration (FDA) approved emtricitabine–tenofovir disoproxil fumarate (FTC–TDF) for PrEP. Subsequently, in 2014, the US Centre for Disease Control and Prevention published clinical practice guidelines for providing PrEP (Bien *et al*., 2017: 1309; Bailey *et al*., 2017: 364; Blackstock *et al*., 2017: 866). The effectiveness of PrEP is grounded in clinical trials that focused on two treatments: the fixed-dose combination of tenofovir disoproxil fumarate (TDF) 300mg and emtricitabine (FTC), as well as TDF 300mg alone (WHO, 2012: 1). Several other countries, including France, Canada, and South Africa, have also approved Truvada for PrEP, reflecting the growing interest and research surrounding this HIV/AIDS prevention strategy (Biello *et al*., 2018: 2101; Bailey *et al*., 2017: 364).

PrEP entails the use of antiretroviral (ARV) drugs to prevent HIV/AIDS infection in individuals who are HIV-negative but at a high risk of acquiring the virus (Bailey *et al*., 2017: 363; Bazzi *et al*., 2017: 348). PrEP involves the use of antiretroviral drugs for people who are HIV-negative and at significant risk of HIV infection (WHO, 2017:2). This preventive measure is implemented before possible exposure to reduce the risk of HIV infection (DoH, 2020: 1). To be considered potential candidates for PrEP, people must be aware of their risk, be willing to take PrEP, and be motivated to adhere to it consistently. PrEP must be available to anyone who expresses their desire for it (DoH, 2021: 2). However, certain characteristics or behaviours increase the risk of HIV/AIDS infection, including unprotected sex, having multiple sexual partners, and being in a relationship with an HIV-positive or unknown partner (DoH, 2021: 2).

The recommended PrEP regimen in South Africa consists of a fixed dose tenofovir/emtricitabine (TDF/FTC) combination (DoH, 2020). This regimen is for people 15 years of age or older who weigh 35 kg or more (DoH, 2020). HIV testing is mandatory before starting and is done regularly during the use of PrEP (DoH, 2020). Regular HIV/AIDS testing has many goals, including identification and counselling of individuals with acute HIV infection, early detection of HIV/AIDS infection during PrEP use, and minimising the risk of

[4] A relationship in which one partner has HIV and the other does not.

drug resistance (ARV) in the event of seroconversion (Dunbar *et al*., 2018: 514). TDF/FTC therapy requires normal renal function and creatinine clearance greater than 60 ml/min. Kidney function tests are performed before starting PrEP treatment and after three months. If renal failure is detected, PrEP should be discontinued, and further investigation into the cause of renal failure is necessary (DoH, 2020: 1).

PrEP targets those at high risk of HIV (WHO, 2021). In contrast, post-exposure prophylaxis (PEP) uses antiretroviral drugs to prevent HIV/AIDS infection after a single high-risk event given within 72 hours of exposure (CDC, 2019). Unfortunately, obtaining PEP within 72 hours of exposure is difficult for many South Africans due to barriers to timely medical care, especially in remote areas (Reddy, 2020). On the other hand, antiretroviral therapy (ART) involves lifelong antiretroviral treatment (ARV) for patients who already have HIV/AIDS. The goal is to increase the CD4 count and reduce the viral load (DoH, 2021: 8). In the context of family planning, the purpose of contraception is to prevent unwanted teenage pregnancy. PrEP, as an HIV/AIDS prevention strategy, aims to address the challenges of safe sex.

2.4.2 Pre-Exposure Prophylaxis in South Africa

In December 2015, South Africa became the second country in the world after the United States to fully adopt PrEP as a prevention method in its national HIV/AIDS prevention strategy (Mntungwa, 2019: 38). The Evidence for Contraceptive Options and HIV Outcomes (ECHO) trial conducted a randomised clinical trial from 2015 to 2018 in four African countries[5] (Beesham *et al*., 2023: 2). The trial focused on HIV-uninfected women aged 16–35 years (Beesham *et al*., 2022: 2629). The provision of PrEP was carried out in Durban, South Africa (Beesham *et al*., 2022: 2629; Beesham *et al*., 2023:2). The results from the trial were positive, with women who were on trial continuing the use of PrEP after the end of the trial (Beesham *et al*., 2023: 2). There has been increasing evidence of the effectiveness of PrEP through clinical trials and by the findings in the National Strategic Plan (NSP) 2012-2016 (Beesham *et al*., 2022: 2629). The NSP aimed to provide PrEP to people who are at high risk of HIV/AIDS through PrEP education, access, and delivery to support its implementation (DoH, 2016b: 4). The NSP found that HIV/AIDS incidences remained high among key populations such as sex workers, despite other prevention efforts, which highlighted the need for PrEP (DoH, 2016b: 4). In 2016, through such evidence, the Medicines Control Council (MCC) of South Africa officially registered the combination of tenofovir disoproxil fumarate and emtricitabine

[5] Eswatini, Kenya, South Africa, and Zambia

(Truvada) as PrEP (Hugo *et al.,* 2016: 361). In the same year, 2016, the government introduced PrEP to selected facilities that provided services to sex workers (Beesham *et al*., 2023: 2).

In 2017, when the South African Medical Research Council (SAMRC) initially proposed the inclusion of PrEP in HIV/AIDS prevention trials, it acknowledged the limited availability of PrEP in South Africa, with only 7,000 people having access at the time (Beesham *et al*., 2022: 2629). SAMRC recognised the importance of expanding access to PrEP and emphasised the importance of ensuring effective HIV/AIDS prevention and treatment options beyond the trial (Miner *et al*., 2021: 2). This was critical to maintaining continued access and support for participants who wished to continue using PrEP after the study had ended (Beesham *et al*., 2023: 2). In 2017, PrEP was expanded to include men who have sex with men (MSM) and university students (Beesham *et al*., 2023: 2).

In 2018, the introduction of PrEP for AGYW began in primary health care facilities (Beesham *et al*., 2023: 2; Winkelman, 2022: 110). According to Lewis *et al*. (2022: 1), about a third of all new HIV infections in South Africa are among AGYW, which includes adolescent girls and women who engage in transactional sex or sex work. This group carries a disproportionately high-risk burden of HIV/AIDS (Lewis *et al*., 2022: 1), highlighting the urgent need for targeted intervention and support among this vulnerable population. However, this matter is discussed in detail in section 2.3.

In 2020, PrEP guidelines were revised to expand to the eligible populations considered to be at "significant risk" of HIV/AIDS infection. This broader inclusion comprised persons with multiple sex partners, those who participate in injecting drugs, individuals with recent sexually transmitted infections (STIs), serodiscordant couples, and individuals who recognised their risk and requested PrEP (Beesham *et al*., 2023: 2). The National Department of Health (DoH) through the South African National AIDS Council (SANAC) played a key role through strategic partnerships with government agencies, NGOs and international donors (DoH, 2016a: 6). This effort has taken a leading role in integrating PrEP into mainstream health care, emphasising accessibility, affordability and awareness (DoH, 2020: 14; SANAC, 2017: 7). During this time, WHO issued technical guidance emphasising the importance of a holistic approach to PrEP implementation, including education, regular testing, and support (Winkelman, 2022: 110).

In 2021, South Africa's PrEP recommendations were further amended, extending PrEP treatment to pregnant and lactating women (Beesham *et al*., 2023: 2). In 2021-2023, PrEP was

integrated into the broader national health policy, demonstrating South Africa's commitment to the long-term sustainability of HIV/AIDS prevention efforts (PrEP Watch, 2023). The DoH sought to simplify the provision of PrEP in existing health services, with the goal of seamless integration rather than stand-alone programmes (DoH, 2022: 7). WHO and the global PrEP advocacy continued to strengthen South Africa's efforts, aligning country and policy with international best practices (Zuma *et al.,* 2022a: 2).

By July 2022, an estimated 530,000 cumulative PrEP treatments had been initiated in South Africa (Beesham *et al*., 2023: 2). The development of PrEP policy in South Africa from 2015 to 2023 demonstrates a proactive and adaptive approach to HIV/AIDS prevention (Beesham *et al*., 2023: 2). However, several other factors such as stigma, health care infrastructure limitations, clinic appointments, long queues, PrEP awareness, and limited-service delivery models have prevented the use of PrEP (Beesham *et al*., 2022: 2629; Golub, 2018: 191). The implementation of PrEP in South Africa is hindered by HIV/AIDS-related stigma and discrimination. This stigma and discrimination have created significant obstacles to the prevention and treatment of the pandemic (Tsope, 2020: 41). However, Shamu *et al.* (2021: 6) argue that raising awareness among young people, especially about PrEP, is crucial, and disseminating well-informed information in places accessible to young people can positively influence the approval and use of PrEP.

2.4.3 Knowledge about Pre-Exposure Prophylaxis

A study by Okeke *et al*. (2021) examined awareness and acceptability of PrEP among students at two prominent Historically Black Colleges and Universities (HBCUs) in North Carolina, United States of America. According to the survey, 52% of participants were aware of PrEP, and 3% actively used it. The survey found that campus health services (24%) and non-social media advertising (15%) were the primarily sources of PrEP information. 58% of the respondents expressed willingness to use PrEP if they felt they were at risk (Okeke *et al*., 2021: 6). The study found that there is a significant gap in PrEP knowledge, with many students lacking knowledge of its accessibility and effectiveness in preventing HIV/AIDS. This further suggests that limited knowledge and awareness may be due to inadequate sexual health education in academic settings or social stigma surrounding HIV/AIDS and PrEP (Okeke *et al*., 2021: 6).

Thongsutt *et al*. (2022) conducted a survey of Thai university students' awareness, knowledge, and acceptance of PrEP. Descriptive and inferential statistics were used in the data analysis.

The survey revealed that 65% of the participants were female, and 31.69% were between the ages of 18 and 21. In addition, 20.8% had heard of PrEP, and 39.8% expressed willingness to use it. However, almost half of the participants could not determine who was eligible for PrEP, and only a small proportion knew its cost and use. Thongsutt *et al*. (2022: 49) further state that the findings of the study showed low awareness, knowledge, and receptivity among student participants. Hence this could hinder any interest in using PrEP. However, those who had knowledge and were aware of PrEP were more likely to agree to use PrEP. The results highlight the need for awareness campaigns and public education to improve the acceptability of PrEP (Thongsutt *et al*., 2022: 49).

South Africa's National Development Plan (NDP) focuses on reducing the prevalence of HIV/AIDS by 2030. It includes accelerated access to the UNAIDS 95-95-95[6] and the use of PrEP (DoH, 2020: 7). A key factor in achieving this goal is stopping the transmission and spread of HIV/AIDS among those at risk by ensuring that potential users have adequate knowledge and information to make informed choices about HIV/AIDS prevention and treatment (Haffejee *et al.*, 2023b: 470). Lack of knowledge and information about PrEP is one of the barriers to taking PrEP.

In a recent study, Haffejee *et al*. (2023b), who examined PrEP knowledge among university students and primary care clinic staff in rural KwaZulu-Natal, South Africa, found that the overall student awareness was low. The study found that clinical users and nursing students did not have a significantly better understanding of PrEP. This finding is consistent with the results obtained by Ajayi *et al*. (2019) at the University of Fort Hare, which specifically focused on PrEP awareness gaps among students. The results showed that less than 20.3% of male and female students were aware of PrEP. In addition, the study found a significant correlation between PrEP awareness and family support. Individuals with sufficient family support showed higher awareness than those with insufficient family support. This highlights the critical role of family support in health decision-making and exposure to information and emphasises the need to understand its impact on PrEP awareness (Ajayi *et al*., 2019: 3). In addition, a study by Shamu *et al*. (2021), examining the awareness of PrEP among selected adolescents and young adults in the Eastern Cape province of South Africa, found out that 69% of the respondents expressed interest in any form of PrEP after being presented with information about PrEP.

[6] That means 95% of people who are living with HIV/AIDS know their status, 95% who know they are living with HIV/AIDS are on ARV medication and 95% of people are on treatment being virally suppressed.

Willingness and acceptance of PrEP are related to people's knowledge about it (Shamu *et al*., 2021:8; Okeke *et al*., 2021: 7).

2.4.4 Access to Pre-Exposure Prophylaxis

In South Africa, the pursuit of universal health care is based on the recognition of health as a fundamental human right. Article 25 of the Universal Declaration of Human Rights (UDHR) states that every person has the right to a standard of living that ensures his health and the well-being of his family (Winkelman, 2022: 106). This duty is further emphasised by Article 12(1) of the International Covenant on Economic, Social, and Cultural Rights (ICESCR), which affirms the universal right of all people to the highest attainable standard of physical and mental health (Winkelman, 2022: 106) According to these international declarations, South Africa recognises that it must provide comprehensive health care to its citizens. This includes facilitating access to Pre-Exposure Prophylaxis (PrEP) because PrEP contributes to people's general health and well-being according to the principles of both the UDHR and the ICESCR. By ensuring access to PrEP, South Africa will not only address the direct health needs of its population but also support a broader human rights framework that highlights the importance of health in promoting a dignified and prosperous society (DoH, 2021:4; Winkelman, 2022: 106). PrEP accessibility offers potential users the ability to access sexual health services, further extending PrEP beyond crucial populations to reduce HIV/AIDS incidences.

A study by Nonyana *et al.* (2022) focused on combining PrEP with family planning in Lesotho. The study highlighted the critical importance of ensuring continuous and widespread access to PrEP. It identified service delivery as a critical challenge in Lesotho, characterised by long queues and limited opening hours. These factors significantly hindered participants' access to both PrEP and family planning services, acting as a barrier in many areas. One notable finding was that participants wanted to receive both PrEP and family planning services simultaneously from a single provider. This preference was driven by the desire to improve accessibility, reduce waiting times and minimise the need for repeat visits. The study concluded that combining family planning and PrEP services is a crucial strategy that emphasises the interconnectedness of sexual and reproductive health (Nonyana *et al.*, 2022: 2).

Nabunya *et al*. (2023) conducted a study in Uganda that examined barriers and facilitators to the use of PrEP among high-risk men. The study highlighted that a significant proportion of the population who were aware of PrEP were uncertain about how to access PrEP or obtain it. Furthermore, Nabunya *et al*. (2023: 7) reported that people did not know where to get PrEP,

either from hospitals or community clinics. This finding highlights a critical gap in information dissemination and access that has practical implications for public health initiatives. Nabunya *et al*. (2023: 7) concluded that lack of clarity about access to PrEP can prevent people who could benefit from it from using it. This highlights the crucial need for public awareness campaigns on health initiatives.

In a follow-up study focusing on PrEP adherence in Durban, South Africa, Beesham *et al*. (2023: 1) found that six of the fourteen women who were in the study chose to take PrEP after the end of the study, but five years later stopped using it. The study identified several barriers to post-trial PrEP use and continued use, including long queues, inconvenient opening hours, and facilities located far from the women's homes. Two of the six women also indicated that they visited their local clinics to request PrEP, only to be told that it was not offered. The remaining seven women stopped using PrEP immediately when the study ended. According to the follow-up interview findings, only one woman was still using PrEP after the trial. She attributed her continued commitment to using PrEP to the facility's proximity to her home, friendly staff, and comprehensive PrEP education and counselling. Most women participating in the study expressed a desire to use PrEP again if access barriers were addressed, emphasising the importance of easily accessible PrEP facilities (Beesham *et al*., 2023: 1).

2.4.5 HIV/AIDS stigma related to Pre-Exposure Prophylaxis

PrEP use is stigmatised for many reasons, including its association with sex work, same-sex relationships, and substance abuse (Velloza *et al*., 2020: 7). The extent of the stigma depends on cultural beliefs and the prevalence of HIV/AIDS in different countries (Velloza *et al*., 2020: 7). Stigma is described as an immoral personal quality or characteristic that leads to a negative evaluation of an individual (Golub, 2018: 191). In many African countries, barriers to PrEP acceptance and adherence include the belief that PrEP is only for people with promiscuous behaviours. The social stigma surrounding PrEP stems from its association with HIV/AIDS medication and the misconception that it contains the same medication that HIV-positive people take (Golub, 2018: 191). Consequently, social norms and stereotypes about the sexuality of young people label them not only immoral but also irresponsible (Nyblade *et al.*, 2022: 8). It is widely believed that the provision of services such as PrEP or family planning can encourage risky sexual behaviour (Nyblade *et al.*, 2022: 8).

In a qualitative study that explored women's experiences and attitudes towards Pre-Exposure Prophylaxis use in Eswatini, Bjertrup *et al*. (2021: 732) found that the stigma associated with

taking the pills, mainly its association with HIV/AIDS, and the challenge of taking a daily pill, contributed to the discontinuation of PrEP. According to Bjertrup *et al*. (2021: 732), participants expressed reluctance to take PrEP due to its connection to antiretroviral medications and the stigma associated with HIV/AIDS. This association became a significant barrier to drug use when people associated daily pill therapy with HIV/AIDS treatment, creating a false impression of the drug's purpose as a preventive measure (Nabunya *et al.,* 2023: 6). The findings of Muhumuza *et al*. (2021), who looked at the factors that encourage and hinder young people in South Africa, Zimbabwe, and Uganda from using PrEP, are consistent with the findings by Bjertrup *et al*. (2021: 732). The study noted that a major obstacle to the use of PrEP was the belief that HIV/AIDS and PrEP are connected to promiscuity (Muhumuza *et al*., 2021: 1738).

Nyblade *et al*. (2022: 8) conducted a study examining stigma in a health clinic and its impact on the availability and use of PrEP among adolescent girls and young women in South Africa. The survey found that a significant proportion of nurses are reluctant to offer PrEP treatment to young people because of the perceived 'mothering role.' This role contributes to their belief that the acceptance of PrEP may encourage promiscuity. The study also identified clinical stigma as a root cause of the lack of confidentiality, and consultations among these young people were shared through rumours and information dissemination both inside and outside the clinic (Munthali *et al*., 2022: 3951). In addition, the lack of confidential public health advisors emerged as a significant barrier to PrEP and HIV/AIDS testing. Similar findings were found in studies focusing on young people as the target population (Shamu *et al*., 2021: 8; Munthali *et al*., 2022: 3951; Nyblade *et al*., 2022: 8). These studies insisted that more than half of the respondents perceived the HIV/AIDS and PrEP stigma as a barrier to PrEP initiation and adherence.

2.4.6 Attitude Towards Pre-Exposure Prophylaxis Use

Attitudes towards PrEP usage are influenced by the suggestion that it is exclusively for individuals at a very high risk (Golub, 2018: 195). The eligibility assessments for PrEP often convey mixed messages regarding the definition of high-risk behaviour, emphasising risk compensation as a crucial aspect of PrEP effectiveness (Golub, 2018: 195). This wording tends to depict PrEP as a preventive measure for those perceived as promiscuous, leading to a negative attitude among individuals (Nabunya *et al*., 2023: 6). In a study exploring perceptions of low-risk behaviour and motivations for HIV testing among Gauteng youth, Muravha *et al*.

(2021) discovered that most young people perceived themselves as having a low risk of contracting HIV/AIDS, despite a high background HIV/AIDS prevalence of 6.5% among youth in the Gauteng province (Muravha *et al*., 2021:11). This confirmed that most young individuals do not consider themselves at risk of HIV/AIDS. Most people with low-risk perception do not see the need to use prevention tools (Muravha *et al*., 2021: 11).

Misconceptions about the acceptance of PrEP are fuelled by the belief that it is a medication for people living with HIV/AIDS. In a study by Nabunya *et al*. (2023: 6), participants expressed attitudes towards PrEP as it relates to antiretroviral therapy (ART) prevention. This finding highlights the importance of providing specific information to explain the difference between PrEP and ARV (Nabunya *et al.,* 2023:6). The frequency of misunderstandings, especially among those with little knowledge about the mechanism, effectiveness, side effects and expected results of PrEP, contribute to PrEP acceptance and attitudes (Nabunya *et al*., 2023:6). The implementation of interventions that focus on increasing PrEP awareness, knowledge and promoting positive attitudes can play an important role in increasing the use of PrEP in communities with high HIV prevalence (Muhumuza *et al*., 2021:1737).

Low perception of PrEP has been found to interfere with its use. Shamu *et al*. (2021: 8) reported that concern about possible side effects was associated with men having low awareness of PrEP. General fears such as reduced sexual activity and general physical weakness were common, fuelled by misinformation from communities (Muhumuza *et al*., 2021: 1736). This highlights the importance of disseminating accurate information and awareness about PrEP in the general community (Muhumuza *et al*., 2021: 1736). However, due to financial constraints, most respondents prefer to obtain free PrEP from health centres (Nabunya *et al*., 2023: 6).

Voglino *et al.* (2021) conducted a survey among Italian men who have sex with men (MSM). The study found that this group of men was well-informed about PrEP (Voglino *et al.*, 2021:11). However, the study identifies several critical barriers to the widespread adoption of PrEP. One significant barrier highlighted in the study was the fear of possible side effects (Voglino *et al.*, 2021:12). Study participants reported concerns about PrEP-related side effects that contributed to them having an attitude towards or reluctance to participate in this HIV/AIDS prevention strategy (Voglino *et al.*, 2021:12). In addition, an important barrier identified in the study is the perception that they did not consider themselves at risk of HIV/AIDS infection (Voglino *et al.*, 2021:12). This indicates a gap between awareness and perceived personal risk among MSM, where people may have information about PrEP but may

not perceive themselves as vulnerable to HIV/AIDS infection, affecting their willingness to take preventive measures (Muhumuza *et al*., 2021: 1738)

2.4.7 Evidence from Clinical Trials

Significant progress has been made in understanding the antiretroviral-based PrEP, including conclusive evidence that the treatment is very successful in preventing HIV/AIDS infection (Nabunya *et al*., 2023: 6). Data was collected from four trials which included injection drug users, young heterosexual men and women, persons in serodiscordant relationships and homosexual men (Ndzinisa, 2017: 29). These clinical trials have shown that taking PrEP consistently as directed has a high efficacy as an HIV/AIDS prevention strategy (Celum *et al.,* 2019: 24). Furthermore, data from the same clinical trial shows that most participants did not take PrEP as directed (Nabunya *et al*., 2023: 6). Adherence is, therefore, a critical component of PrEP since it impacts the treatment's effectiveness. In a study among AGYW in Cape Town by Celum *et al.* (2019: 24), adherence to daily PrEP was 75%, with a daily dose covering most sexual acts.

Clinical trials examined by the FDA attested to the efficacy of PrEP, demonstrating that taking seven tablets a week provides approximately 99% protection, four pills a week offers 96% protection, and two pills a week offers 76% protection (San Francisco AIDS Foundation, 2015: 4). Data from clinical trials show that the effectiveness of PrEP is critically dependent on adherence, studies have found early discontinuation of PrEP and poor use in South Africa (DoH, 2022: 1; Jamieson *et al*., 2022: 857). New generations of long-acting HIV/AIDS prevention products have been reported, suggesting that the availability of such products may increase the use of PrEP (DoH, 2022: 1). Several clinical trials worldwide have shown that long-acting injectable cabotegravir (CAB-LA) is very effective in preventing HIV/AIDS infection and reducing the risk of HIV/AIDS infection compared to PrEP (Meyer-Rath *et al*., 2023: 85).

In February 2024, a young adult in Cape Town became one of the first in South Africa to receive PrEP injection outside of a clinical trial (Voigt, 2024: 1). This will give millions of people at risk of HIV/AIDS access to a bimonthly injection (The Guardian, 2023: 1). Cabotegravir PrEP (CAB-LA) prevents HIV/AIDS from entering human cells and reduces changes in sexual transmission to almost zero (Jamieson *et al*., 2022: 857; The Guardian, 2023: 1). Long-acting injectable products have been argued to offer advantages over daily pills

(Meyer-Rath *et al*., 2023: 85). However, some people in South Africa do not access or adhere to PrEP for structural reasons (Jamieson *et al*., 2022: 857).

PrEP can alleviate women's lack of agency and control over HIV/AIDS prevention strategies, which is another clear advantage (Ndzinisa, 2017: 29). To ensure that any negative findings are addressed in a prevention strategy that targets a key group, it is vital to understand how men view PrEP (Berner-Rodoreda *et al*., 2021: 2). Given the overwhelming body of studies supporting the efficacy and usefulness of PrEP, it is critical to comprehend the potential causes of and obstacles to young people's adoption of PrEP for HIV/AIDS prevention. It is also necessary to understand the barriers and enablers that affect the acceptance of PrEP among young people. Therefore, removing this barrier could ensure the use of PrEP, which could lead to a reduction in HIV/AIDS incidence among key populations. Information about PrEP should address health concerns and misconceptions to inform potential users about PrEP and address potential barriers to PrEP.

2.5 Higher Education and Training HIV/AIDS Strategy

Research from South African universities indicates that students engage in risky sexual behaviours, elevating their susceptibility to HIV/AIDS infection (Mokgatle *et al*., 2021: 2; Mthembu *et al*., 2019: 246; HEAIDS, 2016: 10). These behaviours include having older partners and multiple partners, substance abuse preceding sexual encounters, and engaging in unprotected sex (Mutinta, 2022: 2). University students tend to underestimate their vulnerability to HIV/AIDS, influenced by factors such as peer pressure, an insufficient level of maturity to handle sexual pressure, and misconceptions about the HIV/AIDS pandemic (HEAIDS, 2010: 12). Recognising educational environments as opportune for knowledge dissemination and programme implementation, HEAIDS concluded that schools and higher education institutions are well-suited for encouraging learners and students to postpone sexual activity while promoting safe practices (Ntshinga, 2019: 22). In response to these findings, in 2000, the South African Universities Vice Chancellor Association (SAUVCA) spearheaded the development of the first national programme addressing HIV/AIDS in higher education (HEAIDS), initiating a comprehensive national response to the HIV/AIDS pandemic within South African Higher Education Institutions (HEIs) (HEAIDS, 2010: 2).

Students in the higher education sector represent the future workforce in terms of knowledge and skills (HEAIDS, 2016: 10). In the nationwide fight against HIV/AIDS, the higher education community is essential (HEAIDS, 2012: 3). The government recognises the vital

role of university students in South African and aims to reduce HIV/AIDS infections in this population (Mutinta, 2022: 2). Higher Education South Africa (HESA) and the Department of Higher Education and Training (DHET) have acknowledged the significance of putting in place a coordinated, all-encompassing, and efficient response to manage the national response to HIV/AIDS among HEIs (HEAIDS, 2010: 3).

HEAIDS seeks to address general health and wellness in addition to HIV/AIDS, STIs, and tuberculosis (TB) (HEAIDS, 2016: 10). The primary goal of this programme is to lessen the threat of HIV/AIDS and its effects to help higher education institutions produce graduates who are healthy and productive (HEAIDS, 2016: 10). As the primary partner, HEAIDS has ensured that numerous HIV/AIDS-focused programmes and projects are carried out.

The South African Higher Education and Training HIV/AIDS (HEAIDS) was established in 2000 in response to the growing HIV/AIDS pandemic in the country (HEAIDS, 2010: 3). The purpose of the programme was to address the impact of HIV/AIDS on the higher education sector, particularly in educational institutions (HEAIDS, 2010: 3) Since its inception in compliance with the national strategy plan (NSP), the Higher Education and Training HIV/AIDS Programme (HEAIDS) in South Africa has played a crucial role in combating the HIV pandemic within educational institutions (HEAIDS, 2010: 3). The introduction of HEAIDS as part of a multidisciplinary response to the pandemic marked a critical step in responding to the complex challenges presented by HIV/AIDS (HEAIDS, 2010: 3).

Between 2000 and 2005, the South African government, through HEAIDS, worked in collaboration with various stakeholders such as universities, non-governmental organisations, and international partners (HEAIDS, 2016: 10). Initially, the focus was on raising awareness, understanding the prevalence of HIV/AIDS in schools, and developing basic prevention strategies (HEAIDS, 2016: 10). However, from 2006 and 2010 when the HIV/AIDS pandemic accelerated, HEAIDS expanded its services and interventions (HEAIDS, 2010: 4). The programme became more comprehensive, incorporating not only awareness campaigns but also prevention, treatment, care, and support services (Dasheka *et al*., 2021: 98). Initiatives included voluntary counselling and testing, condom distribution and educational programmes to reduce stigma and discrimination (Dasheka *et al*., 2021: 98).

The Department of Education created the HEAIDS Strategic Framework (2006-2009) as a directive to combat the HIV/AIDS pandemic in the higher education sector (HEAIDS, 2010: 3). The framework sought to offer a comprehensive and integrated strategy to lessen the effects

of HIV/AIDS on students, staff, and the broader higher education community (HEAIDS, 2010: 3). This strategic framework was designed to address institutional policies, multi-stakeholder engagement, and the incorporation of HIV/AIDS programmes into the fundamental operations of higher education establishments (Dasheka *et al*., 2021: 98).

By 2009-2015, HEAIDS recognised the need for a holistic approach and HEAIDS built HIV/AIDS education into the academic curriculum (HEAIDS, 2016: 26). The purpose of this integration was to ensure that students not only learned about prevention but also developed a broader understanding of the social, economic, and cultural factors contributing to the pandemic (Murwira, 2020: 667). The programme also encouraged HIV/AIDS research in the academic community (HEAIDS, 2016: 26). From 2016 to 2020, HEAIDS intensified its efforts to reach young people and other vulnerable populations in the higher education sector (HEAIDS, 2016: 26). Special attention was paid to considering the unique needs of students, promoting safe sex and supporting HIV/AIDS patients (Dasheka *et al*., 2021: 98).

From 2020 to 2025, HEAIDS plans to cover response to the impact of technology (DoH, 2022: 54). HEAIDS has adopted digital platforms to disseminate information, interact with students, and provide virtual support services (DoH, 2022: 54). Moreover, HEAIDS wants to further promote more HIV/AIDS prevention education, services and programmes on campus (DoH, 2022: 54). The overall goal is to revitalise HIV/AIDS response by reducing new infections and creating an enabling environment for staff and students (DoH, 2022: 54).

The rural population of South Africa, especially young people of university age, faces various challenges that increase the risk of HIV/AIDS infection compared to urban populations (Mutinta, 2022: 2). Among students, the Eastern Cape had the highest prevalence (6.4%), followed by KwaZulu-Natal at 6.1%, while the Western Cape had the lowest overall prevalence of 0.2% (HEAIDS, 2013:14). These barriers stem from factors such as poverty, unemployment, inadequate health services, and lack of adequate health and reproductive information (Mutinta, 2022: 2). In the fight against the pandemic, it is necessary to give students comprehensive knowledge about HIV/AIDS (HEAIDS, 2013: 14).

2.5.1 Curriculum Response of Higher Education to HIV/AIDS

One of the critical strategic priorities outlined by Higher Education AIDS (HEAIDS) is the comprehensive integration of HIV/AIDS education into school and university curricula (HEAIDS, 2016: 10). This strategic initiative uses a multifaceted approach that includes education, prevention, support, and research (Murwira, 2020: 667). The main goal of this

strategy is to promote the integration of HIV/AIDS education across higher education institutions. Disciplines such as health sciences, social sciences, education, and other fields were targeted to ensure a broad and comprehensive reach (De Lange, 2014: 372). A curriculum was designed to create competent graduates in HIV/AIDS and sexual infection topics (HEAIDS, 2016: 10).

The curriculum includes a multi-level approach, which provides training and capacity building. HEAIDS (2010: 14) emphasised the provision of training and guidelines to enhance the ability of academic staff members to incorporate HIV/AIDS-related topics into their respective curricula. This initiative was crucial in ensuring that students receive accurate, up-to-date information concerning the virus, its transmission, prevention, and treatment (Murwira, 2020: 667). Through this training, academic staff became better equipped to integrate relevant content seamlessly into their teaching, contributing to a more informed and prepared graduate population (De Lange, 2014: 372).

Through community engagement efforts, institutions of higher education became actively engaged in building meaningful connections with local communities. They committed their resources to provide essential HIV/AIDS education, testing, and support (HEAIDS, 2016: 2). Through this collaboration, students and academic staff participated in outreach programmes and community-based projects and became an integral part of the collective fight against the pandemic (De Lange, 2014: 372). In addition, through the programme, universities were encouraged to advance HIV/AIDS research, from vaccine development and treatment strategies, to exploring the complex social dimensions of the pandemic (HEAIDS, 2010: 3). Research from these institutions contributes significantly to the global understanding of the pandemic and shapes policy and practice around the world (De Lange, 2014: 372). HEAIDS curriculum response was also used to support those infected with HIV/AIDS with specific services in addition to research (HEAIDS, 2016: 2). These include counselling services, substantial access to health care, and organising information campaigns aimed at breaking the social stigma and discrimination against HIV/AIDS (HEAIDS, 2010: 3).

The 2010 assessment survey of HIV/AIDS curriculum response at Higher Education Institutions (HEIs) revealed that while different institutions used different approaches to teaching HIV/AIDS, some put minimal efforts into integrating HIV/AIDS curriculum (HEAIDS, 2010: 15). In 2009, Rau was commissioned by the University Centre for Higher Education Research, Teaching and Learning (CHERTL) to conduct a study to map the

curriculum response to HIV/AIDS at Rhodes University. Rhodes University's integration initiative began in 2003. The study was conducted across all six faculties and among only academic teachers, who were all required to participate (Rau, 2009: 14). The results of the study showed several challenges in the integration of HIV/AIDS into the curriculum (Rau, 2009: 18). Rau (2009: 3) found that Rhodes University lacked HIV/AIDS specialised degrees and had relatively fewer core courses focusing on HIV/AIDS as a major. Facilities like pharmacy with some human health science had the highest percentage of curriculum integration.

This finding by Rau (2009) corresponds with Murwira's *(*2020: 669) study at the University of Venda, which found that out of the 1979 modules, only 68 covered HIV/AIDS. Fifty percent (50%) were health sciences-related modules. A study by Murwira (2020: 673) further emphasised that health sciences disciplines were the main areas where HIV/AIDS integration occurred. Given the impact of HIV/AIDS within society, health-related degree committees have found it crucial for medical students to obtain HIV/AIDS skills (Dasheka *et al*., 2021: 98). The larger percentage seen in health science is consistent with a tendency to see HIV/AIDS as a health issue rather than a social one (Murwira, 2020: 673).

The other findings in Rau's (2009) study were related to the integration of courses. According to Rau (2009: 7), the boundaries between different academic subjects can either restrict or allow the inclusion of HIV/AIDS topics into course materials. Rau (2009: 6) maintains that at Rhodes University, there are a few connections across departments for teaching and learning about HIV/AIDS. For example, the Epidemiology course in Applied Mathematics allows a focus on HIV/AIDS, but there is no such opportunity in Pure Mathematics courses (Rau, 2009: 7). The study found that academic disciplines at Rhodes University have not been reorganised into broader programmes offerings where topic boundaries are blurred or eliminated, unlike other South African universities (Rau, 2009: 7). Instead, the institution adheres to an older structure in which disciplines are grouped into distinct departments under the direction of professors (Rau, 2009: 4).

A study by Meda & Luwes (2017: 179) on the lecturers' perceptions about HIV/AIDS integration at Cape Peninsula University of Technology also found that lecturers were reluctant to include HIV/AIDS in their courses. Meda & Luwes (2017: 179) state that their negative perception about integrating HIV/AIDS education in courses like engineering influenced them to believe that the pandemic could not be addressed in their discipline. As reported by Tanga

et al. (2014: 183), resistance by lecturers to incorporate HIV/AIDS education confirms that the integration in South African universities was not implemented vigorously. This proves that the resistance shown at Rhodes University by academics was not an isolated incident. Wood (2011: 823) found that how and whether lecturers integrate HIV/AIDS education into their teaching is heavily influenced by differing views on its importance and unique ideas and perspectives on reality.

The study by Rau (2009: 14) further found that the proportion of inclusion of HIV/AIDS modules was higher in the third year by 25.2%, followed by honours at 19.1% and the first year at 17.4%. However, De Lange (2014: 372) maintains that the guidelines by HEAIDS (2010) emphasised teaching HIV/AIDS at the entry level to foster comprehensive understanding as students' progress. According to Rau (2009: 4), the relevance of HIV/AIDS knowledge was only mentioned if it aligned with the course content. As a result, the data from their findings revealed that HIV/AIDS was regularly addressed in 27% of the curricula, often covered in the curriculum at 5.5% and included at times at 26.6% (Rau, 2009: 18). However, a significant portion of 49.9% of the curriculum did not cover any HIV/AIDS-related content at all (Rau, 2009: 18).

In line with Murwira (2020) and Rau (2009), De Lange's (2014: 372) study at Nelson Mandela University revealed an inconsistency in the delivery of HIV education, with one module covering a higher percentage of curriculum coverage. The study further argued that relying on one module hindered a holistic grasp of the pandemic's complexity, emphasising the need for cross-curricular integration (De Lange, 2014: 372). Therefore, without reinforcement in various modules, students may forget the vital aspects learned, affecting their overall comprehension (Murwira, 2020: 673). According to Murwira (2020: 673), effective HIV/AIDS education must holistically address knowledge, attitudes, and skills, recognising them as pivotal factors influencing behavioural decisions. There exists a noticeable gap between HIV/AIDS knowledge and actual behavioural change, indicating the need for a more comprehensive approach to curriculum design (Dasheka *et al*., 2021: 98).

In response to HEAIDS request for curriculum integration proposals in September 2014, CHERTL led the second phase of a curriculum integration project aimed at strengthening the HIV/AIDS curriculum at Rhodes University (HEAIDS, 2016: 98). However, in 2015, the focus of the university shifted away from the HIV integration project, when Rhodes University faced an upheaval in South Africa's nationwide student protests in the #RhodesMustFall protests

(HEAIDS, 2016: 99). In a meeting about changing the university curriculum, pro-decolonisation students disrupted the process by insisting on the inclusion of the work of African scholars (HEAIDS, 2016: 99). After the protests, there were extensive discussions among Rhodes University academics, culminating in a proposal for a comprehensive campus-wide curriculum review process that was presented to the faculty and university Senate in 2016 (HEAIDS, 2016: 99). Subsequently, in the same year (2016), a new wave of protests broke out at Rhodes University campus, focusing on combating sexual violence and rape on campus, a movement later recognised as #RUReferenceList (HEAIDS, 2016: 100). A subcommittee was created to study the integration of gender-based violence (GBV) into the curriculum (HEAIDS, 2016: 100). This new challenge further moved focus away from the HIV/AIDS integration in curriculum, causing the university to address more pressing issues at the time (HEAIDS, 2016: 100).

By the end of 2016, there was a decline in the number of academic courses on HIV/AIDS at Rhodes University (HEAIDS, 2016: 100). The focus of these protests switched to alternative discourses, addressing the sexual assault and rape culture and stressing the decolonisation of the curriculum (HEAIDS, 2016: 100). As a result, the curriculum gave these new discourses more weight and attention (HEAIDS, 2016: 100).

2.5.2 The First Things First Campaign

Like the HIV/AIDS curriculum integration, the First Things First (FTF) campaign is another effort under the Higher Education and Training HIV/AIDS (HEAIDS) Programme. FTF programmes account for 96% of the total HIV/AIDS testing, Tuberculosis (TB), sexually transmitted infections (STIs), and other health and wellness interventions in higher education (HEAIDS, 2013: 14). The early detection and prevention of this infection and illnesses are a specific focus of the FTF campaign (HEAIDS, 2013: 14). With the overall objective of improving the wellbeing of young adults, the FTF programmes not only target HIV/AIDS but also tackle other concerns like diabetes, cancer, family planning, condom promotion, and voluntary medical male circumcision (VMMC) (HEAIDS, 2016: 12).

FTF also has key emphases on HIV Counselling and Testing (HCT) and prioritises first-year university students (HEAIDS, 2012: 13). First-year university students face a variety of new situations, experiences, and obstacles that call for them to exercise caution when it comes to risks such as unprotected sex, alcohol consumption, and substance abuse (DoH, 2010: 17). The First Things First campaign, which was started in 2011, is a public-private partnership that

spans twenty-three public universities in South Africa and is run by Innovative Medicines South Africa (IMSA), the Foundation for Professional Development (FPD), the Department of Higher Education and Training (DHET), the Department of Health (DoH), and the South African National AIDS Council (SANAC) (Mungroo, 2018: 13). Campus Health Clinic Support Units and Campus Health care Centres are the conduits through which the campaign is run (HEAIDS, 2016: 13).

In 2010, HEAIDS conducted the knowledge, attitudes, behaviours, and perceptions (KABP) survey among students and staff to assess knowledge, awareness of HIV/AIDS preventive measures, attitudes towards people living with HIV, sexual behaviours, and perceptions of risk. 87% of the participants were aware of HIV/AIDS and knew how it was transmitted. However, most lacked the knowledge that could keep them safe from HIV/AIDS (HEAIDS, 2014: 66). While 20.2% believed that HIV/AIDS could be cured, and only14% knew about PrEP (HEAIDS, 2012: 65). The study further revealed negative attitudes towards condom use among most respondents, with 43% saying condoms felt unnatural and changed the orgasm experience (HEAIDS, 2012: 68). This indicated that a high proportion of students and staff engaged in unprotected sex with their sex partners. The results of the KABP survey became a motivation for the First Things First campaign (HEAIDS, 2014: 13).

The FTF campaign encourages students and staff to test for HIV and to know their status to make more informed lifestyle decisions (Mungroo, 2018: 13). The FTF's goal is to support HIV Counselling and Testing (HTC) initiatives at all public higher education institutions (HEAIDS, 2012: 13). A rapid HIV test is used in the campaign (Dasheka *et al*., 2021: 98). Pre-counselling is done with the student by a health care worker, and the test entails drawing blood from the left index finger (Van Wyk & Pieterse, 2006: 26). Based on the findings of the student's HIV test, post-counselling can be conducted. The campaign supports the annual HIV/AIDS testing and TB screening in South Africa, which was part of the goal of the 2012–2016 National Strategic Plan for HIV/AIDS, STIs, and TB (HEAIDS, 2012:13).

According to FTF, the HIV Counselling and Testing (HCT)-focused campaign is crucial because it raises awareness about both the initial and ongoing testing, which helps students understand the purpose of testing and knowing their status (Mungroo, 2018: 15). The campaign also emphasises how HCT can help students make responsible and informed decisions about their sexual orientation (HEAIDS, 2012: 14). The First Things First campaign has a strong emphasis on HCT, and its organisers work hard to enlighten and educate students about it. The

First Things First campaign uses posters and pamphlets to raise awareness, educate the public, and reverse HIV/AIDS incidence (HEAIDS, 2012: 14). Mungroo (2018: 15) maintains that using various HCT campaign elements (posters, pamphlets) or HIV prevention strategies among students allows for a strong information sharing element that intersects with (a) media-based IEC (information, education, and communication); (b) peer interventions; and (c) the counselling aspect of STI treatment.

In a study on PrEP at Rhodes University, Ntshinga (2019: 23) contends that more work needs to be done by the First Things First campaign to combat HIV/AIDS, as more emphasis has been on testing only and most students do not have much information on PrEP. A study by UNAIDS (2019: 14) on the use of a combination of prevention maintained that VCT can only inform individuals of their status, and it cannot stop new infections. Further research revealed that even though most people are aware that VCT services are offered, only one in five people in South Africa who are aware have had an HIV/AIDS test (UNAIDS, 2019: 14). Restricting knowledge to only one instrument does not acknowledge that individuals differ in their risk profiles and demands (Mohlabane *et al*., 2016: 87). A study by Ntinga *et al*. (2024: 554) on PrEP among men maintain that a successful strategic approach to HIV/AIDS prevention makes use of several evidence-based strategies other than testing. The study suggests that campaigns should not only promote HIV testing in isolation; they should also include information on the entire spectrum of potential preventive strategies (Ntinga *et al*., 2024: 554).

2.6 Rhodes University HIV/AIDS Policies

Rhodes University's 2006 initial HIV/AIDS strategy focused on education and providing full support to people living with HIV/AIDS, and all programmes aimed at addressing it on and off campus (The Rhodes University HIV/AIDS Policy (RU HIV/AIDS Policy, 2006). The Rhodes University (RU) HIV/AIDS Policy states that the university recognises the extreme importance of HIV infection and AIDS and considering the consequences of the disease both in the workplace and in society in general and is committed to developing policies to address the problem (RU HIV/AIDS Policy, 2006: 3). As a result, the policy covers topics including testing, employment-related concerns, education to prevent and end prejudice, general precautions, treatment, and interactions between staff and students (Van Wyk & Pieterse, 2006: 26). This policy also acknowledges the complexity of HIV/AIDS and its profound impact on all members of the university community, including those who are infected, impacted, and not yet infected or affected (RU HIV/AIDS Policy, 2006: 4). The RU HIV/AIDS Policy has been

described as socially responsible because it includes an informed definition of HIV/AIDS, consideration of modes of transmission; condom distribution support; VCT and others at the campus clinic; and considered changes in education and curricula (Van Wyk & Pieterse, 2006: 26).

2.7 HIV/AIDS Prevention Programme Implemented at Rhodes University

2.7.1 Condom Distribution

The university promotes male condoms as one of its health-promoting initiatives. Condom distribution is one of the strategies used by many countries to prevent sexually transmitted infections (STIs) other than HIV/AIDS. Condoms are ordered by the Health Care Centre (HCC) from the Department of Health (DoH) as part of the Student HIV/AIDS Resistance Campaign (SHARC) programmes, and they are distributed through the housekeeping system (Rhodes University, 2017). They are distributed in almost all areas on campus, such as residence halls, library bathrooms, events venues bathrooms, departments bathrooms, Oppidan common room or office and lecture hall complex bathrooms (RU Student Leaders Manual, 2020: 52; Rhodes University, 2017). The SHARC is an independent student organisation, which oversees the HIV/AIDS prevention programmes at Rhodes University. Its mission is to increase the public awareness of HIV/AIDS and prevention strategies on campus and in the broader Makhanda community (Rhodes University, 2017). A group of Rhodes University students founded SHARC in 2003 in response to a dearth of knowledge about HIV/AIDS on campus (Rhodes University, 2017). This organisation runs campaigns including condom distribution, VCT, and peer education (Rhodes University, 2017).

Research by HEAIDS has, however, revealed that 14% of college and university students engage in transactional sex, prostitution, alcohol consumption, and drug use, placing them at a high risk of HIV infection and indicating a very low condom use rate (Child, 2017). As a result, the use of condoms as prevention initiatives at Rhodes University has little effect on HIV/AIDS or STIs. Research shows that most students believe that condoms do not feel natural and therefore participate in unprotected sexual intercourse (Shrader *et al.*, 2021: 616). Furthermore, most sexually active students normally use condoms as a form of birth control (Madiba & Ngwenya, 2017: 56). Condoms are usually not available, causing students to engage in sexual activity without one (Shisana *et al*., 2016: 238). The lack of condoms on campus is shared on social media on Rhodes Confession page 2023 and UCKAR Student Body page 2023:

Where can one find condoms? I can't find any in the library bathrooms. I am an Oppidan so can't get them at Res. [7]

Anyone know where I can find those Res condoms? Asking for Itshomis'zam. Plz, It's quite urgent.[8]

2.7.2 Voluntary Counselling and Testing (VCT)

In 2002, Rhodes University launched VCT service on campus, which offered free consultation to both staff and students (RU HIV/AIDS Policy, 2006: 4). VCT marked the start of the path towards comprehensive HIV and AIDS care, hence it is an essential strategy (UNAIDS, 2019). The first stage in the prevention, care, support, and treatment of HIV/AIDS is HIV testing (Mohlabane *et al*., 2016: 87). Any preventative or treatment plan must include information about a person's HIV status. Knowing one's status is critical for obtaining the necessary medical care and empowering oneself to make preventative decisions. The global effort to reduce HIV/AIDS has over the years depended on HIV testing (UNAIDS, 2019).

Knowing one's HIV status also enables individuals to choose preventative measures including condoms, voluntary medical male circumcision, and PrEP with awareness (Kalichman & Simbayi, 2003: 442). However, the fear of stigma and discrimination related to HIV testing was reported to have a negative impact on VCT (Tsope, 2020: 37). This fear and stigma acted as a barrier that negatively affects the use of VCT, which plays a role in the prevention and treatment of HIV/AIDS (Tsope, 2020: 37). Peltzer & Matseke (2013: 1012) further maintain that stigmatising the beliefs about HIV/AIDS and their associated fears of discrimination has influenced decisions to seek HIV/AIDS testing and treatment services.

2.7.3 Pre-Exposure Prophylaxis Distribution

The Rhodes University (RU) Student Leaders' Training Manual (2020: 56) mentions PrEP even though the RU HIV/AIDS Policy does not currently address it. The RU Student Leaders' Training Manual (2020: 56) has confirmed that the Rhodes University HCC, through professional nurses, administers and provides PrEP to students and staff members. This suggests that RU has embraced PrEP as one of the interventions recommended by the Higher Education and Training HIV/AIDS Programmes (HEAIDS). Ntshinga's (2019: 44) study on PrEP at Rhodes University maintains that the university does provide PrEP. However, Ntshinga

[7] Rhodes Confession page 2023 in September 2023

[8] UCKAR Student Body page 2023 in June 2023

(2019: 44) discovered there was no explicit reference to PrEP in the 2006 Rhodes University's HIV/AIDS Policy because when the policy was created, PrEP was still a relatively new concept. The policy may have indirectly addressed PrEP due to its emphasis on HIV/AIDS prevention through education and awareness campaigns (Ntshinga, 2019: 44). Ntshinga's (2019: 44) study concluded that the lack of explicit PrEP reference in the RU policy may contribute to knowledge gaps and inconsistencies observed among students and health care workers. This highlights the importance of a coherent approach to PrEP implementation and integration.

2.8 Theoretical Framework

2.8.1 Introduction

The theoretical framework for this research is based on the Health Belief Model (HBM) and the Socio-Ecological Model (SEM). Using HBM helps the researcher understand user profiles of PrEP and examines Rhodes University students' PrEP knowledge, perception, practice, and roll-out preference. For the study, HBM is integrated into the Social Ecological Model (SEM). In this way, the researcher can consider the reality of the contextual scenario surrounding the individual and acknowledge the importance of the influence of interpersonal relationships on young adults' opinions about PrEP.

2.8.2 The Origin of the Health Belief Model (HBM)

The HBM was developed in the U.S. in the early 1950s by social scientists to understand why people fail to adopt disease prevention strategies for the early prevention of disease (Rosenstock *et al.,* 1994:5; LaMorte, 2022: 2). During those times, the public health service was mainly focused on the prevention and not the treatment of disease (Rosenstock *et al.,* 1974: 328). The HBM is a social cognition model that was initially designed in response to the failure of the adoption of prevention tools (Tarkang *et al*., 2023: 2). The development of the HBM was aimed at addressing the adoption of preventive behaviours and lifestyle behaviour change (Straub, 2018: 699). The main characteristic of the Health Belief Model is its emphasis on perception and motivation (Quah, 1985: 351). The HBM can be used to evaluate the individual's abilities and motivations for health behaviour change, and understanding these factors is significant to adopting health programmes that are informed by an individual (Bokolo, 2019: 41).

Over the years, the model has been helpful as a guiding theory in studies about beliefs, concerns, and perceptions related to HIV/AIDS and PrEP's role (Felsher *et al*., 2020: 2208). The Health Belief Model has long been used to explain various health-related behaviours and outcomes, including HIV/AIDS and related prevention (Sayegh *et al*., 2016: 2). The HBM posits that for someone to take a positive health action, their perception of the barriers to the action must be low, while, their perception of perceived benefits is high, their perception of individual susceptibility is also high, and the perceived seriousness of the relevant condition is also high (White, 2004: 155).

2.8.3 The Health Belief Model Constructs

The HBM has six inter-connected constructs: perceived susceptibility, perceived seriousness, perceived benefits, perceived barriers, cues to action, and self-efficacy. This section will explain and define the listed HBM constructs.

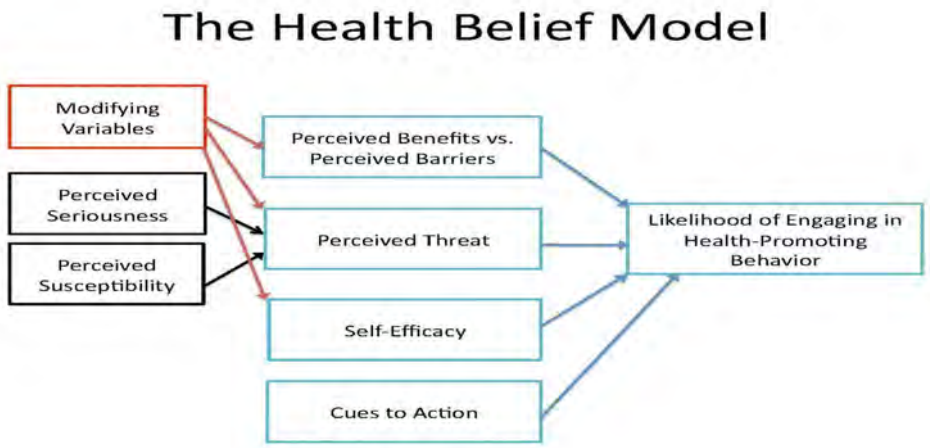

Figure 1.1 (Urich, 2017)

2.8.3.1 Perceived Susceptibility

This construct refers to an individual's subjective perception and beliefs about their likelihood of getting a health condition and if they consider themselves at risk for a particular illness (Rosenstock *et al.,* 1974: 330; Joorbonyan *et al*, 2022: 2). People's perception of the risk of getting an infection is a powerful predictor of health behaviour prevention (Zewdie *et al.,* 2022: 2). Perceived susceptibility refers to the likelihood of getting a disease or infection; hence, the HBM predicts that individuals who perceive that they are in danger will engage in behaviours that would help reduce the risk of developing the disease (Louis, 2016: 25). For this to take

place, there must be activities that increase the individual's perception of one's vulnerability to the health condition (Tarkang & Zotor, 2015: 7). This construct of the HBM supposes that a person that perceives themselves as being susceptible to a health condition is likely to engage in alternative health behaviours to limit the risk of contracting the health condition (Washburn, 2020: 3). Therefore, people who perceive themselves to be susceptible to HIV/AIDS would more likely use PrEP strategies to protect themselves (Felsher *et al*., 2020: 2210). The HBM considers personal feelings about the seriousness of contracting HIV and modifying variables that act as barriers to prevention strategies such as PrEP (Ndzinisa, 2017: 58).

2.8.3.2 Perceived Seriousness

This construct refers to the feelings that a person has concerning the seriousness of being infected by a particular illness or the consequences of leaving the illness untreated (Lo *et al*., 2018: 198; Joorbonyan *et al*, 2022: 2). According to the HBM, an individual can perceive an illness or disease seriously only when there is a perceived threat to it (Rosenstock *et al.,* 1974: 330). According to Rosenstock *et al.* (1974: 330), the degree to which the individual may take an illness or disease depends on both the degree of emotional arousal created by the thought of the disease and the difficulty it could bring to their life.

Perceived seriousness is characterised by one's belief in the severity of the health threat and its consequences (Jones *et al*., 2015: 569). It is influenced by the fear of being affected by a health problem that comes with social and health consequences (Bokolo, 2019: 112). Therefore, it can be linked to the deep-seated societal fear of contracting HIV/AIDS. Being susceptible to HIV is not enough to motivate adoption to prevention, but stating the seriousness of its consequence to one's health and social life motivates (Felsher *et al*., 2020: 2210). Even though HIV/AIDS is no longer seen as a death sentence as it was, the stigma that comes with it and the long-term effects around it may encourage it to be perceived as a severe illness (Mntungwa, 2019: 50). This has a direct influence on whether they find PrEP useful as an HIV/AIDS prevention method (Ndzinisa, 2017: 58).

2.8.3.3 Perceived Benefits of Taking Action

This construct refers to the benefits perceived to result from engaging in a particular health action to reduce a health threat (Jones *et al.,* 2015: 568). The action's direction was thought to be influenced by beliefs regarding the relative effectiveness of known alternatives in reducing

the disease threat to which the individual feels subjected (Rosenstock *et al.,* 1974: 331). Perceived benefits concern a person's perception of the effectiveness of various actions available to reduce the threat of illness or disease or to cure sickness or disease (LaMorte, 2022: 2). The idea that using PrEP will significantly reduce the chances of contracting HIV/AIDS through high-risk behaviour is the perceived benefit (Ndzinisa, 2017: 58). This entails comparing the possible effectiveness of PrEP with other prevention strategies (Jeihooni *et al*., 2016: 132). Thus, the decision to use PrEP is influenced by the belief that it can reduce the risk of HIV/AIDS (Felsher *et al*., 2020: 2210).

2.8.3.4 Perceived Barriers

Perceived barriers describe a person's feelings about the obstacles to performing a recommended health action (Hiltabiddle, 1996: 64; Joorbonyan *et al*, 2022: 2). According to Rosenstock *et al.,* (1974: 331), perceived barriers are the most critical factors in determining whether a behaviour change can be observed or not. Barriers can be tangible or intangible. Tangible barriers include a lack of resources, and intangibles are psychological, like fear, inconvenience, or stigma (Washburn, 2020: 2). These negative aspects of a health action serve as barriers to action and arouse conflicting motives of avoidance (Rosenstock *et al.,* 1974: 331).

The construct of perceived barriers relates to the belief that negative factors might hinder a health action (Rosenstock *et al.,* 1974: 330). A person who is considering PrEP use may find themselves having to weigh the benefits of PrEP use against the barriers (Whitfield, 2020: 20). The barriers to taking PrEP can be physical or psychological (Tarkang & Zotor, 2015: 7). Perceived barriers to adopting PrEP by an individuals' negative perceptions of PrEP arising from its standard use as anti-retroviral therapy, potential side effects, costs, access and stigma around PrEP and HIV/AIDS (Schwartz & Grimm, 2019: 84). Consequently, these barriers lessen the individual interest in implementing PrEP as an action tool for reducing HIV/AIDS. However, understanding these perceived barriers is essential to understand the reasons that influence the acceptability or decline of the use of PrEP as an HIV/AIDS prevention action (Ndzinisa, 2017: 46)

2.8.3.5 Cues to Action

This construct is defined as something, events, or people that can trigger an individual to a particular health action (Washburn, 2020: 3). Cues to action concern the stimulus needed to trigger the decision-making process to accept a recommended health action (Jones *et al.,* 2015: 569; Joorbonyan *et al.*, 2022: 2). The readiness to take action as a combination of perceived

susceptibility and perceived benefits can be influenced by specific cues to potentiate action, and these cues can involve bodily symptoms or environmental triggers (Rosenstock *et al*., 1994: 22).

Cues to action refer to the internal or external stimuli influencing the individual with a cue leading to the change in action (Jones *et al.,* 2015: 568). The cues could be messages that remind the individual to undertake preventative behaviour, which may include messages about PrEP's efficacy or about how one can access PrEP as well as its directives (Ndzinisa, 2017: 46). External cues may involve information or knowledge from mass media on a health issue. In contrast, internal cues include personal reflections on the need for the health action (Whitfield, 2020: 21). Communicating to the population through awareness programmes and campaigns to provide information and knowledge on PrEP and HIV/AIDS is a classic example of external cues.

2.8.3.6 Self-efficacy

The self-efficacy construct was not included in the initial development of the HBM since the model was designed for preventative health actions such as screening or immunisations, which were behaviours not deemed complex (Burke *et al*., 2010: 157). This construct was introduced in 1988 by Rosenstock as they believed it should be added to the model to strengthen its explanatory power (Jones *et al.,* 2015: 568). Self-efficacy refers to the level of a person's confidence in their ability to perform a given behaviour successfully (Tshuma *et al*., 2017: 30; LaMorte, 2022: 2). Self-efficacy can be increased with encouragement, training, and resources to support (Washburn, 2020: 3). Self-efficacy has been mistaken for outcome expectations. According to Bandura (1977: 197), the outcome can be defined as a person's perception that a specific behaviour will lead to a particular outcome. In contrast, perceived self-efficacy is when a person alters their behaviour to produce outcomes (Schwarzer, 2016: 121).

Self-efficacy is the belief that one can positively implement the behaviour necessary to produce the correct action (Bandura, 1977: 197). The cues to action exposed to an individual may leave them feeling empowered to enforce an effective HIV/AIDS prevention action without being negotiated because of the perceived seriousness of the disease (Ndzinisa, 2017: 46). Cues to action for the use of PrEP include advertisement or campaigns; the individual's perception of their own HIV/AIDS risk may influence their self-efficacy. On the other hand, the cues to action may be ignored by students or influence action or motivation towards a positive perception of PrEP.

2.8.4 Relationship among HBM constructs

Figure 1.1 shows the relationship between HBM constructs. The arrows in this diagram show the direction of the relationships among the constructs. The HBM focuses on two aspects of an individual's health and health behaviour: risk perception and behaviour evaluation (Zewdie *et al.,* 2022: 2). As illustrated in Figure 1.1, the perceived threat is experienced when an individual believes in two things: perceived susceptibility to a particular health problem and perceived severity of the consequences of the health problem. The two variables determine an individual's perception of threat and predict the likelihood of the individual engaging in a health-promoting action (Bokolo, 2019: 112). Behavioural evaluations focus on two different types of beliefs: the perceived benefits of a recommended health behaviour and the perceived barriers to performing a recommended health behaviour, and this is shown in the diagram as perceived benefits and perceived barriers (Louis, 2016: 25).

In addition, Figure 1.1 depicts that cues to action can lead to health behaviour when positive beliefs are held concerning the health problem. These cues are a range of triggers that persuade one to take a health action, for example, an individual perception of how threatening the symptom of the illness is (Bokolo, 2019: 112). The diagram also shows modifying variables that influence these constructs for an individual to choose whether to perform a health action or not. The modifying factors can be an individual's knowledge, gender, personality, age, ethnicity, and sociodemographic profile (Rosenstock *et al*., 1994: 22). The factors indirectly influence an individual's health behaviour and may differ from one person to another.

2.8.5 The Origin of the Socio-Ecological Model (SEM)

According to Muhumuza *et al*. (2021: 1730), the Socio-Ecology Model was first used in studies as a model that seeks to understand human development by Urie Bronfenbrenner[9] in the 1970s but was later acknowledged as a theory. The SEM sees an individual as the main actor, influenced by various systems surrounding them. This model encompassed health issues and argued that health is directly affected by the interaction between an individual and their society and environment (Baral *et al*., 2013: 215). Hence, the SEM is an essential tool in studies examining perception and awareness in health care (Gilbert & Walker, 2002: 652). PrEP perception and awareness come from several social and biological factors that can be seen through the lens of the model (Baldwin. 2021: 1714).

[9] A Russian-American psychologist who developed the ecological system theory of child development.

The SEM is necessary for the study to understand the students' perception as the study examines issues that influence and shape individual action. Therefore, the SEM recognises that an individual is embedded within a social system, and their interaction with these systems determines their health choices or outcomes (Gilbert & Walker, 2002: 652). From this point of view, there are four dependent levels that unite in the presentation of the Socio-Ecology Model: individual, relationship, community, and societal (Muhumuza *et al*., 2021: 1730)

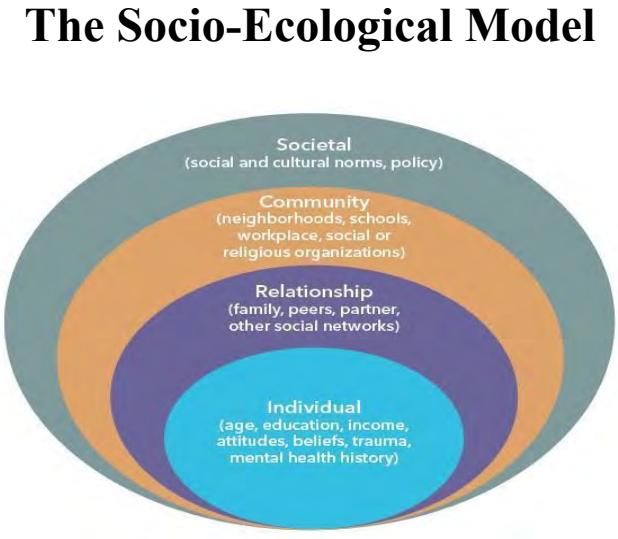

Figure 1.2 (Pinto *et al*., 2018).

2.8.6 The Socio-Ecological Model Levels

2.8.6.1 Individual

The first level argues that biology and personal history increase an individual's likelihood of engaging in risky behaviour (Scarneo *et al*.,2019: 357). Moreover, an individual's age, education, income, or substance use are also seen as some of the contributing factors (Centres of Disease Control and Prevention (CDC), 2018: 1). Strategies such as educational programmes and skills training are utilised to influence attitudes, beliefs, and behaviours to prevent risky behaviour at this level (CDC, 2022: 1).

2.8.6.2 Relationship

The second level examines the influence of close relationships and their impact in ensuring that an individual participates in risky actions (Bamuya *et al*., 2021: 3). In other words, a person's closest social circle or peers and family play a vital role in influencing behaviour and contributing to individual experiences (Latkin *et al*., 2013: 210). Therefore, any programme's

strategies, knowledge, and benefits are shared among peers and family (Muhumuza *et al*., 2021: 1730).

2.8.6.3 Community

The third level explores the setting in which social relationships occur, such as the school, workplace, and neighbourhood, which affect an individual's behaviour factors (CDC, 2018: 1). This level considers the structured forces to which a person belongs to (Baldwin. 2021: 1714). Formal and informal guidelines, such as community culture, influence the behaviour and norms of this community, and failure to engage in community procedures comes with consequences (Scarneo *et al*., 2019: 359).

2.8.6.4 Societal

The last level looks at the broad societal factor that helps create a place that is believed to encourage or inhibit positive behaviour (Lee & Park, 2021: 2). These societal factors include social norms, culture, health, economic, educational, and social policies that help to maintain economic or social inequalities between groups in society (Bronfenbrenner, 1977: 514). This level in the model comprises mainly of societal factors that have inferences on people's everyday lives and their belief systems (Lounsbury & Mitchell, 2009: 215).

2.8.7 Relationship among the SEM Levels

The SEM argues that health is directly affected by the interaction between an individual, their society, and their environment (Baral *et al*., 2013: 215; Gilbert & Walker, 2002: 652). The model says an individual has four levels of influence. Yakob & Ncama (2016: 2) say that at this first level, an individual is the main actor and social peer, and their environment influences their perception and use of PrEP. Muhumuza *et al*. (2021: 1737) study found that peer influence and social support played a vital role in the use of PrEP. The second level is whereby the community's misunderstanding, stigma, or misconception of PrEP influences how an individual perceives PrEP or HIV/AIDS (Dyson *et al*., 2018: 54). Conversely, the institutional level is the health care workers and the health care systems, how these institutions are structured will affect adherence to PrEP, whether they are user-friendly or if the health care workers are approachable (Zuma *et al*., 2022b: 2668). Finally, the structural level looks at how the accessibility of PrEP will influence the acceptance and use of PrEP (Yakob & Ncama, 2016: 2).

2.8.8 Application of the SEM on PrEP Perception

The SEM explores the influence of the environment on an individual's development (Khuzwayo & Myra, 2018: 2). Thus, the model assumes that behaviours are shaped by the interaction across various levels of influence (Gilbert & Walker, 2002: 652). Therefore, this can provide a framework for intervening in HIV prevention strategy. The individual level scrutinizes how a new event has been introduced and is captured by an individual in their way of thinking and then making sense of it through the interactions (Muhumuza *et al*., 2021: 1731). Furthermore, individuals and their environment interaction change their perception and help them identify interventions (Baral *et al*., 2013: 215). In the above context, individuals make sense of their world from their perspective, and factors in their perception facilitate their choices. The second level is an individual relationship or network influence. The type of relationship an individual has with their inner circle will determine the impact of PrEP (Zuma *et al*., 2022b: 2668). The third level is community perception; most young adults are influenced by the culture of the community they join (Baral *et al*., 2013: 215). The community's culture shapes its member's perceptions and beliefs (Lee & Park, 2021: 2). As a result, the community's understanding and attitude determine the individual perception towards PrEP (Muhumuza *et al*., 2021: 1731). The community's perception of PrEP and misconception is created within the community (Muhumuza *et al*., 2021: 1731).

In this model, the individual's awareness of and understanding, acceptance, or conforming to PrEP strategy is related to that of their community (Lee & Park, 2021: 2). For example, even when a student may be aware of PrEP treatment, they may understand it the same way as the community understands it because of societal influence on their understanding. The SEM is an essential and unified theory for studying perception because PrEP is almost not a very popular or familiar prevention method in combating HIV (Zuma *et al*., 2022b: 2668). PrEP integration as a strategy for preventing HIV may be more unrelatable than other strategies, such as reproductive health care, condoms, and post-exposure prophylaxis (PEP). All the levels inform and assist the study in understanding issues that influence the study's focus group (Muhumuza *et al*., 2021: 1731). The research aims to get informed stories of their context.

2.9 Using both the HBM and the SEM

The two models are typically used to collect data on individual behaviour (Van Gerwen *et al*., 2022: 3). Several factors influence individuals and their behaviour (Muhumuza *et al*., 2021:

1731). Behaviour change and prevention acceptability can lead to positive actions if they are flexible and tailored to individual features and characteristics (Lounsbury & Mitchell, 2009: 215). SEM examines influences that led to a health response action (Baral *et al*., 2013: 215). At the same time, the HBM was created to explain why people fail to participate in activities designed to respond to or prevent disease (Borowski & Tambling, 2015: 420). Both models complement each other because they understand that the health behaviour or the use of PrEP is affected by several interacting factors, including the perceptions of threat and benefit, knowledge, and the person's sense of capacity to perform the behaviour (self-efficacy) (Van Gerwen *et al*., 2022: 3). The study aims to investigate the students' perception, which plays an important role in both models. Both theories embrace perception and how one's perception shapes and influences their action and behaviour (Jeihooni *et al*., 2016: 132). SEM and HBM see an individual as an active person who is or can be influenced by something for them to act out a particular behaviour (Jeihooni *et al*., 2016: 132). In contrast, SEM looks at individual levels of influence and the importance of perceptual factors in understanding one's behaviour (Batchelder *et al*., 2015: 230).

2.10 Conclusion

In conclusion, the literature discussed in this chapter relates to students' perceptions of PrEP as a prevention strategy for reducing the HIV/AIDS incidence at Rhodes University. A review of the literature revealed that the prevalence of HIV/AIDS worldwide and in South Africa has shown its complexity since its discovery in the 1980s (Gilbert & Walker, 2002: 654). Several prevention methods have been discovered, leading to PrEP being used as a potential new HIV/AIDS prevention method that could reduce the prevalence of HIV/AIDS infection among young adults (UNAIDS, 2008:12). Research on the acceptability of PrEP has so far indicated that young adults' use and adherence to PrEP is very low, and studies have pushed for the inclusion of PrEP services in comprehensive health care plans (Ayieko *et al*., 2022: 1). Thus, to conclude, the chapter addresses potential obstacles to the use of PrEP as a preventative tool. Recognising and removing barriers that can hinder the use and consistency of PrEP as a youth-controlled preventive approach is crucial.

University campuses have the potential to encourage high-risk behaviours that raise the risk of HIV transmission among young adults, such as unprotected sex and substance misuse (Mutinta, 2022: 2). To protect young adults, prevent new infections, and create an informed and aware generation, HIV/AIDS must be addressed proactively in higher education settings (Duby *et al*.,

2021: 3239). This makes HEIs a prime setting for the implementation of policies, as well as prevention and treatment strategies to combat HIV/AIDS and reduce new infections (Bisnauth, 2023: 1). The dissemination of PrEP in HEIs is hampered by several factors, including access, stigma, a lack of knowledge and a lack of facilities on campus (Dasheka *et al*., 2021: 98). The Socio-Ecological and Health Belief Models are suitable frameworks for this study because they provided a thorough grasp of the individual and environmental factors impacting health behaviours (Jeihooni *et al*., 2016: 132). By integrating these models, the study captured the complex nature of HIV/AIDS prevention and identified the various barriers and facilitators surrounding PrEP among students (Jeihooni *et al*., 2016: 132).

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methodology used in the study. It discusses, the research design, study population and sampling, research instrument, ethical considerations and the methods employed for data analysis. Additionally, we address the study's limitations and elaborate on the strategies implemented to overcome them. The primary goal of this study is to examine Rhodes University students' Pre-Exposure Prophylaxis (PrEP) knowledge, perception, practice, and roll-out preference.

3.2 Research Design

A qualitative research approach using in-depth semi-structured interviews is used in this study to investigate students' perceptions of PrEP as a prevention strategy for reducing HIV/AIDS incidence at Rhodes University. According to Austin & Sutton (2014: 436), the use of a qualitative approach enables a holistic understanding of the social world, especially when the research questions are related to examining the experiences and perspectives of individuals. In this study, a qualitative approach is key to collecting reliable data in a natural environment and provides insights from the perspective of the study participants (Aspers & Corte, 2019: 157). This is necessary to achieve the primary and secondary objectives of the study. Examining students' PrEP knowledge, perceptions, practices and roll-out preference requires the consideration of factors that are inherently human and cannot be quantified or fully accounted for by official, scientific or statistical data (Willie *et al*., 2021: 4). For example, understanding the social contexts of students to be successful requires the researcher to "observe, question, record, describe, interpret and evaluate situations as they are" (Eisner, 1991: 145). The flexibility inherent in a qualitative approach allows the researcher to navigate changing patterns that ultimately lead to reliable, trustworthy, and believable conclusions (Sayer, 1992: 242).

3.3 Study Population and Sampling

These are the demographic characteristics of the study participants:

Participants: The research included registered Rhodes University students and health care workers. The study participants were categorised into three groups: ten undergraduate and five

postgraduate students and four health care workers. The diversity of the participants' backgrounds contributes to providing a thorough understanding of students' perception of HIV/AIDS prevention strategies.

Gender composition: The study includes both male and female participants. Understanding the viewpoint of individuals belonging to diverse genders is vital to comprehending the general sentiment and potential differences in perceptions about HIV/AIDS prevention strategies. Even though the primary objective of the study did not focus specifically on examining gender dynamics of PrEP among students, the information and knowledge provided by both genders during the research was more or less the same.

Knowledge focus: The participants are well informed about the HIV/AIDS prevention strategies at Rhodes University. The background knowledge is crucial for understanding their response and evaluating how successful the existing prevention strategies at the university are.

Age group: The age range of the study participants was 20-60 years old. This age range is important because it encompasses a variety of life experiences and phases, which influence perceptions and attitudes towards HIV/AIDS prevention strategies. Adding several age groups to data collection improves its depth and richness.

Study scope: The research emphasised that the findings of the study are particularly related to students' perception of PrEP as a prevention strategy for reducing HIV/AIDS incidences at Rhodes University. This scope clarifies the focus of the study and ensures that the interpretation and findings are relevant to the context of the institution setting. Even though the focus is on students, it was crucial to involve Health care workers because they have direct interaction with students on health matters. Therefore, they are well-informed to provide insights into PrEP adoption at Rhodes University.

Convenience sampling was used in this study to choose participants based on their availability (Martinez-Mesa *et al*., 2016: 327). The process of convenience sampling entails choosing people who are easily reachable and available (Garg, 2016: 643). Given the time-sensitive nature of the interviews during the exam period, convenience sampling was a pragmatic choice because it allowed the researcher to collect data from participants that were readily available on campus. This sampling technique is appropriate when participants are difficult to access and the priority is to represent a broad demographic sample rather than a statistical sample (Palinkas *et al*., 2015:534; Etikan, 2016:4).

The sampling method was used to strike a balance between the need for timely data collection with the constraints imposed by the academic calendar. The inclusion of both health care workers and students in the convenience sample was intended to obtain a variety of perspectives from the university community. Although the results of the convenience sample cannot be generalised to the wider population (Palinkas *et al*., 2015:534), this approach provided valuable preliminary information about the perceptions of students and health care workers at this university. Furthermore, its practicality and efficiency made it a suitable choice for this study at a time when exam schedules limited the number of participants available.

3.4 Instrument of Data Collection

While opting for a qualitative research approach offers a valuable opportunity to deeply explore and comprehend social phenomena in their natural settings, the efficacy of this approach heavily depends on the judicious selection of an appropriate data collection instrument (Austin & Sutton, 2014: 436). The careful alignment of the chosen instrument with the research question(s) is imperative to harness the full potential of qualitative inquiry (Al-Busaidi, 2008:11). Recognising the significance of this choice, the study opted for in-depth semi-structured interviews, considering them as a suitable means to extract rich insights into students' perceptions of PrEP in the context of reducing HIV/AIDS incidences at Rhodes University.

The key themes that were covered in the interview schedule were both the barriers and the facilitators of PrEP among students. Under barriers, the researcher explored the stigma, lack of knowledge and awareness, support systems and facilitators, factors influencing PrEP effectiveness among students, and insights on improving implementation. By using in-depth semi-structured interviews to collect data, the researcher can learn from key informants whose perspectives and experiences are pertinent to the research question (DeJonckheere & Vaughn, 2019:2). However, because data collection fell during the exam season, with the concomitant limited availability of students during this time, the researcher decided to perform one focus group interview.

The duration of each interview was flexible, adapting to the varied responses of the participants, typically ranging from one to one and a half hours. To ensure the reliability of data collection, interviews were meticulously recorded using a phone recorder app. The recorder app was rigorously tested before each session with the aim to pre-empt any malfunctions that could compromise the quality of the recordings and subsequent data analysis.

The interviews, conducted with an open-ended approach, provided a platform for participants to openly share their knowledge and perception of PrEP. One participant in the in-depth semi-structured interview indicated that they would prefer that the researcher not record but rather take notes of their responses. This method has the drawback of making the interview process take longer because the researcher needed more time to record the responses and ask follow-up questions to make sure the recording was accurate, but it also has the benefit of possibly making the participant feel more at ease and open. With this approach, participants could talk about their experiences without feeling as though a recording would always be there, which could have led to more honest answers.

3.4.1 In-Depth Semi-Structured Interviews

Ritchie & Lewis (2003:37) define in-depth semi-structured interviews as a type of qualitative research method that makes use of an interview guide with open-ended questions. Ritchie & Lewis (2003:37) further add that in-depth semi-structured interviews are used to explore deeply into the participants' perceptions and experiences while providing the flexibility to probe deeper in response to their answers. According to DeJonckheere & Vaughn (2019:2), an in-depth semi-structured interview focuses more on the participants' thoughts and feelings regarding the research topic at hand. In-depth semi-structured interviews are utilised when the researcher knows most of the questions to ask but cannot predict the replies (Kakilla, 2021:1). They provide the participants the flexibility to reply while also ensuring that the researcher will have all the information needed without forgetting any question (Josselson, 2013:82). DeJonckheere & Vaughn (2019:2) maintain that open-ended questions are good for obtaining opinions, attitudes and perceptions; they provide a more holistic, in-depth view of a situation. As a result, participants were given the freedom to voice their opinions without limiting them in what they wanted to say, which provided a lot of information (Ritchie & Lewis, 2003:37). When the participants deviated from the original question, the researcher made sure to redirect their attention back to the main question by restating the question (Josselson, 2013:82).

3.4.2 Focus Group Interviews

Rahman (2017: 110) states that focus groups are group interviews in which the researcher only serves as a facilitator and the group members are encouraged to engage with one another instead of the researcher asking each individual a question sequentially. The researcher asked open-ended questions and made sure that everyone was contributing, and no one was allowed

to dominate the conversation. Open-ended questions allowed individuals to share their thoughts and to elaborate (Al-Busaidi, 2008:11). This allowed participants to speak freely even though HIV/AIDS and PrEP are sensitive subjects. The researcher used the knowledge gained from interaction with the participants to gather subjective information from them.

3.5 Ethical Considerations

Although a well-designed data collection instrument and a well-considered sampling strategy are crucial for researchers, ethical considerations are central to all research projects (Fouka & Mantzorou, 2011: 3). This includes obtaining informed consent from participants, and ensuring confidentiality (Koulouriotis, 2011: 12). The rules of engagement were explained to the participants, and the importance of maintaining confidentiality when handling information was emphasised. In this study, both the students and the health care workers were informed of the objectives of the study and the use of the data before data collection began. The importance of ethical considerations lies in their function as social norms that guide acceptable and unacceptable behaviour (Shah, 2011: 205). Not only does this help mitigate the researcher's competencies, but it also ensures that the research conforms to the ethical standards necessary to produce valid research knowledge projects (Fouka & Mantzorou, 2011: 3; Shah, 2011: 205).

Ethical considerations were followed in the process of this study. The researcher received ethical approval from the Rhodes University Ethics Committee before starting data collection. Informed consent was actively sought from the participants at each stage of the data collection process, creating an atmosphere of mutual trust that facilitated in-depth and detailed interviews. The interviewees were assured of the confidentiality of their identity and their informed consent was obtained to record their experiences and opinions in a respectful and ethical manner.

3.6 Data Analysis

Data analysis refers to a thorough examination of the collected data to identify key themes that provide insight into the research topic (Kiger & Varpio, 2020: 847). This study used thematic analysis to interpret data. A verbatim transcript of the interview was created by carefully documenting the full dialogues from the audio recordings, a time-consuming process that allows immersion in the qualitative responses. The English transcripts were then reviewed based on guiding research questions to divide items into general themes and subthemes related to participants' knowledge, perceptions, practices, and roll-out preference.

Literature was reviewed and both the students and the health care workers involved in HIV/AIDS education and prevention were also interviewed, which enabled the triangulation of the data. Data triangulation is a qualitative research strategy that uses multiple data sources, methods, theories and literature to increase the reliability, validity, and depth of research findings (Johnson, 1997: 289; Golafshani, 2003: 603). Comparing the themes from the interview data of these two groups responding to the same phenomenon strengthened the methodological rigor and validation of key findings that reflect the viability of PrEP on campus. The study was not one-sided, the inconsistency of students' and health care workers' responses added credibility and reliability to the study. Therefore, the inclusion of the health care workers' interviews increased confidence in understanding the role of PrEP in the multifaceted response.

3.7 Challenges and Limitations

Research can have obstacles, but they are not insurmountable. It is the duty of researchers to handle these difficulties to preserve the reliability and validity of the data (Johnson, 1997: 289). Convenience sampling is one of the study's limitations: this could lead to selection bias and reduce how broadly the results can be applied. The researcher had difficulties in recruiting, especially around examination times, which caused the recruitment procedure to move slowly.

The study used data triangulation to address this restriction. To increase the validity and reliability of the results, data triangulation entails the use of several data sources or methodologies (Golafshani, 2003: 603). In this case, it meant adding a variety of viewpoints from the focus group and in-depth semi-structured interviews, in addition to the convenience sample. By combining different data sources, the study attempted to provide a more comprehensive understanding of student perceptions of PrEP, despite the limitations of convenience sampling.

During interviews with the health care workers, there was an intense sense of uneasiness and fear about HIV/AIDS information and services that they may reveal too much information and jeopardise their professional lives. This was made clear by the fact that some people declined to be recorded, while others distanced themselves from comments that appeared accurate but had the potential to compromise their job, and the inconsistencies in their response regarding the availability of PrEP among them. There was a general unwillingness to share information, particularly on official documents. In this case, the researcher offered confidentiality and anonymity while trying to build rapport with the participants. Another problem that arose was the inability of the health care workers to provide statistical data that would corroborate the

research findings. Specifically, the student's HIV/AIDS-related statistics were not available, which made it difficult to validate the findings made by the study. The lack of current statistical data from official sources hindered efforts to analyse and contextualise the qualitative data collected. The researcher used literature and publicly available data from government agencies on young adults to mitigate this issue.

3.8 Conclusion

The chapter has presented the research methodology used in the research. It has discussed the research design, study population and sampling, research instrument, ethical considerations, and the methods employed for data analysis. Convenience sampling allowed the researcher to choose individuals who fit the study's requirements and were readily available. The utilisation of in-depth semi-structured interviews enabled a comprehensive investigation of student's perceptions, experiences, and viewpoints. The focus group discussion also provided a forum for monitoring group dynamics and capturing participants' similar or contrasting viewpoints. The findings' credibility and validity were increased by the triangulation of these qualitative techniques, which included group discussions and in-depth semi-structured interviews. Although limitations existed, systems were put in place to mitigate their impact.

CHAPTER FOUR
DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter covers the presentation of the data and analysis of the findings. This study examined Rhodes University students' PrEP knowledge, perception, practice, and roll-out preference. The following two sub-goals inform this study: to assess students' awareness of Rhodes University's HIV/AIDS prevention programmes and to explore the implementation of PrEP at Rhodes University. First, the data was transcribed to allow cross-referencing between the participants and the important themes coming out of this process. Thematic analysis was also used to break down raw data and analyse it, thereby, allowing the researcher to combine participants' statements under corresponding themes. The data and findings of this research are supported with evidence from the literature review, including the theoretical frameworks that inform this study, namely, the Health Belief Model (HBM) and the Socio-Ecological Model (SEM).

The study's findings are structured into five themes and sub-themes related to the barriers and facilitators of PrEP uptake among students. The barriers and facilitators were categorised into factors at the individual, interpersonal, community, institutional, and structural levels. The individual-level barriers include PrEP knowledge and perception, PrEP as an ARV, PrEP attitude and stigma related to PrEP, and the interpersonal-level barriers include family influence and faithfulness to one sexual partner. The community-level barriers consisted of cultural barriers and the attitude of health care workers. The institutional-level barriers covered accessibility concerns, PrEP implementation, and preferred modes of prevention. The factors that encourage PrEP uptake among students also covered individual-level facilitators, which included wanting to stay HIV-negative and having a high perception of HIV risk. Interpersonal-level facilitators included care and social support for PrEP adoption. Community-level facilitators involved sufficient information on PrEP and sensitisation. Lastly, at the institutional level, is the convenience and availability which encourages PrEP uptake.

4.2 Demographic Characteristics of the Study Participants

The study included four health care workers between the age of 30 and 60 years, as well as fifteen student participants: eight women and seven men, who are between the ages of 20 and 28 years, and are considered as young adults in this study. The student sample comprised ten undergraduate and five postgraduate students enrolled across various disciplines and academic years at Rhodes University, including both South African nationals and international students. This purposive recruitment targeted diversity and other demographics to elicit a wide range of perspectives related to the research goal from students with diverse genders, backgrounds, and experiences at the university. The health care workers, who participated in the study, had information about Rhodes University's HIV/AIDS prevention strategies. Even though the primary objective of the study did not focus specifically on examining gender dynamics of PrEP among students, the information and knowledge provided by both genders during the research was more or less the same. This means that there is no difference or knowledge gap between male and female students.

4.3 Barriers to Pre-Exposure Prophylaxis Use and Implementation

4.3.1 Individual-Level Barriers

4.3.1.1 Student Attitudes and Experiences

Through in-depth semi-structured interviews and a focus group discussion, the researcher identified several individual-level barriers to PrEP implementation. The barriers to the use of PrEP include a lack of knowledge and perception of PrEP, attitudes towards PrEP, the stigma attached to PrEP, and PrEP characteristics. These findings emphasise the importance of targeted interventions and educational initiatives to overcome these barriers and increase personal engagement with PrEP.

4.3.1.2 Pre-Exposure Prophylaxis Knowledge and Perception

The COVID-19 pandemic that began in 2020 had a major impact on HIV/AIDS prevention initiatives (UNAIDS, 2022: 3; Tsope, 2020: 124). It is noteworthy that the health care workers assert that the university only introduced PrEP in 2020 despite the Higher Education and Training HIV/AIDS Programme (HEAIDS) launching PrEP in 2017. One of the health care workers stated that following training in Pretoria in late 2019, the institution became the first in Makhanda to provide PrEP in the beginning of 2020. The health care worker further

maintained that 2023 marked three years of active administration of PrEP at the university clinic. The findings by Tsope (2020) and Ntshinga (2019) confirm that PrEP was not implemented at the university despite HEAIDS's guidelines in 2017.

Numerous HIV/AIDS preventive programmes were disrupted or abandoned because of the pressing necessity to address and contain the COVID-19 virus. In contrast to HIV/AIDS preventive measures, the emphasis during this time was on spreading more understanding and information regarding COVID-19 (Tsope, 2020: 124). Consequently, the effect of the COVID-19 pandemic on HIV/AIDS prevention programmes highlights why there is a gap in knowledge among students. Ntshinga's (2019: 45) study at Rhodes University found that the staff and the students did not have a fundamental understanding of Pre-Exposure Prophylaxis.

One major obstacle to efforts to tackle the HIV/AIDS pandemic is the lack of knowledge and low perception among young adults about PrEP. Even with continuous efforts and interventions, there is still a significant knowledge and awareness gap on PrEP. Participants were asked if they knew what PrEP is: the findings suggest that there is a general awareness of PrEP among the individual's responses, but their knowledge about PrEP was limited. They had a basic understanding that PrEP involves taking pills, but they were not sure if before or after sexual activity. The primary source of information for most of them was a pamphlet by the First Things First campaign. However, they acknowledge not remembering specific details about PrEP, such as the recommended duration of use. Participants noted:

> *Last year, I stayed on campus and learned about PrEP through a First Things First campaign. A sub-warden distributed flyers inviting us to Steve Biko lawns for information on PrEP and HIV testing. At the event, I learned more about the processes of testing and counselling but gained less information about PrEP, (Participants 8).*
>
> *I feel bad about saying this but again I am like I wish we get more educated about this kind of thing, especially being in a Sub-warden position and tutor. Cause you never know when a student comes and wants more information or even says I think I might have been exposed to some risky situation, how would I advise them accordingly, when I do not have enough knowledge myself and so I only know the two females and male condoms and I have partial knowledge about the tablet (Participant 4).*
>
> *People still do not know what PrEP is for because we have heard stories that if you take PrEP, you have HIV or you are this person who is sleeping around. So, making people aware of what PrEP would save a lot of lives from getting infected, because people are really scared of PrEP and what everyone is going to say about them (Focus group participant 1).*

Most students mentioned gaining knowledge about PrEP through social media, particularly short commercial videos. Despite being aware of PrEP, there is a lack of comprehensive understanding, as evidenced by their admission of not fully grasping how PrEP works. Discussions with others seem to contribute to their knowledge about PrEP, suggesting that

information sharing, and communication plays a role in shaping their awareness. The findings are in line with the findings by Okeke *et al*. (2021: 6) which assert that there are both positive and worrying elements to young adults learning about PrEP through social media. The research concurs that social media platforms are widely used for acquiring knowledge, and the material that is disseminated is frequently inaccurate because of lack of knowledge among peers (Okeke *et al*., 2021: 6). Research by Muhumuza *et al*. (2021: 1738) further supports this by maintaining that students' knowledge of PrEP appears to be shallow, with participants acknowledging that they do not fully understand how PrEP functions. This draws attention to the possible repercussions if students just use social media to get health-related information. The gap in knowledge highlights the significance of disseminating precise information through reliable sources and encouraging knowledgeable dialogues to enhance the youth's general knowledge and perception of PrEP (Munthali *et al*., 2022: 3952). The following responses bear evidence of the limitations surrounding PrEP information obtained from social media:

> *I heard people talk about it through social media, when people are talking about sexual relationships, so that is where this PrEP is mentioned (Participant 1).*
>
> *I know the name PrEP, but not in depth. Social media introduced me to PrEP even though it can be misleading sometimes, but it was a short commercial video rather than an article (Participant 4).*

Studies repeatedly demonstrate that young adults in South Africa do not know enough about PrEP (Haffejee *et al.*, 2023b: 470; Ajayi *et al*., 2019: 3; Shamu *et al*., 2021: 6). The effective application of PrEP as a preventive intervention is hampered by this knowledge gap since people need correct information to make decisions regarding their sexual health. The results are consistent with those of Makhakhe (2021: 17), who highlights that low perception and inadequate knowledge restrict young adults who are disproportionately impacted by the pandemic from adopting PrEP as a proactive HIV prevention method. In addition, a study by Okeke *et al*. (2021:7), which examined students' understanding of PrEP among university students, showed a substantial knowledge gap among students because of the inadequate sexual health education and societal stigma related to HIV and PrEP.

From this study, it is clear that Rhodes University students need a greater understanding of PrEP and its mechanisms. This is consistent with research by Shamu *et al*. (2021) and Okeke *et al*. (2021), which shows that a barrier to PrEP uptake is a lack of knowledge about the treatment. The perceptions formed by students about PrEP are likely shaped by their lack of familiarity with the intervention (Okeke *et al*., 2021: 7). Students have a significant impact on the university environment, so they must be aware of available interventions that could help

the campus community (Haffejee *et al.*, 2023b: 470). Their response to the implementation of PrEP among students is constrained by their lack of knowledge (Haffejee *et al.*, 2023b: 470).

4.3.1.3 Health Care Workers' Attitudes and Experiences

In this study, there was a noticeable difference in the health care workers' and students' awareness of PrEP. The decline in PrEP use on campus has been attributed to lack of informed knowledge and awareness of the prevention strategy and its availability. As a result, students exhibited a relatively limited understanding of PrEP compared to the health care workers. One health care worker explained that:

> *Pre-exposure prophylaxis, or PrEP, is a medication that aids in HIV prevention. To reduce one's chances of contracting the virus, you take it before you are exposed to it. When taken as prescribed, it acts as a shield to prevent HIV infection. PrEP is a crucial tool for maintaining health, particularly for people who are more susceptible to HIV (Health care worker 1).*

Another one further added that*:*

> *First and foremost, you cannot use PrEP if you are HIV positive because PrEP is for prevention; it is a prevention of exposure to what we call HIV transmission (Health care worker 2)*

One of the participants outlined the steps that are subsequently followed when administering PrEP:

> *We initially inquire about your HIV status when considering PrEP. If your status is unknown, we strongly recommend testing. Before the test, we discuss and clarify the details of what you will be using. It is important to remember that whether your partner is HIV positive or not, as long as your test results are negative, you are still eligible for PrEP (Health care worker 3).*

The explanation provided by the participants demonstrates that Rhodes University's health care workers were knowledgeable about and conscious of the usage of PrEP. This presents a striking contrast to the student participants' previous lack of informed knowledge. However, the researcher observed inconsistencies in the information presented during an interview with the health care workers. There is a lack of consensus regarding the recommended period for taking PrEP for the first time before returning for testing, and completing the three-month PrEP course.

One health care worker said:

> *For how long does a person take PrEP before intercourse, so that one has changed it used to be 20 days, but I think it has been changed now, neh! Because they keep on changing their guidelines, it has been now changed from 20 days to 8 or 7 days (Health care worker 2).*

Another one said:

> *If your test results are negative, you qualify for PrEP. Nonetheless, during the initial 6-week window period, it is crucial to use condoms or abstain from sexual activity, even if you have initiated PrEP. Following this period, you can come back for retesting (Health care worker 4).*

In contrast, a health care worker in agreement with 6-week period, further explained that:

> *For example, if you test negative today, the result could be a false negative because you may have had unprotected sex a week before testing. Therefore, the rapid test might not detect a recent sexual infection. If the patient remains negative after 6 weeks, we provide them with three bottles of PrEP. Only after three months do we ask them to return for another blood test. This blood test will determine if there is no reaction, and we also assess the health of the kidneys and liver (Health care worker 1).*

This corresponds with the study conducted by Haffejee *et al*. (2023b: 470) among university students, which confirmed that clinical health care workers reported different opinions and practices regarding PrEP administration. Another study by Makhakhe (2021:17) further confirms that university students and health care workers are not aware of the optimal time of PrEP initiation and discontinuation. Muhumuza *et al*. (2021: 1738) support the claim by mentioning that inconsistencies in the recommendations and awareness levels of health care workers can lead to suboptimal use and consumer adherence, ultimately affecting the overall effectiveness of PrEP in preventing HIV infection.

The Health Belief Model and the Socio-Ecological Model provide a comprehensive framework for containing the HIV/AIDS pandemic, through examining PrEP knowledge and perception (Borowski & Tambling, 2015: 420). By integrating these models, we can gain an understanding of the individual and contextual factors that influence PrEP uptake, enabling the development of targeted and effective interventions (Jeihooni *et al*., 2016: 132). The Health Belief Model also emphasises cues to action, which can be seen as triggers that motivate people to act on their health (Bokolo, 2019: 41). For PrEP, health care workers, community leaders, and stakeholders can act as important facilitators, promoting PrEP uptake through knowledge and support (Ndzinisa, 2017: 46). Removing structural barriers, such as a lack of PrEP knowledge, is critical to ensuring equitable distribution (Muhumuza *et al*., 2021:1731). Government policy, health infrastructure, and community support systems contribute to PrEP implementation by shaping the Socio-Ecological landscape (Muhumuza *et al*., 2021:1731).

4.3.1.4 Pre-Exposure Prophylaxis as an Anti-Retroviral

Some students liken PrEP to antiretroviral (ARV) medication used by HIV-positive individuals, indicating a connection in their minds between the two. Participant 6 said, *"I think somebody on Facebook said PrEP and ARVs are the same; is it not the same?"*.

The studies by Nabunya *et al*. (2023: 7) and Muhumuza *et al*. (2021: 1737) support this study's findings by maintaining that PrEP is an ARV for those who are HIV-negative, however, young adults will therefore find it extremely difficult to obtain PrEP due to a lack of knowledge about

it. Bjertrup *et al*. (2021: 727) assert that the stigma associated with taking a pill for HIV/AIDS prevention, and the challenge of taking a daily pill, contributed to the discontinuation of PrEP.

The confusion about antiretroviral (ARV) medications and Pre-Exposure Prophylaxis for HIV prevention leads to misunderstandings and stigma (Coovadia *et al*., 2009: 819). Many people incorrectly link ARV uptake with misconduct and promiscuity, adding to the attitude around those who use PrEP (Nabunya *et al.,* 2023: 6). Nabunya *et al*. (2023: 6) confirm that a lot of people fear PrEP because of the ARVs in it. Similarly, the results of a study by Muhumuza *et al*. (2021: 1737) confirm this study's findings that the reason why young adults have negative attitudes and are afraid of PrEP is because it contains antiretroviral drugs (ARV). Nabunya *et al*. (2023: 6) argue that information dissemination is crucial to closing the knowledge gap between ARVs and PrEP by clearing up myths and promoting a more accurate understanding. For Muhumuza *et al.* (2021: 1737), interventions targeted at increasing awareness, knowledge and encouraging favourable attitudes around PrEP are critical and have the potential to dramatically enhance its adoption, particularly in populations with high HIV prevalence. Most students said doing away with these misconceptions is vital to promoting responsible sexual health practices and reducing the stigma associated with both ARVs and PrEP use.

> *People have a negative attitude against PrEP uptake, because of misconceptions of PrEP being made by the same company that makes ARVs for people who are HIV positive, and that people think that you are on ARVs but pretending and calling it other names. Some people believe PrEP is a disguise for HIV-positive people and do not want to be labelled (Participants 5).*
>
> *The issue around PrEP distribution, in my opinion, is that a person may come to ask to be on PrEP because they feel at risk when you conceal them so that they can be informed, and once you mention that it is an ARV that is when many do not want it anymore (Health care worker 1).*

In line with the findings in this study, Nabunya *et al*. (2023: 6) state that most participants wanted detailed information regarding the distinctions between ARVs and PrEP and were worried about taking ARVs as a preventative measure. This knowledge is important because all participants in this study said they would use and adhere to PrEP if they had enough knowledge. Misunderstandings are common, especially among people who do not know much about PrEP's workings, benefits, possible drawbacks, and anticipated results (Nabunya *et al*., 2023:6). This makes people reluctant to use PrEP and to harbour negative sentiments against it. Shamu *et al*. (2021: 8), argue that addressing concerns about PrEP as an ARV through thorough and easily available education can be crucial in boosting acceptance of the programme and encouraging positive attitudes in younger adults.

When examining the differences between the ARVs recommended for patients with HIV and PrEP, two important models to use are the Health Belief Model (HBM) and the Socio-

Ecological Model (SEM) (Jeihooni *et al*., 2016: 132). HBM facilitates the investigation of a person's perceived vulnerability to HIV, the severity of the illness, the advantages of PrEP as perceived by the individual, and possible obstacles to adherence (Tarkang & Zotor, 2015: 7). Concurrently, the Socio-Ecological Model, which emphasises interpersonal interactions and the immediate social context, enriches the analysis by considering how family, friends, and health care workers impact a person's choices about adhering to PrEP (Batchelder *et al*., 2015: 230). Researchers can obtain a thorough grasp of the complex interactions between individual beliefs and immediate societal circumstances influencing the use and efficacy of PrEP in the context of HIV/AIDS prevention by integrating information from both models at the individual level (Jeihooni *et al*., 2016: 132).

4.3.1.5 Attitudes to Pre-Exposure Prophylaxis

Participants said that PrEP is frequently considered to be intended for individuals at high-risk of HIV/AIDS, which leads to specific attitudes against the treatment. Despite these preconceptions, the students suggested that PrEP should be available to all sexually active people. They noted that primarily identifying PrEP with high-risk people increases the stigma and misconceptions about those who use it. Consistent with this study, Nabunya's *et al*. (2023: 7) study reinforces that providing PrEP to all sexually active individuals will destigmatise its usage and encourage its inclusion in HIV prevention initiatives. Munthali *et al*. (2022: 3951) also maintain that the most effective approach to normalise the use of PrEP and lessen attitudes about it is for it to be available to all sexually active people, regardless of the perceived risk.

The phrasing 'high-risk', implies and communicates contradictory messages regarding the concept of high-risk behaviour, causing ambiguity in eligibility determinations (Muhumuza *et al*., 2021: 1737). Furthermore, this supports Golub's (2018: 195) argument that a disproportionate emphasis on risk compensation is a critical feature of PrEP success. According to Muhumuza *et al.* (2021: 1738), identifying PrEP only with high-risk people may exacerbate negative perceptions and attitudes towards the drug. Even if someone could potentially benefit from PrEP, this misunderstanding might deter them from accessing or utilising it (Golub, 2018: 195).

Participants noted that:

> *I do know PrEP and I have had people talking about it and like usually like prostitutes use it, since they do such stuff of sleeping with everyone, so they take PrEP to prevent the chances of getting infected by HIV (Participant 7).*

It feels like you sleep with a lot of men or act rebelliously and misbehave when you use PrEP. PrEP can help you defend yourself even if you're not a prostitute, in my opinion. But saying PrEP is for people who are at-risk causes fear of it (Participants 16)

Everyone should take PrEP. I do not think recommendations are necessary cause now it gets limited to a certain group of people and that's where the stigma and attitude come (Participants 3).

Young people should be taught about PrEP as early as twelve years because during their senior phase kids become very excited, and things happen in their excitement, and we see that more kids are living with HIV, and by the time they are twelve they are sexually active and having sexual feelings and that is when the spread happens. If harnessed from that age, and PrEP is introduced I think it adds a lot of value and reduces attitudes (Participants 12).

Students' sentiments that PrEP should be made available to all those who are sexually active is positive and acknowledges the advantages and a desire for a more inclusive strategy, which is consistent with the HBM's emphasis on perceived benefits (Ndzinisa, 2017: 46). Additionally, the students' observations regarding the societal identification of PrEP with high-risk individuals are highlighted by introducing the SEM into the discussion (Muhumuza *et al*., 2021: 1731). The SEM highlights the impact of social and community factors on the individual's health behaviour (Muhumuza *et al*., 2021: 1731). The students emphasised the significance of addressing social norms and attitudes within their immediate social context by acknowledging that this association can contribute to attitudes, stigma, and misconceptions. This reinforces the importance of both the individual and societal levels in shaping attitudes towards PrEP (Jeihooni *et al*., 2016: 132).

4.3.1.6 Stigma Related to Pre-Exposure Prophylaxis

The stigma against HIV/AIDS in general and against people living with HIV/AIDS still exists (Coovadia *et al*., 2009: 819; Velloza *et al*., 2020: 7). Even within the context of increased community education and the inclusion of HIV/AIDS services in health care facilities as a component of all chronic illnesses, this stigma is still evident (Golub, 2018: 191). Consequently, health care workers and students were concerned that this stigma discouraged young adults from visiting facilities to start PrEP because they realised that despite many efforts, the stigma still exists in the community. Participants in the study expressed concern about the ongoing stigma surrounding HIV/AIDS and how it prevents people from getting medical care. They felt that talking freely about HIV/AIDS in the communities and on campus would decrease this stigma. Khanyile (2021:10) supports the findings by stating that the fear, prejudice, and stigma associated with the pandemic today are heightened by a lack of substantial knowledge about HIV/AIDS. These responses are a true reflection of this issue:

HIV/AIDS in society is a negative or a bad thing to have and anything associated with it is bad and I normally shy away from such conversations because I do not want to be judged. Yes, I am not informed much about HIV/AIDS or PrEP because this is an uncomfortable topic, maybe when

people have knowledge about HIV/AIDS or PrEP it is going to be easy to use PrEP but it's not an easy subject (Focus group participant 3).

South Africa has a very high rate of rape, accidents, and Gender Based-Violence (GVB), when we talk about HIV/AIDS everybody has a misconception of thinking sexual intercourse with several partners is the only source. When somebody is positive everybody thinks it's because of bad sexual decisions and this makes people afraid to talk about or consult. People think of it as a death sentence, they think they are going to die (Health care worker 4).

In support of the findings in this study, Golub (2018: 191) confirms that misconceptions regarding PrEP can lead to stigma and negative connotations, which will effectively deter people from using PrEP or collecting PrEP from health care services. Velloza *et al*. (2020: 7) further add that the stigma and misunderstandings around PrEP may discourage important populations from accepting, using, and adhering to it. During the interviews, the participants expressed their strong belief that PrEP, which is intended to prevent HIV, will also be stigmatised because it comes in the form of a tablet, is taken orally once a day, and is obtained from a clinic. They further noted that those who are not aware or do not have much information about PrEP as an HIV prevention strategy may misinterpret the concept of taking a pill as medication for those who already have the virus.

Participants noted that:

Many people do not know enough about PrEP, so there is a fear that people will assume you are already HIV positive and on ART (Focus group participant 3).

I feel like there is still a lot of stigma behind using it, so I just think even people who work at Rhodes Clinic they could provide more education awareness programmes about PrEP because I feel like there is still stigma that's why a lot of people are not familiar with it. So, I feel like everyone is afraid of what other people might say if they are using and or start using it. So, it should be normalized to everyone so that people can see that there is nothing wrong (Participant 3).

Even when I'm sick, I dislike taking pills because I do not like the taste. I also know that most people dislike taking pills on a regular basis or daily, and I am one of those people. That might be the reason for not taking PrEP, but I don't see anything else possible, or just choosing to remain ignorant (Focus group participant 2).

One important finding from this research is that over half of the participants cited the stigma around HIV/AIDS and PrEP as a major barrier that prevents people from freely discussing, thinking about, or adhering to these preventive strategies. Potential users may be unwilling or reluctant to seek information, counselling, or use PrEP due to the fear of criticism and social exclusion, which ultimately undermines the efficacy of PrEP as a vital tool in the battle against HIV (Velloza *et al*., 2020: 7).This is supported by Golub (2018: 191) who proclaims that because PrEP is an HIV/AIDS medication and contains the same medication that HIV-positive individuals take, it is socially stigmatised. Evensen & Stokke (2010: 153) also highlight that stigma plays a big role in limiting HIV prevention efforts and it acts as a barrier for adolescents to seek HIV/AIDS counselling. Furthermore, Munthali *et al*. (2022: 3951) maintain that stigma

can take many different forms, including societal preconceptions, misunderstandings, and discriminatory attitudes against those who use or are considering using PrEP. In addition, Nyblade *et al*. (2022: 8), Munthali *et al*. (2022: 3951), and Shamu *et al*. (2021: 8) highlight the negative effects of the stigma on the adoption and adherence to PrEP and HIV/AIDS prevention methods.

One could argue from the findings that the stigma associated with PrEP among students stems primarily from a lack of informed knowledge about the treatment. People may assume that those taking PrEP are HIV positive and may experience stigma because it is also an ARV (Nabunya *et al*., 2023: 6). This relates to the need for increased peer education on PrEP to dispel myths about the programme and enable more young adults to use it without facing stigma (Muhumuza *et al*., 2021: 1738).

When looking at PrEP and stigma, the HBM can be used to investigate individual attitudes and beliefs that lead to the avoidance or unwillingness to use PrEP. Understanding these elements at the individual level encourages tailored interventions that rectify misunderstandings, provide information, and highlight the benefits of PrEP for both individuals and society (Ndzinisa, 2017: 46). The socio-Ecological Model assists in identifying institutional and structural barriers that sustain societal prejudices and discrimination in the context of PrEP stigma (Muhumuza *et al*., 2021: 1731; Van Gerwen *et al*., 2022: 3). Combined, the HBM and the SEM can be used to address the social norms that support the stigma associated with PrEP. Therefore, interventions that aim to lessen the stigma and encourage the use of PrEP as a tool for HIV prevention can be more inclusive and successful if these two models are integrated (Jeihooni *et al*., 2016: 132).

4.3.2 Interpersonal Level Barriers

4.3.2.1 Family Influence

Parental and partner support for the use of PrEP is impacted by low PrEP knowledge. Participants in this study said they would take PrEP, but they were afraid their parents would learn about it and realise they were having sex. Most families and cultures discourage having sex before marriage, and participants who were under their parents' direct supervision said they would not take PrEP out of concern that their parents would find out about the pills when they are at home on vacation. The results of Muhumuza *et al*. (2021: 1731) corroborate this, as they also concur that family support and influences are crucial to young adults' experiences with

PrEP. The study by Joshi *et al*. (2021: 1) further discovered that cultural norms, which frequently discourage premarital sex, pose a barrier for some students who are concerned about receiving negative feedback and disapproval from their parents. These students' concerns about how to discreetly manage their use of PrEP at home have an impact on their readiness to adhere to the preventative strategy (Muhumuza *et al*., 2021: 1731). Ajayi *et al.* (2019: 3) support this finding by explaining that it is important to remember that family support has a significant impact on health decisions and information exposure, which in turn influences PrEP awareness, adherence, and uptake. Ajayi *et al.* (2019: 3) further maintain that people with family support have enough knowledge about PrEP, and with enough knowledge comes informed PrEP uptake.

> *Going home and coming back and taking tablets on a daily basis would be a problem. Where would I keep them, where they won't find them, where should I store the tablets? There will be war at home, I would be in trouble if they come across them. They'll start thinking that I am sleeping around and misbehaving at school (Participant 6).*
>
> *Our house is not a big house, I share a room with my older sisters. Drinking daily pills, what will I say I am drinking? I have never seen any of my sisters drinking them and now me the youngest is drinking them. I have never had a sexual conversation or pregnancy contraceptive conversation with anyone in my family, now I come home with PrEP (Participant 7).*

The SEM and HBM can be used to understand the role that family and culture play in influencing individual actions behaviour (Van Gerwen *et al*., 2022: 3). According to SEM, cultural and familial variables function at the interpersonal level and impact individual actions (Tarkang & Zotor, 2015:7). Interpersonal level is where close relationships, such as family or social networks influence an individual, which can impact individual action groups (Muhumuza *et al*., 2021:1731). Simultaneously, the HBM provides information about how students view PrEP and helps to explain how family norms, which are influenced by culture, can impact students' attitudes and behaviours about preventive strategies, especially at home (Tarkang & Zotor, 2015:7).

4.3.2.2 Faithfulness to One Sexual Partner

Participants considered not having a long-term relationship or being single as a barrier to PrEP uptake since there would be no incentive to take PrEP every day if there were no plans for sexual activity. The student participants suggested there would be no need for PrEP, for those individuals who were opting to stick with one sexual partner despite being sexually active. The uptake rates of PrEP among people who value exclusive partnerships may be impacted by this viewpoint. Nonetheless, studies by Mutinta (2022: 2) and Nabunya *et al*. (2023: 6) further revealed that people may oppose PrEP because of faithfulness or beliefs in monogamous

relationships, despite the prevalent reality that polygamy or multiple-partner relationships are common and account for a significant percentage of relationships including both men and women. This argument is further supported by UNAIDS (2017:1), which states that the majority of adults aged 15 to 49 have two or more sexual partners and lends more support to this consensus. These might have an impact on PrEP adoption and adherence.

The participants said being considered by their partner to be unfaithful or promiscuous was the reason why they did not want to take up PrEP and adhere to it. The study conducted by Munthali *et al*. (2022: 3952) revealed that certain individuals were discouraged from using PrEP due to concerns about perceived infidelity or promiscuity. The study further maintained that this highlighted the complex relationship dynamics that influence preventative health care decisions about sexual health (Munthali *et al*., 2022: 3952). These highlights how importance it is to consider both the societal factors (SEM) and individual views (HBM) when developing strategies to encourage PrEP uptake in a variety of relationship dynamics (Tarkang & Zotor, 2015:7). Participants noted that:

> *If you take PrEP people will think that you sleep with a lot of people, and your man will say, if you are faithful, why do you take PrEP (Participant 6).*
>
> *People do not want to disclose to their new partner that they have been using PrEP. When faced by all these issues most patients then start defaulting or never come back and say they are not able to take this thing because of the side effects or just vanish (Health care worker 1).*

4.3.3 Community-Level Barriers

4.3.3.1 Cultural Barriers

HIV prevention among younger and older generations is typically discouraged by cultural beliefs, which is why sex education has been extremely slow and limited in South Africa (Koch & Wehmeyer, 2021:2). The participants think that PrEP is not well known because it is not always promoted, and that Rhodes University HIV/AIDS campaigns are more invested in promoting condoms, abstinence, HIV testing, and counselling because of the culture and the discomfort of encouraging sex. This is supported by Koch & Wehmeyer (2021:2), who maintain that the goal of including sex education in the curriculum was to increase public awareness of safe sex practices and HIV/AIDS. Unfortunately, South Africa's cultural beliefs and sexual morality have prevented sex education from being offered successfully at this level (Mturi & Bechuke, 2019:136). Participants said that:

> *I got to know about PrEP when I went to inquire, otherwise, I wouldn't have known about PrEP if I had not consulted. More needs to be done, just like the way First Things First Campaign promotes testing and counselling the same thing can be done to promote PrEP (Participant 10).*

This year the only message I got from the university was for me to go test but I didn't see anything on PrEP (Participant 8).

HIV/AIDS programmes mostly focus on condoms, abstinence, testing, and counselling (Mohlabane *et al*., 2016: 87). This conservative approach reflects society's reluctance to discuss sexual health issues in public (Shrader *et al.*, 2021: 616). Findings by Shisana *et al.* (2016: 240) confirmed that the availability of condoms in South Africa continues to be a problem even with constant promotion. They further highlighted that it is difficult to prevent HIV/AIDS effectively when accessibility and promotion are at odds. There is a significant setback in the ongoing fight against HIV/AIDS if there is a concurrent lack of condoms and PrEP (Shrader *et al*., 2021: 616). Without these vital preventive measures, people have few practical means of protecting themselves from possible exposure, which exposes them to the possibility of transmission (Shrader *et al*., 2021: 616). The participants said that condoms are mainly promoted by the University yet are never available. They noted that:

But I don't know if the University is still providing condoms in the bathroom like it used to but what I know from checking a cupboard in my department they are never there. I do not know if it is only my department only or the whole University (Participant 1).

Normally because the Health Care Centre sometimes does not have enough condoms around campus. And we cannot not have sex because the university is out of condoms. Life moves on for many students (Participant 8).

4.3.3.2 Attitude of Health Care Workers

Concerns were raised by the students about the attitudes of the health care workers towards students who seek their services. This was seen as a significant obstacle since it was believed that if the health care workers treat their patients badly, it might not be conducive to collecting PrEP. The students expressed concern that the health care worker giving them PrEP could mistake them for being promiscuous or someone who has several sexual partners.

They normally act up, and their expressions prevent you from understanding them (Health care workers) or giving you a chance to ask questions (Participant 7).

Sometimes, when they give you anything, they approach or explain things to you in a very judgmental way (Participant 6).

The findings by Nyblade *et al*. (2022: 8) support this study's findings by confirming that stigma and culture in health care facilities affect young adults' access to and use of PrEP in South Africa, and that most nurses are reluctant and overreact when providing PrEP to young adults because they think they are encouraging promiscuity. Research has shown that young adults'

inability to receive services is impeded by the health care workers' judgmental views (Shamu *et al*., 2021: 8; Nyblade *et al*., 2022:8; Muhumuza *et al*., 2021: 1738).

The SEM emphasises the impact of larger social factors such as university HIV/AIDS campaigns, traditional methods due to cultural norms and discomfort around discussing sex openly (Muhumuza *et al*., 2021: 1738). On the other hand, the HBM highlights on individual beliefs about the significance of preventive measures, such as PrEP (Washburn, 2020: 3). Concerns regarding the attitudes of health care workers highlights the significance of taking interpersonal factors into account and emphasising the necessity of a welcoming health care setting to improve PrEP uptake and adherence in diverse communities (Muhumuza *et al*., 2021: 1737).

4.3.4 Institutional Level Barriers

4.3.4.1 Accessibility Concerns

HEAIDS's Strategic Plan (2020–2025) acknowledges the limitations in PrEP awareness and access. The Strategic Plan places a strong emphasis on the necessity of stepping up efforts to improve PrEP adherence and uptake among important populations such as university students (HEAIDS, 2020). However, this study did not manage to have access to any data that details university student access to PrEP. This study, therefore, reiterates the conclusion by Dasheka *et al*. (2021: 99) that HEADS general efforts and recognition of the need for increased PrEP uptake among this population imply that accessibility is still a problem that needs to be addressed.

The participants highlighted that the availability of information and knowledge about PrEP on campus was uneven and often dependent on specific initiatives. Participants emphasised that their knowledge of PrEP and its availability on campus was attained through chance encounters, instant of a widespread of information. Inequalities in the access to PrEP and access to information can lead to disparities in HIV/AIDS prevention efforts (Makhakhe, 2021: 20). Participants said that:

> *I got to know about PrEP when I went to inquire of other ways I can protect myself. Otherwise, I would not have known about PrEP if I had not consulted the HCC (Participant 10).*
>
> *I live off campus but last year I used to stay at Rosa Park Res and I think it was one of my sub-warden, who was handing out flyers for the First Things First campaign and telling us that at Steve Biko lawn they will be giving more information about PrEP……That's when I first knew about PrEP and that the university gives PrEP (Participant 8).*
>
> *I think there is enough information when you stay at Res but once you're not at Res you do not get to know about a lot of stuff. This year I have not had any developments or more information about*

> *PrEP because I no longer live at Res. Living on campus gives access to this thing, for example, condoms in Res are more accessible than anywhere else on campus (Participant 12).*

It is important to acknowledge that all participants who had been or are in a sub-warden position in this study said that they do not get any sexual health training apart from the training of how to help students handle sexual harassment, hence they did not have enough information on how to talk about PrEP to students. This reflects that information about PrEP was not visibly accessible to everyone.

Valid concerns regarding potential obstacles provided by the University Health Care Centre's operational model were also brought up during PrEP accessibility discussion on campus. Participants drew attention to the Centre's appointment-only policy, which makes it difficult to effectively serve all students. The participants stated that accessing PrEP and other preventive resources may be delayed or logistically complicated by the requirement to make appointments and allocate certain time slots. The participants recommended establishing service centres on campus exclusively for the distribution of PrEP as a proactive measure to address access. They argued that this could reduce the time limits and schedule issues associated with the typical HCC model, and this could be an easy process for obtaining PrEP. With this method, appointments would not be necessary, and students could get their PrEP without having their schedules disturbed or going through a tedious process. Participants noted that:

> *What may make it difficult for me to take PrEP is the lack of access to Rhodes's clinic, HCC is always fully booked, (Focus group participant 3).*
>
> *The other thing we need is that we need more stations or sites to help students to not have to worry about appointments. The appointment system demotivates visiting the clinic (Participant 4).*
>
> *Rhodes likes the systems that accommodate the advantaged class. The appointment system is giving first-class health care services and causes health inequalities. What happens then if I do not have data to set an appointment from my place? (Participant 2).*

The findings by Beesham *et al*. (2022) confirm this study's findings. Beesham *et al*. (2022: 2629) found that those who want to start or maintain PrEP may find it difficult because scheduling appointments is an exhausting process that adds another level of complexity to an already complex health decision. Also, Zuma *et al*. (2022a: 3) noted that the appointment procedures may cause people to lose out on opportunities or take longer to get PrEP, which could reduce the programme's efficacy in preventing HIV. Zuma *et al*. (2022a: 4) further state that to resolve this issue, there is a need for PrEP distribution models that could accommodate the different requirements and schedules of their student body.

Rhodes University's compromised access to preventive resources, such as the scarcity of PrEP and condoms, is another challenge facing the students. This problem highlights the more significant difficulties that South Africa's health care system faces, including the potential for shortages of vital medication and preventative care due to supply chain disruptions and resource limitations (Golub, 2018 :191). This argument is also supported by Makhakhe (2021: 17) and Coovadia *et al*. (2009: 819) who found that South Africa's health care system is characterised by overworked and under-resourced clinics, where establishments frequently lack the capacity to provide services to the steadily rising patient demand. The availability and accessibility of PrEP is essential for enabling students to take charge of their sexual health. However, Makhakhe (2021: 17), notes that students are left without this crucial preventive measure when PrEP supplies run short or are unavailable, which may make them more susceptible to HIV infection.

Contradictory responses between the health care workers when asked about PrEP accessibility were identified in this study. Some health care workers said that PrEP is always available at the institution, whilst others pointed to occasional shortages of PrEP in the clinic. One health care worker said: *We do not talk about PrEP on every campaign we do. Sometimes we do not want to talk about it because we do not have it at the clinic. So, we decide to wait till we have it, and we continue with the testing and counselling.* The inconsistency of the responses from individuals in the same organisation raises questions regarding the accuracy and reliability of the information given to students. According to Velloza *et al*. (2020: 7), the stigmatisation of HIV prevention techniques can be exacerbated by a lack of transparency and consistent messaging, which would make it harder for people to access and use PrEP. Mungroo (2018: 13) found that providing open information to students can empower them to make informed choices about their sexual health and seek alternate sources when required. Furthermore, Mungroo (2018: 13) found that being transparent builds a climate of open communication about HIV prevention and sexual health, further encouraging agency among students.

The importance of accessibility is also highlighted by Makhakhe (2021: 17) who argues that accessibility enables potential PrEP users to acquire sexual health treatments; hence, extending access of PrEP's reach beyond significant communities may reduce the HIV incidence rate. Additionally, according to the law of South Africa, everyone has the right to have high-quality health and well-being (Winkelman, 2022: 106). Over and above this, in accordance with Article 25 of the Universal Declaration of Human Rights (UDHR) and Article 12(1) of the International Covenant on Economic, Social, and Cultural Rights (ICESCR), the health system

in South Africa recognises access to universal health care as a human right. This emphasises how critical it is for students to have access to health initiatives (Winkelman, 2022: 106).

4.3.4.2 Pre-Exposure Prophylaxis Implementation

The students considered how they could support the implementation of PrEP on campus. In their reflection, they mentioned that the resources available to the university will help ensure the successful distribution of PrEP knowledge and use among Rhodes University students. The research participants considered informed education, awareness campaigns, and student engagement essential to PrEP implementation.

> *The university has lots of resources and a very small community. We can use the resources we have to facilitate PrEP, just like we are using those resources to promote condoms (Participant 1).*
>
> *Through raising awareness and campaigns that are student-centered and for students. On platforms that students engage in (Participant 2)*
>
> *Students involved initiatives. Research student life in Makhanda and then respond with the information (Participant 3).*

Similarly, HEAIDS (2016) found that students are crucial in helping support the implementation of PrEP. Furthermore, HEAIDS (2020) insists that universities can better tailor PrEP treatments to their student population's unique needs and concerns by integrating student-centered approaches. This will increase PrEP's accessibility and efficacy. In line with the research findings, Nabunya *et al*. (2023: 6) assert that improving PrEP might entail disseminating informed knowledge about the treatment's benefits, side effects, and accessibility through a variety of platforms, including workshops, online resources, and peer education initiatives. Furthermore, lowering stigma and misinformation about HIV prevention strategies can be accomplished by creating an environment of open communication and support where students feel comfortable discussing PrEP in public (Nabunya *et al*., 2023: 6). Consequently, individuals will benefit from PrEP, regardless of their sexual orientation or risk profile. HEAIDS (2020) also maintains that active student engagement can help drive policy changes to improve access to PrEP services on campus and within surrounding communities, ultimately contributing to the broader goal of reducing HIV transmission rates among young adults.

4.3.4.3 Mode of Prevention

Participants said that they would rather have an injection or an implant than take a pill every day. Participants acknowledged the limitations of PrEP and reported a preference for long-term PrEP methods such as injections. One participant said: *Taking PrEP on demand is difficult because sometimes you can be with your boyfriend, and you left the pills at home, and you want*

to have sex right away and you haven't been taking PrEP every day and it becomes difficult. So, the best choice would be getting an injection in advance like, will be better. PrEP is the most convenient to administer, more than other prevention instruments, such as condoms. Muhumuza *et al*. (2021: 1737) maintain that taking a daily pill does not need any last-minute preparation or disruption during intimate moments. Unlike condoms, which must be used consistently and correctly when circumstances call for it (Shrader *et al*., 2021: 616), PrEP offers a discreet and convenient method of HIV prevention (Muhumuza *et al*., 2021: 1737).

Studies by Bjertrup *et al*. (2021; 732) and Nabunya *et al*. (2023: 6) assert that the requirement to schedule and remember to take a pill daily can present challenges to consistent administration, potentially decreasing its effectiveness. According to Nabunya *et al*. (2023: 6), accepting PrEP through injections beforehand signifies an understanding of the convenience and reliability that other modes of administration can provide. The use of pills might be avoided with injectable PrEP, making it a more convenient and approachable method, especially when unexpected situations come up (Meyer-Rath *et al*., 2023: 85). However, when assessing whether injectable PrEP is a more feasible choice than oral PrEP, it is important to consider individual preferences, potential side effects, and injection frequency (Berner-Rodoreda *et al*., 2021: 3). Therefore, when distributing and promoting HIV prevention strategies, striking a balance between accessibility and efficacy is crucial to making sure that the interventions fit the different needs and lifestyles of people looking to prevent HIV from spreading in a variety of settings, including intimate ones (Nabunya *et al*., 2023: 6).

4.4 Factors that Encourage Students to Use Pre-Exposure Prophylaxis

4.4.1 Individual-Level Facilitators

The SEM and HBM place focus on an individual's view of their own susceptibility to health risks, their perception of their vulnerability to a health-related concern, and their ability to mitigate that risk (Glanz *et al*., 2008: 10). Some may not think about taking PrEP if they believe their risk of getting HIV/AIDS is minimal (Golub, 2018: 195). They would have little to no incentive to seek out preventative measures, and they would not take the required precautions to protect themselves against something they think they would not contract (Muravha *et al*., 2021:11). Although there is a significant perception of risk associated with HIV/AIDS, the students in this study are aware that prevention should be a top concern for them; nonetheless,

they have little understanding or awareness of PrEP. The study has identified two individual-level facilitators from the findings: high perception of HIV/AIDS risk and wanting to stay negative.

4.4.1.1 High Perception of HIV Risk

The participants highlighted that being aware of their vulnerability to HIV and having well-informed knowledge were crucial factors in facilitating the use of PrEP. They emphasised that hearing stories posted on Rhodes University social media student page and seeing how other students behaved created a sense of fear of contracting HIV. As a result, implementing PrEP was viewed as a chance to reassure people, telling them they could take proactive measures to protect themselves and lower their risk of infection. Participants mentioned that:

> *There is still stigma around HIV/AIDS, but I think because focus has shifted from it, people are becoming less fearful of it. Once in a while, when something happens like the person who posted on Rhodes's confession saying that they were HIV positive and had infected several students, a lot of students because of fear run to the HCC to test and seek prevention tools. Therefore, students need to know that they are at high risk (Participant 4).*

> *I do not want to say it in a gossipy way but there are some girls I know, when they go out, they meet a new guy every time they have sex with them. At that time, they did not make time to know them and do not know if they are HIV positive or negative. Or in the other cases the guy was not prepared to have sex that night and did not have a condom, so in such cases, PrEP knowledge and awareness would play an important role (Participant 6).*

> *Peer pressure is the biggest issue at Rhodes, people do a lot of things that they wouldn't do otherwise, because almost everyone is doing it. But I think stress and being alone and away from family can motivate risky bahaviour in the pursuit of getting closure. (Focus group participant 1).*

These findings are similar to other previous studies on students (Haffejee *et al.,*2023b; Bisnauth, 2023; DoH, 2010; Muravha *et al*., 2021). Haffejee *et al.* (2023b: 470) note that young adults, especially university students, are regarded as a demographic at high risk of HIV/AIDS. Bisnauth (2023: 1) further emphasises that university students are exposed to various factors that may cause them to engage in risky behaviour. Engaging in behaviours that increase the risk of HIV transmission during the university years may be influenced by peer pressure, newly discovered freedom, and the discovery of personal identities (Haffejee *et al.*, 2023b: 470). Safe sex practices may be disregarded in university settings due to several factors like relationships, social gatherings, and sexual exploration (DoH, 2010: 17). The prevalence of risky habits, such as substance abuse, at this stage of life also increases university students' vulnerability to HIV/AIDS (DoH, 2010: 17). However, in line with the findings in this study, Muravha *et al*. (2021: 13) discovered that most young adults are not using PrEP because they perceive themselves as having a low risk of contracting HIV despite a recorded high HIV prevalence among the youth.

4.4.1.2 Wanting to Stay HIV-Negative

The consideration of using PrEP may be aided by the wish to maintain an HIV-negative status. The participants in this study indicated that because of the type of sexual activities they participated in or that were prevalent in their communities, they were willing to use PrEP. Most of them believed that PrEP was a promising approach to preventing HIV/AIDS infection. Bekker *et al*. (2020:1) note that people are more likely to look into preventive methods when they realise how important it is to protect their health, and PrEP has proven to be a good alternative. A study by Okeke *et al*. (2021: 7) confirms that people prioritise their health and contribute to the larger effort to minimise HIV transmission by viewing PrEP use as a way to remain HIV-negative, which encourages a proactive and empowered approach to sexual health. Participants said that:

> *I have considered using PrEP because of the high prevalence of HIV/AIDS in my country (Participant 9).*
>
> *I know people who use PrEP and they are fine and I would without a doubt use PrEP if I feel at risk. I am focusing on my master's now, but I would consider (Participant 12).*
>
> *Yes, I have considered use, normally because the HCC sometimes does not have enough condoms around campus, and we cannot, not have sex because the university is out of condoms, life moves on for many students (Participant 5).*

Participants expressed reluctance and reservations about using condoms, citing factors such as sexual partners' distaste for them, and saw PrEP as a potential substitute for condom use. One health care worker said*: The sad reality is that most women and young women are not able to negotiate how to, and when to have sex, and when they are overpowered, they end up not using those condoms. So, we do not only promote condom use, but we also have what we call prophylaxis.* The research findings also demonstrate how most South African societal and cultural norms have given men the upper hand when it comes to sexual encounters, forcing women to bargain or negotiate safe sex (Joshi *et al.*, 2021: 1). In addition, most students engage in unprotected sexual activity because they think condoms do not feel natural (Shrader *et al*., 2021: 616).

4.4.2 Interpersonal Level Facilitators

4.4.2.1 Care and Social Support for Pre-Exposure Prophylaxis Adoption

Previously, interpersonal level barriers to PrEP adoption were discussed. It is worth noting that although family can act as barriers, they can also play an active role in PrEP adoption and

adherence. Important facilitators for PrEP uptake were identified as family, friends, and supportive partners, who provided support, care, and encouragement. According to the participants, being supported by their immediate family and friends would motivate them to use PrEP. One participant noted that: *Knowledge and fear of people or their peers knowing, lack of support from all parties, home, university, and friends, is the biggest challenge, because people are not fully informed about PrEP.* According to Ajayi *et al*. (2019: 3), family support and PrEP awareness are significantly correlated. Those with adequate family support had more awareness than those with inadequate family support. This underscores the importance of family support in health decision-making and information exposure, and the need to understand how it affects the access and distribution of PrEP (Ajayi *et al*., 2019: 3).

4.4.3 Community Level Facilitators

4.4.3.1 Sufficient Information on Pre-Exposure Prophylaxis

Several individuals mentioned that using PrEP required obtaining adequate PrEP information and sensitisation. For people to comprehend the use of PrEP, participants agreed that informed knowledge was key. These findings are similar to Shamu *et al*. (2021: 8) who maintain that getting enough knowledge becomes an essential precondition for anyone thinking about using PrEP. The dissemination of accurate and informed knowledge about PrEP promotes understanding and trust (Haffejee *et al*., 2023b: 470). Educating the public about PrEP is essential for equipping people with the information they need to make informed decisions about their sexual health (Okeke *et al*., 2021: 7). Participants noted that:

> *The word HIV/AIDS is stigma itself, now because of the stigma around HIV/AIDS, people that have HIV are given less attention as it causes fear. Therefore, knowledge about PrEP needs to be clear that PrEP is a prevention tool for people who do not have HIV, in other words PrEP is a form of support for negative people. (Participant 4)*
>
> *I would suggest for a platform where knowledge about PrEP is given, and we can have an open discussion about it and the platform can be open to students to tell their stories. (Participant 6)*
>
> *I think more knowledge is needed and PrEP should be recommended for all students because these days the youth do not necessarily have one sexual partner most of the time. And another thing is that they do not like using condoms when having sex. So, I would recommend them to use it for safety reasons, and therefore more informed knowledge is needed (Participant 7).*

4.4.4 Institutional Level Facilitators

4.4.4.1 Convenience and Availability

As said by the participants in this study, having PrEP available in locations near young adults would be very beneficial and help with PrEP uptake. Accessibility and availability, which are

related to the provision of appropriate services, were significant factors in the uptake of PrEP (Okeke *et al*., 2021: 6). Several participants mentioned that PrEP would be easily used if it was delivered as a youth-friendly service that is easy to obtain and flexible to access. In line with this study, Beesham *et al*. (2023: 1) found that young adults need to find PrEP to be youth-friendly, with comfort and ease of use in its delivery, for it to be widely accepted. A youth-friendly strategy would provide a welcoming and open environment by catering to the needs and preferences of younger adults (Nonyana *et al*., 2022: 2). Moreover, the ease of access and availability of PrEP contributes to its attractiveness by creating a user-friendly environment that promotes regular usage by those seeking efficient HIV prevention options (Beesham *et al*., 2023: 1). Participants said:

> *Access is core, we need a centre or mobile clinic that will look at such stuff. That will ensure that anyone who wants to start PrEP today can just go on campus and get PrEP (Participant 3).*
>
> *A bigger access point to PrEP, that is more convenient to students. Access to services to students is important, access point needs to be convenient for all students (Focus group participant 2)*
> .
> *PrEP should be accessible to everyone, especially first years, in a user-friendly and tailored for Rhodes's way of life (Participant 9).*

The study found that supporting student's adoption and use of PrEP requires the development of youth-friendly services and programmes, quick access through a variety of platforms, and cordial contacts with health professionals. To promote long-term adherence and stimulate PrEP uptake, efforts must be made to remove barriers like stigma and offer informed knowledge.

An increased educational effort is required for students to fully comprehend the benefits of PrEP. This method seeks to provide students with the knowledge they need to make informed choices about the efficacy of PrEP. Students can better identify their level of conviction in the success of PrEP by increasing their understanding of its potential benefits beyond preventing new HIV infections. While PrEP is recognised as a beneficial strategy in HIV reduction, students must be encouraged to make autonomous judgments regarding their support for its use. This entails creating an environment where students can evaluate the information offered without feeling pushed or compelled to use PrEP. In essence, a well-informed student body is critical for Rhodes University's successful and voluntary adoption of PrEP.

4.5 Conclusion

This chapter has presented the data and analysis of the findings. The research sought to explore the views, attitudes, and sentiments of Rhodes University students about PrEP and its function in HIV/AIDS prevention using qualitative research. The results of the analysis of the data using

the Socio-Ecological Model (SEM) and the Health Belief Model (HBM) have provided insight into the facilitators and barriers that affect the uptake of PrEP at different levels of society. Individual-level barriers such as limited PrEP knowledge and perception, stigma, and attitudes towards PrEP were identified as part of the themes and sub-themes, along with interpersonal, community, institutional, and structural-level factors. These findings greatly advance the conversation about HIV/AIDS strategies for prevention by offering important details that can be used to create focused interventions. The results highlighted ways to remove barriers and improve facilitators to encourage the students' use of PrEP. It is important then to remove barriers, which can be achieved through the identification of barriers and facilitators.

CHAPTER FIVE
CONCLUSION

The HIV/AIDS prevalence among students in higher education remains a topical issue, necessitating a comprehensive understanding of knowledge, attitudes, and potential barriers to the use of PrEP. Most university students are more vulnerable than those who are still under parental supervision (Duby *et al*., 2021: 3239), which drives them to engage in riskier behaviour (Bisnauth, 2023: 1). The study examines Rhodes University students' pre-exposure prophylaxis (PrEP) knowledge, perception, practice, and roll-out preference. Investigating PrEP perception and awareness can help to inform students' preferences for reducing HIV/AIDS incidence and further suggest a roll-out tailored to their context.

The study found a significant lack of knowledge regarding PrEP among the student population. However, participants acknowledged that they knew about other prevention measures, such as VCT and the distribution of condoms, but they had little knowledge about PrEP and its possible benefits. The knowledge gap was noted as one of the major barriers preventing students from adopting to PrEP as a viable option (Okeke *et al*., 2021: 6). The study further found that most students acknowledged that they were at high risk and embraced the necessity of PrEP promotion as an additional HIV/AIDS prevention strategy. However, because of the knowledge gap, the perceived benefits of taking PrEP were limited. It is important to note that even though the main focus of the study was not about gender dynamics, there was no gender knowledge gap between the students.

The perception of PrEP among students appears to be shaped by the stigma attached to its association with antiretroviral (ARV) medications. One health care worker said that when people realise that PrEP contains ARV, some of them become reluctant to use it. This demonstrates the necessity of better knowledge dissemination and educating people about PrEP to eliminate stigma and misconceptions (Golub, 2018: 191). Furthermore, some participants voiced concerns that false information and ignorance may cause people to believe that PrEP is only meant for groups that engage in promiscuity. This stigma may serve as a barrier, discouraging people from using PrEP as an HIV prevention strategy (Beesham *et al*., 2022: 2629).

The participants highlighted that most sexual partners do not like condoms, which makes PrEP to be a good alternative to condom use. The study found that PrEP can be effective in addressing gender inequality and women's lack of decision-making when it comes to safe sex (Montogomery *et al*., 2015: 785). Hence making PrEP an effective instrument for reducing HIV/AIDS incidence in adolescent girls and young women (Velloza *et al*., 2020: 1). Moreover, the study also found that condoms were regularly unavailable on campus, leading to students sharing their condom experiences on social media. The lack of condom availability being shared on social media highlighted the need for better access to options for prevention.

The family is considered as both a facilitator and a barrier to PrEP adoption. Some participants considered family and friends' judgmental reactions if they found out that they were taking daily pills because of their lack of knowledge. The participants further highlighted the critical role that family support plays in ensuring PrEP use and adherence. Findings from the study emphasised that an individual with enough family support had more PrEP knowledge and awareness compared to those with inadequate support. This suggests that family support is a critical factor in students' health decision-making and their exposure to vital health information (Ajayi *et al*., 2019: 3). The study also advances that family support can positively influence students' perception, knowledge, and attitude toward PrEP, and further contribute to their willingness to access and use it. Hence, understanding family influence and encouraging their involvement may be an important component of promoting PrEP use among students (Ajayi *et al*., 2019: 3).

The participants also underlined that youth-friendly programmes centred around comfort, accessibility, and flexibility are necessary for the broad acceptance and use of PrEP among young adults. The study found that convenient access and availability are important elements that add to PrEP's appeal since they encourage frequent use among individuals looking for HIV prevention strategies that are effective. The execution of a youth-focused approach that takes comfort, ease of use, and accessibility into account could greatly boost the acceptance and usage of PrEP as an HIV prevention tool among the student population (Beesham *et al*., 2023: 1).

Furthermore, the study also established that Rhodes University's HIV/AIDS Policy, which was put into effect in 2006, placed a greater priority on VCT than on comprehensive HIV/AIDS prevention measures, such as PrEP. There is a chance that this policy approach may have contributed to knowledge gaps and limited awareness of other prevention tools. Therefore, this highlights the need for the institution to review and update its HIV/AIDS policy to incorporate

a broader range of prevention tools, such as PrEP. The study also revealed that the health care workers knew about PrEP as they worked with it. However, there were inconsistencies in the information provided by the health care workers regarding the recommended period for taking PrEP before testing again and taking the three-month course. The other inconsistencies were observed when some health care workers said that PrEP was always available, while others said that there were occasional shortages. These inconsistencies raise questions about the validity of the information being disseminated. This is concerning because South Africa has one of the highest HIV/AIDS prevalence rates in the world (Dlamini, 2021: 22).

In conclusion, this study examines students' perception of PrEP as a prevention strategy for reducing HIV/AIDS incidences at Rhodes University. It relied on qualitative methodology and strategies to collect data. The study was informed by both the HBM and SEM, which complement each other to understand and address health behaviours and perceptions influencing PrEP use among students. The study found that knowledge and access to health care resources are the contributing factors to the effectiveness of HIV/AIDS prevention methods and programmes (Shamu *et al*., 2021: 7). By providing students with the knowledge and resources they need to make wise decisions about their sexual health, Rhodes University can contribute to combating HIV/AIDS in higher education.

LIST OF REFERENCES

Abdool-Karim, Q. & Abdool-Karim, S. S. (2002). The evolving HIV epidemic in South Africa. *International Journal of Epidemiology*, Vol. 31 (1), pp. 37–40.

Abdool-Karim, Q. & Baxter, C. (2016). The dual burden of gender-based violence and HIV in adolescent girls and young women in South Africa. *South African Medical Journal = Suid-Afrikaanse Tydskrif vir Geneeskunde*, Vol. 106 (12), pp. 1151–1153.

Abdool-Karim, S. S., Churchyard, G. J., Karim, Q. A. & Lawn. S. D. (2009) HIV infection and tuberculosis in South Africa: An urgent need to escalate the public health response. *Lancet*, Vol. 374 (9693), pp. 921-933.

Adeagbo, O. & Naidoo, K. (2021). Engaging the 'missing men' in the HIV treatment cascade: Creating a tailored intervention to improve men's uptake of HIV care services in rural South Africa: A Study Protocol. *International Journal of Environmental Research and Public Health*, Vol. 18 (7), pp. 1-8.

AIDSinfo. (2019). *Global data on HIV epidemiology and response*. Available at: https://aidsinfo.unaids.org/. [Accessed 20 October 2023].

Ajayi, A. I., Mudefi, E., Yusuf, M. S., Adeniyi, O. V., Rala, N. & Goon, D. T. (2019). Low awareness and use of Pre-Exposure Prophylaxis among adolescents and young adults in high HIV and sexual violence prevalence settings. *Medicine*, Vol. 98 (43), pp. 1-5.

Al-Busaidi, Z. Q. (2008). Qualitative research and its uses in health care. *Sultan Qaboos University Medical Journal*, Vol. 8 (1), pp. 11–19.

Aspers, P. & Corte, U. (2019). What is qualitative in qualitative research? *Qualitative Sociology*, Vol. 42 (2), pp. 139-160.

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*, Vol. 29 (2), pp. 102–110.

Austin, Z. & Sutton, J. (2014). Qualitative research: Getting started. *The Canadian Journal of Hospital Pharmacy*, Vol. 67 (6), pp. 436–440.

Ayieko, J., Petersen M. L., Kamya, M. R. & Havlir, D.V. (2022). PEP for HIV prevention: Are we missing opportunities to reduce new infections? *Journal of International AIDS Society*, Vol. 25 (5), pp. 1-14.

Bailey, J. L., Molino, S. T., Vega, A. D. & Badowski, M. (2017). A review of HIV Pre-Exposure Prophylaxis: The female perspective. *Infectious Diseases and Therapy*, Vol. 6 (3), pp. 363–382.

Baker, P. A. (2010). From apartheid to neoliberalism: Health equality in the post-apartheid South Africa. *International Journal of Health Services*, Vol. 40 (1), pp. 79–95.

Baldwin, A., Light, B. & Allison, W. E. (2021). Pre-Exposure Prophylaxis (PrEP) for HIV infection in cisgender and transgender women in the US: A Narrative Review of the Literature. *Archives of Sexual Behaviour*, Vol. 50 (4), pp. 1713–1728.

Bamuya, C., Correia, J. C., Brady, E. M., Beran, D., Harrington, D., Damasceno, A., Crampin, A. M., Magaia, A., Levitt, N., Davies, M. J. & Hadjiconstantinou, M. (2021). Use of

the Socio-Ecological Model to explore factors that influence the implementation of a diabetes structured education programme (EXTEND project) in Lilongwe, Malawi and Maputo, Mozambique: A qualitative study. *BMC Public Health*, Vol. 21 (1), pp. 1-11.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioural change. *Psychological Review*, Vol. 84 (2), pp. 191–215.

Baral, S. D., Poteat, T., Stromdahl, S., Wirtz, A. L., Guadamuz, T. E. & Beyrer, C. (2013). Worldwide burden of HIV in transgender women: a systematic review and meta-analysis. *The Lancet Infectious Diseases*. Vol. 13 (3), pp. 214–222

Barnighausen, K., Matse, S., Hughey, A. B., Hettema, A., Barnighausen, T. W. & McMahon, S. A. (2020). "We know this will be hard at the beginning, but better in the long term": Understanding PrEP uptake in the general population in Eswatini. *AIDS Care*, Vol. 32 (2), pp. 267–273.

Batchelder, A., Gonzalez, J., Palma, A., Schoenbaum, E. & Lounsbury, D. W. (2015). A social ecological model of syndemic risk affecting women with and at-risk for HIV in impoverished urban communities. *American Journal of Community Psychology*, Vol. 56 (4), pp. 229–240.

Bazzi, A. R., Leech, A. A., Biancarelli, D. L., Sullivan, M. & Drainoni, M. L. (2017). Experiences using Pre-Exposure Prophylaxis for safer conception among HIV serodiscordant heterosexual couples in the USA. *AIDS Patient Care and STDS*, Vol. 31 (8), pp. 348–355.

Beesham, I., Joseph Davey, D. L., Beksinska, M., Bosman, S., Smit, J. & Mansoor, L. E. (2022). Daily oral Pre-Exposure Prophylaxis (PrEP) Continuation Among Women from Durban, South Africa: Who initiated PrEP as standard of care for HIV prevention in a clinical trial? *AIDS and Behaviour*, Vol. 26 (8), pp. 2623–2631.

Beesham, I., Milford, C., Smit, J., Joseph Davey, D. L., Baeten, J. M., Heffron, R., Beksinska, M. & Mansoor, L. E. (2023). Post-trial access to and use of Pre-Exposure Prophylaxis in Durban, South Africa. *BMC Public Health*, Vol. 23 (1), pp.1-11.

Bekker, L. G., Churchyard, G., Nair, L. & Gray, G. (2020). In memoriam: Gita Ramjee. *Journal of the International AIDS Society*, Vol. 23 (5), pp.1-2.

Bekker, L. G., Giovenco, D., Baral, S., Dominguez, K., Valencia, R., Sanchez, T., McNaghten, A. D., Zahn, R., Yah, C. S., Sokhela, Z., Kaplan, R., Phaswana-Mafuya, R. N., Beyrer, C. & Sullivan, P. S. (2022). Oral Pre-Exposure Prophylaxis uptake, adherence, and adverse events among South African men who have sex with men and transgender women. *Southern African Journal of HIV Medicine*, Vol. 23 (1), pp. 1405-1419.

Bell, G. J., Ncayiyana, J., Sholomon, A., Goel, V., Zuma, K. & Emch, M. (2022). Race, place, and HIV: The legacies of apartheid and racist policy in South Africa. *Social Science & Medicine*, Vol. 296 (4), pp.1-29.

Berner-Rodoreda, A., Ngwira, E., Alhassan, Y. Chione, B., Dambe, R., Barnighausen, T., Phiri, S., Taegtmeyer, M. & Neuhann, F. (2021). Deadly, fierce, shameful: Notions of antiretroviral therapy, stigma and masculinities intersecting men's life-course in Blantyre, Malawi. *BMC Public Health,* Vol. 21 (2247), pp. 1-13.

Biello, K. B., Hosek, S., Drucker, M. T., Belzer, M., Mimiaga, M. J., Marrow, E. & Mayer, K. H. (2018). Preferences for injectable PrEP among young U.S. cisgender men and transgender women and men who have sex with men. *Archives of Sexual Behaviour*, Vol. 47 (7), pp. 2101–2107.

Bien, C. H., Patel, V. V., Blackstock, O. J., & Felsen, U. R. (2017). Reaching key populations: PrEP uptake in an urban health care system in the Bronx, New York. *AIDS and Behaviour*, Vol. 21 (5), pp. 1309– 1314.

Bisnauth, M. (2023). *Offer better HIV care to migrant women in South Africa*. University of Witwatersrand. Available at: https://www.wits.ac.za/news/latest-news/opinion/2023/2023-07/offer-better-hiv-care-to-migrant-women-in-south-africa.html. [Accessed 23 October 2023].

Bjertrup, P. J., Mmema, N., Dlamini, V., Ciglenecki, I., Mpala, Q., Matse, S., Kerschberger, B. & Wringe, A. (2021). PrEP reminds me that I am the one to take responsibility of my life: A qualitative study exploring experiences of and attitudes towards Pre-Exposure Prophylaxis use by women in Eswatini. *BMC Public Health*, Vol. 21 (1), pp. 727-734.

Blackstock, O. J., Patel, V. V., Felsen, U., Park, C. & Jain, S. (2017). Pre-Exposure Prophylaxis prescribing and retention in care among heterosexual women at a community-based comprehensive sexual health clinic. *AIDS Care*, Vol. 29 (7), pp. 866–869.

Bokolo, N. (2019). *Psychological behaviours of male learners after traditional male circumcision in Mdantsane, Eastern Cape*. Unpublished PhD Thesis. East London: University of Fort Hare.

Borowski, S. C. & Tambling, R. B. (2015). Applying the Health Belief Model to young individuals' beliefs and preferences about premarital counselling. *The Family Journal,* Vol. 23 (4), pp. 417–426.

Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist*, Vol. 32 (1), pp. 513–531.

Bruce, E. R. (2019). Proactive, reactive, sustainable: Analysing South Africa's policy and strategic framework on HIV and AIDS for higher education. *Comparative Education*, Vol. 21 (1), pp. 20-34.

Burke, B. L., Martens, A. & Faucher, E. H. (2010). Two decades of terror management theory: a meta-analysis of mortality salience research. *Personality and social psychology review: an official journal of the Society for Personality and Social Psychology*, Vol. 14 (2), pp. 155–195.

Celum, C, L., Delany-Moretlwe, S., Baeten, J. M., van der Straten, A., Hosek, S., Bukusi, E. A., McConnell, M., Barnabas, R. V. & Bekker, L. G. (2019). HIV Pre-Exposure Prophylaxis for adolescent girls and young women in Africa: from efficacy trials to delivery. *Journal of the International AIDS Society*, Vol. 22 *(*4), pp. 23-29.

Centres for Disease Control and Prevention (CDC). (2017). *HIV and AIDS timeline*. Available at: https://npin.cdc.gov/pages/hiv-and-aids-timeline [Accessed 02 June 2023].

Centres for Disease Control and Prevention (CDC). (2018). *The Social-Ecological Model: A framework for prevention*. Available at:

https://www.cdc.gov/violenceprevention/about/social-ecologicalmodel.html [Accessed 02 May 2023].

Centres for Disease Control and Prevention. (2019). *Pre-Exposure Prophylaxis (PrEP*). Available at: https://www.cdc.gov/hiv/risk/prep/index.html#:~:text=Pre%2Dexposure%20prophylaxis%20(or%20PrEP,use%20by%20at%20least%2074%25. [Accessed 02 June 2023].

Centres for Disease Control and Prevention (CDC). (2022). *Models and frameworks for the practice of community engagement*. Available at: https://www.atsdr.cdc.gov/communityengagement/pce_models.html. [Accessed 02 May 2023].

Chetty-Makkan, C. M., Grund, J. M., Muchiri, E., Price, M. A., Latka, M. H. & Charalambous, S. (2021). High risk sexual behaviours associated with traditional beliefs about gender roles among men interested in medical male circumcision in South Africa. *AIDS Research and Therapy*, Vol. 18 (1), pp. 1-9.

Child, K. (2017). HIV prevention pills are now available to university students. *Times Live*, 26 September. Available at: https://www.timeslive.co.za/news/south-africa/2017-09-26-hiv-prevention-pills-now-available-to-university-students/. [Accessed 02 June 2023]

Coovadia, H., Jewkes, R., Barron, P., Sanders, D.& Mclntyre D. (2009). The health and health of South Africa: Historical roots of the current public health challenges. *Lancet,* Vol. 374 (9692), pp. 817-834.

Dasheka, Z. T., Dube, N., Baleni, L., Seekoe, E., Katurura, A., Lubisi, N. & Goon, D. T. (2021). Exploring the view of academic staff on HIV/AIDS integration: A case study of the University of Fort Hare. *Journal of Social Aspects of HIV/AIDS Research Alliance*, Vol 18 (1), pp. 98-104.

Dayton. R. L., Fonner, V.A., Plourde, K. F., Sanyal, A., Arney, J., Orr, T., Nhamo, D., Schueller, J., Limb, A. M. Torjesen, K. (2023). A scoping review of oral Pre-Exposure Prophylaxis for cisgender and transgender adolescent girls and young women: What works and where do we go for here? *AIDS Behaviour*, Vol. 27 (10), pp. 3223-3238.

DeJonckheere, M. & Vaughn L. M. (2019). Semi-structured interviewing in primary care research: a balance of relationship and rigour. *Family Medicine and Community Health*, Vol. 7 (2), pp. 1-8.

De Lange, N. (2014) The HIV and AIDS academic curriculum in higher education. *South Africa Journal of Higher Education*, Vol. 28 (2), pp. 368–385.

Department of Health South Africa. (2010) *Integrated strategy on HIV and AIDs 2011-2015 full report*. Pretoria: Department of Health.

Department of Health South Africa. (2015). *National consolidated guidelines: For the prevention of mother-to-child transmission of HIV (PMTCT) and the management of HIV in children, adolescents and adults*. Available at: https://sahivsoc.org/Files/ART%20Guidelines%2015052015.pdf. [Accessed 28 July 2023].

Department of Health South Africa. (2016a). *Department of Health Annual Report 2015/2016.* Available at: https://www.gov.za/sites/default/files/gcis_document/201612/dohannual-report-2016-reduceda.pdf. [Accessed 28 May 2023].

Department of Health South Africa. (2016b*). National Policy on HIV Pre-Exposure Prophylaxis (PrEP) and test and treat (T&T)*. Pretoria: Government Communications and Information Systems. Available at: https://sahivsoc.org/Files/PREP%20and%20TT%20Policy%20-%20Final%20Draft%20-%205%20May%202016%20(HIV%20news).pdf. [Accessed 20 February 2024].

Department of Health South Africa. (2017). *Let our actions count: South Africa the National Strategic Plan on HIV, TB and STIs 2017 – 2022.* Available at: https://knowledgehub.health.gov.za/system/files/elibdownloads/2023-04/nsp%252520summary%2525281%252529.pdf. [Accessed 28 May 2023].

Department of Health South Africa. (2020). *National consolidated guidelines for the prevention of mother to child transmission of HIV and the management of HIV in children, adolescents, and adults*. Available: https://knowledgehub.health.gov.za/system/files/elibdownloads/2023-04/National%2520Consolidated%2520Guidelines%252030062020%2520signed%2520PRINT%2520v7.pdf. [Accessed 22 July 2023].

Department of Health South Africa. (2021). *2021 updated guidelines for the provision of oral Pre-Exposure Prophylaxis (PrEP) to persons at substantial risk of HIV infection*. Available at: https://knowledgehub.health.gov.za/system/files/elibdownloads/2022-08/PrEP%20Guidelines%20Update%2012%20%20Nov%20%202021%20Final.pdf. [Accessed 28 May 2023].

Department of Health South Africa. (2022). *Evidence reviews of the use of cabotegravir as pre-exposure prophylaxis for HIV*. Available at: https://knowledgehub.health.gov.za/system/files/elibdownloads/2023-04/Cabotegravir%20as%20PrEP%20for%20adults%20_EvidenceSummary_Final_March%202023.pdf (health.gov.za). [Accessed 22 July 2023].

Dlamini, B. L. (2021). *The communication role played by social workers in the introduction and uptake of oral Pre-Exposure Prophylaxis (Oral PrEP) in Vulindlela*. Unpublished PhD Thesis. Durban: University of KwaZulu-Natal.

Donnell, D., 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., Rees, H. & Baeten, J. M. (2021). Incorporating oral PrEP into standard prevention services for South African women: A nested interrupted time-series study. *The Lancet HIV*, Vol. 8 (8), pp. e495–e501.

Duby, Z., Bunce, B., Fowler, C., Jonas, K., Bergh, K., Govindasamy, D., Wagner, C. & Mathews, C. (2023). "These girls have a chance to be the future generation of HIV-negative": Experiences of implementing a PrEP programme for adolescent girls and young women in South Africa. *AIDS and Behaviour*. Vol. 27, pp. 134-149.

Duby, Z., Jonas, K., McClinton Appollis, T., Maruping, K., Vanleeuw, L., Kou, C. & Mathews, C. (2021). From Survival to glamour: Motivations for engaging in transactional sex and relationships among adolescent girls and young women in South Africa. *AIDS and Behaviour,* Vol. 25 (1), pp. 3238–3254.

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. *Sex Health*, Vol. 15 (6), pp. 513–521.

Dyson, Y. D., Mobley, Y., Harris, G., & Randolph, S. D. (2018). Using the Social-Ecological Model of HIV prevention to explore HIV testing Behaviours of young black college women. *The Journal of the Association of Nurses in AIDS Care,* Vol. 29 (1), pp. 53–59.

Eisner, E. W. (1991) *The enlightened eye: Qualitative inquiry and the enhancement of educational practice*. New York: Macmillan.

Etikan, I. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, Vol. 5 (4), pp. 1-4.

Evensen, J. V. & Stokke, K. (2010). United against HIV/AIDS: Politics of local governance in HIV/AIDS treatment in Lusikisiki, South Africa. *Journal Of Southern African Studies*, Vol. 36 (1), pp. 151-167.

Fadane, N. (2019). *The role of community leaders in the effective implementation of oral pre-exposure prophylaxis in Vulindlela, KwaZulu-Natal*. Unpublished Masters Thesis. Durban: University of KwaZulu-Natal.

Fan, H., Fife, K. H., Cox, D., Cox, A. D. & Zimet, G. D. (2018). Behaviour and health beliefs as predictors of HIV testing among women: A prospective study of observed HIV testing. *AIDS care*, Vol. 30 (8), pp. 1062–1069.

Felsher, M., Ziegler, E., Smith, L. R., Sherman, S. G., Amico, K. R., Fox, R., Madden, K. & Roth, A. M. (2020). An exploration of Pre-Exposure Prophylaxis (PrEP) initiation among women who inject drugs. *Archives of Sexual Behaviour*, Vol. 49, pp. 2205–2212.

Fouka, G. & Mantzorou, M. (2011). What are the major ethical issues in conducting research? Is there a conflict between the research ethics and the nature of nursing? *Health Science Journal*, Vol. 5 (1), pp. 3-14.

Fourie, C. M., van Rooyen, J. M. & Schutte, A. E. (2011). HIV infection and cardiovascular risk in black South Africans. *Cardiovascular Journal of Africa*, Vol. 22 (3), pp. 117–119.

Garg, R. (2016). Methodology for research one. *Indian Journal of Anaesthesia*, Vol. 60 (9), pp. 640–645.

Gayle, H. D. & Hill, G. L. (2001). Global impact of human immunodeficiency virus and AIDS. *Clinical Microbiology Reviews,* Vol. 14 (2), pp. 327-358.

George G., Beckett, S., Reddy, T., Govender, K., Cawood, C., Khanyile, D. & Kharsany, A. B. M. (2022) Determining HIV risk for the adolescent girls and young women (AGYW) in relationships with "blessers" and age-disparate partners: A cross-sectional survey in four districts in South Africa. *BMC Public Health*, Vol. 22 (1), pp. 1-8.

Gilbert, L. & Walker, L. (2002). HIV/AIDS in South Africa: An overview. *Cadernos de Saude Public*a, Vol. 18 (3), pp. 651-660.

Glanz, K., Rimer, B. & Viswanath, K. (2008). *Health Behaviour and Health Education: Theory, Research, and Practice*. San Francisco: John Wiley & Sons.

Golafshani, N. (2003). Understanding reliability and validity in qualitative research. *The Qualitative Report,* Vol. 1 (4), pp. 597-606.

Golub, S. A. (2018). PrEP Stigma: Implicit and explicit drivers of disparity. *Current HIV/AIDS Reports*, Vol. 15 (2), pp. 190–197.

Govender, R. D., Hashim, M. J., Khan, M. A., Mustafa, H. & Khan, G. (2021). Global epidemiology of HIV/AIDS: A resurgence in North America and Europe. *Journal of Epidemiology and Global Health*. Vol. 11 (3), pp. 296-301.

Grant, R. M., Lama, J. R., Anderson, P. L., McMahan, V., Liu, A. Y., Vargas, L., Goicochea, P., Casapía, M., Guanira-Carranza, J. V., Ramirez-Cardich, M. E., Montoya-Herrera, O., Fernández, T., Veloso, V. G., Buchbinder, S. P., Chariyalertsak, S., Schechter, M., Bekker, L. G., Mayer, K. H., Kallás, E. G. & Amico, K. R. (2010). Pre-Exposure chemoprophylaxis for HIV prevention in men who have sex with men. *The New England Journal of Medicine*, Vol. 363 (27), pp. 2587–2599.

Haffejee, F., Ducray, J., Basdav, J. & Kell, C. (2023a). Factors influencing the adoption of HIV prevention measures in low socio-economic communities of inner-city Duban, South Africa. *Journal of Social Aspects of HIV/AIDS,* Vol. 20 (1), pp.1-9.

Haffejee, F., Fasanmi-Kana, O., Ally, F., Thandar, Y. & Basdav, J. (2023b). Four years later: Do South Africans know what Pre-Exposure Prophylaxis for HIV is? *AIDS Care*, Vol. 35 (4), pp. 466–473.

HEAIDS. (2010). *HIV/AIDS prevention good practice: Strategies for public higher education institutions (HEIs) in South Africa*. Available at: https://higherhealth.ac.za/wp-content/uploads/resources/frameworks/policy_and_strategic_framework_on_hiv_and_aids_for_higher_education.pdf [Accessed 28 May 2023].

HEAIDS. (2012). *Policy and strategic framework on HIV and AIDS for higher education*. Available at: https://higherhealth.ac.za/wp-content/uploads/resources/frameworks/policy_and_strategic_framework_on_hiv_and_aids_for_higher_education.pdf [Accessed 28 May 2023].

HEAIDS (2013). *Higher education HIV/AIDS programme (HEAIDS)*. Available at: https://higherhealth.ac.za. [28 July 2023].

HEAIDS. (2014). *HIV and AIDS related knowledge, attitudes and behaviours of students and staff at South African technical and vocational education and training colleges in South Africa, 2014*. Available at: https://www.nacosa.org.za/wp-content/uploads/2016/04/KAPS_TVET-survey-summary_report.pdf. [Accessed 01 June 2023].

HEAIDS (2016). *Policy and strategic framework on HIV/AIDS for higher education*. Available at: https://higherhealth.ac.za/wp-content/uploads/resources/frameworks/policy_and_strategic_framework_on_hiv_and_aids_for_higher_education.pdf. [Accessed 01 June 2023].

HEAIDS. (2018). *University narratives: HIV curriculum integration: A unique strength in the national HIV response*. Available at: https://higherhealth.ac.za/wp-

content/uploads/resources/publications/10830_heaids_hei_case_studies_web_1.pdf [Accessed 01 June 2023].

HEAIDS. (2020). *Revised strategic plan 2020/2025*. Available at: http://www.dhet.gov.za/SiteAssets/Planing%2CPolicy%20and%20Strategy/DHET%20Revised%202020-2025%20Strat%20Plan%20.pdf. [Accessed 10 June 2023].

Hiltabiddle, S. J. (1996). Adolescent condom use, the health belief model, and the prevention of sexually transmitted disease. *Journal of Obstetric, Gynaecologic & Neonatal Nursing*, Vol. 25 (1), pp. 61-66.

Hlongwa, M., Cornell, M., Malone, S., Pitsillides, P., Little, K. & Hasen, N. (2022). Uptake and short-term retention in HIV treatment among men in South Africa: The coach Mpilo pilot project. *Global Health, Science and Practice*, Vol. 10 (1), pp. 1-7.

Hugo, J. M., Stall, R. D., Rebe, K., Egan, J. E., De Swardt, G., Struthers, H. & McIntyre, J. A. (2016). Antiretroviral therapy-based HIV prevention among a sample of men who have sex with men in Cape Town, South Africa: Use of Post-Exposure Prophylaxis and knowledge on Pre-Exposure Prophylaxis. *AIDS and Behaviour*, Vol. 20 (3), pp. 357-364.

Inghels, M., Kim, HY., Tanser, F., Hettema, A., McMahon, S. A.,Oldenburg, C. E., Matse, S., Kohler, S., Geldsetzer, P. & Barnighausen. (2022). PrEP uptake and delivery setting preferences among clients visiting six health care facilities in Eswatini. *AIDS and Behaviour,* Vol. 26 (10), pp 3345–3355.

Jamieson, L., Johnson, L. F., Nichols, B. E., Delany-Moretlwe, S., Hosseinipour, M. C., Russell, C. & Meyer-Rath, G. (2022). Relative cost-effectiveness of long-acting injectable cabotegravir versus oral Pre-Exposure Prophylaxis in South Africa based on the HPTN 083 and HPTN 084 trials: A modelled economic evaluation and threshold analysis. *The Lancet HIV*, Vol. 9 (12), pp. 857–867.

Jeihooni, A. K., Hidarnia, A., Kaveh, M. H., Hajizadeh, E. & Askari, A. (2016). Application of the Health Belief Model and Social Cognitive Theory for osteoporosis preventive nutritional behaviours in a sample of Iranian women. *Iranian Journal of Nursing and Midwifery Research*, Vol. 21 (2), pp. 131–141.

Johnson, B. R. (1997). Examining the validity structure of qualitative research. *Education*, Vol. 118 (3), pp. 282-292.

Jones, C. L., Jensen, J. D., Scherr, C. L., Brown, N. R., Christy, K. & Weaver, J. (2015). The Health Belief Model as an explanatory framework in communication research: Exploring parallel, serial, and moderated mediation. *Health Communication*, Vol. 30 (6), pp. 566–576.

Joorbonyan, H., Ghaffari, M. & Rakhshanderou, S. (2022). Peer-led theoretically designed HIV/AIDS prevention intervention among students: A case of the Health Belief Model. *BMC Public Health,* Vol. 22 (8), pp. 1-10.

Joshi, K., Lessler, J., Olawore, O., Loevinsohn, G., Bushey, S., Tobian, A. A. R. & Grabowski, M. K. (2021). Declining HIV incidence in Sub-Saharan Africa: A systematic review and meta-analysis of empirical data. *Journal of the International AIDS Society*, Vol. 24 (10), pp. 1-18.

Josselson, R. (2013). *Interviewing for qualitative inquiry: A relational approach*. New York: The Guilford Press.

Kakilla, C. (2021). *Strengths and weaknesses of semi-structured interviews in qualitative research: A critical essay.* Available at: DOI:10.20944/preprints2020.6.0491.v1. [Accessed 02 July 2023].

Kalichman, S. C. & Simbayi, L. C. (2003). HIV testing attitudes, AIDS stigma, and voluntary HIV counselling and testing in a black township in Cape Town, South Africa. *Sexually Transmitted Infections*, Vol. 79 (6), pp. 442–447.

Kapila, A., Chaudhary, S., Sharma, R. B., Vashist, H., Sisodia, S. S. & Gupta, A. (2016). A review on HIV/AIDS. *Indian Journal of Pharmaceutical and Biology Research*, Vol. 4 (3), pp. 69-73.

Karletsos, D., Greenbaum, C. R. Kobayashi, E. & McConnell, M. (2020). Willingness to use PrEP among female university students in Lesotho. *Plos One*, Vol. 15 (3), pp. 1-13.

Kayesu, I., Mayanja, Y., Nakirijja, C., Machira, Y. W., Price, M., Seeley, J. & Siu, G. (2022). Uptake of and adherence to oral pre-exposure prophylaxis among adolescent girls and young women at high risk of HIV-infection in Kampala, Uganda: A qualitative study of experiences, facilitators and barriers. *BMC Women's Health*, Vol. 22 (1), pp. 440-455.

Khanyile, S. (2021). *The roles of religious organisations in HIV/AIDS prevention among youth at Nquthu in KwaZulu-Natal, South Africa*. Unpublished Masters Thesis. Durban: University of KwaZulu-Natal.

Khuzwayo, N. & Taylor, M. (2018). Exploring the socio-ecological levels for prevention of sexual risk behaviours of the youth in uMgungundlovu District Municipality, KwaZulu-Natal. *African Journal of Primary Health Care and Family Medicine*, Vol. 10 (1), pp. 1-8.

Kiger, M. E. & Varpio, L. (2020). Thematic analysis of qualitative data: AMEE Guide No. 131. *Medical Teacher*, Vol. 42 (8), pp. 846-854.

Koch, R. & Wehmeyer, W. (2021). A systematic review of comprehensive sexuality education for South African adolescents. *The Journal of Transdisciplinary Research in South Africa*, Vol. 17 (1), pp. 1-10.

Koechlin, F.M., Fonner, V.A., Dalglish, S.L., O'Reilly, K.R., Baggaley, R.G., Grant, R.M., Rodolph, M., Hodges-Mameletzis, I. & Kennedy, C.E. (2016). Values and preferences on the use of oral Pre-Exposure Prophylaxis (PrEP) for HIV prevention among multiple populations: A systematic review of the literature. *AIDS Behaviour*, Vol. 21, pp. 1325-1335.

Koulouriotis, J. (2011). Ethical considerations in conducting research with non-native speakers. *Teaching English as a Second Language (TESL) Canada Journal*, Vol. 28 (5), pp. 1-15.

LaMorte, W. W. (2022). *The Health Belief Model*. Boston University school of Public Health. Available at: https://sphweb.bumc.bu.edu/otlt/mph-modules/sb/behavioralchangetheories/BehavioralChangeTheories2.html. [Accessed 10 June 2023].

Latif, A. S. (2020). The importance of understanding social and cultural norms in delivering quality health care: A Personal Experience Commentary. *Tropical Medicine and Infectious diseases*, Vol. 5 (1), pp. 1-8.

Latkin, C. A., German, D., Vlahov, D. & Galea, S. (2013). Neighbourhoods and HIV: A social ecological approach to prevention and care. *The American Psychologist*, Vol. 68 (4), pp. 210–224.

Lee, Y. & Park, S. (2021). Understanding of physical activity in Social Ecological perspective: Application of multilevel model. *Frontiers in Psychology*, Vol. 12, pp.1-12.

Lewis, L., Kharsany, A. B. M., Humphries, H. Maughan-Brown, B., Beckett, S., Govender, K., Cawood, C., Khanyile, D. & George, G. (2022). HIV incidence and associated risk factors in adolescent girls and young women in South Africa: A population-based cohort study. *Plos One*, Vol. 17 (12), pp 1-15.

Lo, W. L. A., Lei, D., Li, L., Huang, D. F. & Tong, K. F. (2018). The perceived benefits of an artificial intelligence-embedded mobile app implementing evidence-based guidelines for the self-management of chronic neck and back pain: Observational study. *Journal of Medical Internet Research* (*JMIR) mHealth and uHealth*, Vol. 6 (11), pp.198-214.

Louis, J. P. (2016). *Examining constructs of the Health Belief Model as predictors of Haitian men's intention regarding prostate cancer screening*. Unpublished PhD Thesis. Florida: Barry University.

Lounsbury, D. W. & Mitchell, S. G. (2009). Introduction to special issue on social ecological approaches to community health research and action. *American Journal of Community Psychology*, Vol. 44 (3), pp. 213–220.

Madiba, S. & Ngwenya, N. (2017). Cultural practices, gender inequality and inconsistent condom use increase vulnerability to HIV infection: Narratives from married and cohabiting women in rural communities in Mpumalanga province, South Africa. *Global Health Action*, Vol. 10 (2), pp. 55-62.

Makhakhe, N. F. (2021). *Let's talk about Pre-Exposure Prophylaxis: A participatory HIV prevention intervention with and for female sex workers in Durban, South Africa*. Unpublished PhD Thesis. Durban: University of KwaZulu-Natal.

Makhakhe, N. F., Sliep, Y. & Meyer-Weitz, A. (2022). Whatever is in the ARVs, is also in the PrEP challenges associated with Oral Pre-Exposure prophylaxis use among female sex workers in South Africa. *Frontiers in Public Health*, Vol. 10 (3587), pp. 1-14.

Maphumulo, W. T. & Bhengu, B. R. (2019). Challenges of quality improvement in the health care of South Africa post-apartheid: A critical review. *Curationis*, Vol. 42 (1), pp. e1–e9.

Martinez-Mesa, J., Gonzalez-Chica, D. A., Duquia, R. P., Bonamigo, R. R. & Bastos, J. L. (2016). Sampling: How to select participants in my research study? *Anais Brasileiros de Dermatologia*, Vol. 91 (3), pp. 326–330.

Masyuko, S., Mukui, I., Njathi, O., Kimani, M., Oluoch, P., Wamicwe, J., Mutegi, J., Njogo, S., Anyona, M., Muchiri, P., Maikweki, L., Musyoki, H., Bahati, P., Kyongo, J., Marwa, T., Irungu, E., Kiragu, M., Kioko, U., Ogando, J., Were, D., Bartilol, K., Sirengo, M., Mugo, N., Baeten, J.M. & Cherutich, P. (2018). Pre-exposure prophylaxis

rollout in a national public sector programme: The Kenyan case study. *Sex Health*, Vol. 15 (6), pp. 578–586.

Mavhika, M. (2019*). A critical analysis of NGOs in addressing HIV and AIDS in the context of gendered inequality: The case of Makhanda, Eastern Cape, South Africa.* Unpublished Masters Thesis. Makhanda: Rhodes University.

McIlwaine, C. & Datta, K. (2003). From feminizing to engendering development. *Gender, Place, and Culture: A Journal of Feminist Geography*, Vol. 10 (4), pp. 369-382.

Meda, L. & Luwes, N. (2017). Lecturer perceptions about integrating HIVand AIDS education into electrical engineering curriculum of an African University of Technology. *Journal of AIDS and HIV Research,* Vol. 5 (6), pp. 172-182.

Medina-Marino, A., Bezuidenhout, D., Hosek, S., Barnabas, R. V., Atujuna, M., Bezuidenhout, C., Ngwepe, P., Peters, R. P. H., Little, F., Celum, C. L., Daniels, J. & Bekker, L. G. (2021). The Community PrEP Study: A randomised control trial leveraging community-based platforms to improve access and adherence to Pre-Exposure Prophylaxis to prevent HIV among adolescent girls and young women in South Africa-study protocol. *Trials*, Vol. 22 (1), pp. 489-492.

Meyer-Rath, G., Jamieson, L. & Pillay, Y. (2023). What will it take for an injectable ARV to change the face of the HIV epidemic in high-prevalence countries? Considerations regarding drug costs and operations. *Journal of the International AIDS Society*, Vol. 26 (2), pp. 84-87.

Mfecane, S. (2008). *Living with HIV as a man: Implication for masculinity. Psychology in Society*. Available at: https://www.researchgate.net/publication/317450911_Living_with_HIV_as_a_man_Implications_for_masculinity. [Accessed 23 October 2023].

Miner, M. D., Bekker, L. G., Kredo, T., Bhagwandin, N., Corey, L. & Gray, G. E. (2021). Meeting report: South African Medical Research Council standard of care in clinical research in low and middle-income settings summit, November 2017. *Trials*, Vol. 22 (1), pp.1-8.

Miri, F. (2021). *Transactional sex among female University students: A case study of University of the Western Cape, South Africa*. Unpublished Masters Thesis. Cape Town: University of the Western Cape.

Mntungwa, M. (2019). *Knowledge and attitudes about Pre-Exposure Prophylaxis (PrEP): A look at Men Who Have Sex with Men (MSM) in the Msunduzi Local Municipality in KwaZulu-Natal.* Available at: DOI:10.13140/RG.2.2.20748.87686. [Accessed 10 June 2023].

Mohlabane, N., Tutshana, B., Peltzer, K. & Mwisongo, A. (2016). Barriers and facilitators associated with HIV testing uptake in South African health facilities offering HIV counselling and testing. *Health South Africa Gesondheid,* Vol. 21 (1), pp. 86-95.

Mokgatle, M. M., Madiba, S. & Cele, L. (2021). A comparative analysis of risky sexual behaviours, self-reported sexually transmitted infections, knowledge of symptoms and partner notification practices among male and female university students in Pretoria, South Africa. *International Journal of Environmental Research and Public health*, Vol. 18 (11), pp 1-14.

Montogomery, E.T., Van der Straten, A., Stadler, J., Hartmann, M., Magazi, B., Mathebula, F., Laborde, N. & Soto-Torres, L. (2015). Male partner influence on women's HIV prevention trial participation and use of Pre-Exposure Prophylaxis: The importance of understanding. *AIDS Behaviour*, Vol. 19 (5), pp. 784-793.

Mthembu, Z., Maharaj, P. & Rademeyer, S. (2019). "I am aware of the risks; I am not changing my behaviour": Risky sexual behaviour of university students in a high-HIV context. *African Journal of AIDS Research: AJAR*, Vol. 18 (3), pp. 244–253.

Mturi, A. J. & Bechuke, A. L. (2019). Challenges of including sex education in the life orientation programme offered by schools: The case of Mahikeng, Northwest Province, South Africa. *African Journal of Reproductive Health,* Vol. 23 (3), pp. 134–148.

Mudzingwa, E. K., de Vos, L., Atujuna, M., Fynn, L., Mugore, M., Hosek, S., Celum, C., Bekker, L. G., Daniels, J. & Medina-Marino, A. (2022). Factors influencing adolescent girls and young women's uptake of community-based PrEP services following home-based HIV testing in Eastern Cape, South Africa: A qualitative study. *AIDS and Behaviour*, Vol. 26 (11), pp. 3726–3739.

Muhumuza R., Semata, A. S., Kakande, A., Ahmed, N., Atujuna, M., Mangxilana, N., 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 Behaviour*, Vol. 50 (4), pp. 1729-1742.

Mungroo, M. (2018). *First Things First at University of KwaZulu-Natal (UKZN): Analysing visual materials and first-year students' perceptions of HIV-related campaign*. Unpublished PhD Thesis. Durban: University of KwaZulu-Natal.

Munthali, R. J., Stangl, A. L., Baron, D., Barré, I., Harvey, S., Ramskin, L., Colombini, M., Naicker, N., Kapiga, S. & Delany-Moretlwe, S. (2022). Prevalence and risk factors of PrEP use stigma among adolescent girls and young women in Johannesburg, South Africa, and Mwanza, Tanzania participating in the EMPOWER Trial. *AIDS and Behaviour*, Vol. 26 (12), pp. 3950–3962.

Muravha, T., Hoffmann, C. J., Botha, C., Maruma, W., Charalambous, S. & Chetty-Makkan, C. M. (2021). Exploring perceptions of low-risk behaviours and drivers to test for HIV among South African youth. *PloS One*, Vol. 16 (1), pp. 1-15.

Murwira, T. (2020). Analysis of HIV/AIDS integration into the academic curriculum at a selected University in South Africa. *The Open Public Health Journal*, Vol. 13 (1), pp. 667-676.

Mutinta, G. (2022). Knowledge of HIV and AIDS and predictors among students at Nelson Mandela University in South Africa. *Journal of AIDS and Clinical Research*, Vol. 13 (9), pp. 1-11.

Nabunya, R., Karis, V. M. S., Nakanwagi, L. J., Mukisa, P. & Muwanguzi, P. A. (2023). Barriers and facilitators to oral PrEP uptake among high-risk men after HIV testing at workplaces in Uganda: A qualitative study. *BMC Public Health*, Vol. 23 (1), pp. 1-13.

Naidoo, I., Takatshana, S., Sewpaul, R., Jooste, S., Siyanai, Z., Maseko, G., Moyo, S., Zuma, K., Mabaso, M. & Zungu, N. (2022). Past and current status of adolescents living with HIV in South Africa, 2005-2017. *BMC Research Notes*, Vol. 15 (1), pp. 1-32.

Ndzinisa, N. T. (2017). *Understanding user profiles for oral PrEP uptake: A qualitative study with adolescent girls, young women and men in Vulindlela, South Africa.* Unpublished Masters Thesis. Durban: University of KwaZulu-Natal.

Nicol, E., Mehlomakulu, V., Jama, N. A., Hlongwa, M., Basera, W., Pass, D. & Bradshaw, D. (2023). Health care provider perceptions on the implementation of the universal test-and-treat policy in South Africa: A qualitative inquiry. *BMC Health Services Research*, Vol. 23 (1), pp 1-11.

Nonyana, N. M., Matete, M., Lebetkin, E., Yacobson, I., Strachan, M., Ramapepe, M. A., Malkin, M. & Chakare, T. (2022). "PrEP should be available all the time and everywhere": A qualitative assessment of family planning and PrEP integration in Lesotho. *Frontiers in Reproductive Health*, Vol 4, pp. 1-16.

Ntinga, X., Isehunwa, O. O., Msimango, L. I., Smith, P. M., Matthews, L. T. & Van Heerden, A. (2024). Perceptions of Pre-exposure Prophylaxis (PrEP) for HIV prevention among men living with HIV in the context of reproductive goals in South Africa: A qualitative study. *BMC Public Health*, Vol. 24 (1), pp. 553-561.

Ntshinga, T. (2019). *A sociological study to explore the knowledge of Pre-Exposure Prophylaxis at Rhodes University*. Unpublished Masters Thesis. Makhanda: Rhodes University.

Nyblade, L., Ndirangu, J. W., Speizer, I. S., Browne, F. A., Bonner. C. P., Minnis, A., Kline, T. L., Ahmed, K., Howard, B, N., Cox, E, N., Rinderle, A. & Wechsberg, W, M. (2022). Stigma in the health clinic and implications for PrEP access and use by adolescent girls and young women: Conflicting perspectives in South Africa. *BMC Public Health*, Vol. 22 (1), pp. 1-14.

Okeke, N. L., McLaurin, T., Gilliam-Phillips, R., Wagner, D. H., Barnwell, V. J., Johnson, Y. M., James, O., Webb, P. B., Parker, S. D., Hill, B., McKellar, M. S. & Mitchell, J. T. (2021). Awareness and acceptability of HIV Pre-Exposure Prophylaxis (PrEP) among students at two historically Black colleges and universities (HBCU): A cross-sectional survey. *BMC Public Health*, Vol. 21 (1), pp. 1-9.

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N. & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health*, Vol. 42 (5), pp. 533–544.

Parmley, L. E., Harris, T. G., Chingombe, I., Mapingure, M., Mugurungi, O., Rogers, J. H., Gozhora, P., Wu, Y., Samba, C., Musuka, G. & Hakim, A. J. (2022). Engagement in the pre-exposure prophylaxis (PrEP) cascade among a respondent-driven sample of sexually active men who have sex with men and transgender women during early PrEP implementation in Zimbabwe. *Journal of the International AIDS Society*, Vol. 25 (2), pp. 1-18.

Peltzer K. & Matseke, G. (2013). Determinants of HIV testing among young people aged 18-24 years in South Africa. *African Health Sciences*, Vol. 13 (4), pp. 1012-1020.

Pinto, R. M., Berringer, K. R., Melendez, R. & Mmeje, O. (2018). Improving PrEP implementation through multilevel interventions: A synthesis of the literature. *AIDS and Behaviour*, Vol. 22 (11), pp. 3681–3691.

PrEP Watch. (2023). *2023 Q3 global PrEP tracker*. Available at: https//www.prepwatch.org. [Accessed 12 July 2023].

Quah, S. R. (1985). The Health Belief Model and preventive health behaviour in Singapore. *Social Science & Medicine,* Vol. 21 (3), pp. 351–363.

Rahman, M. S. (2017). The advantages and disadvantages of using qualitative and quantitative approaches and methods in language testing and assessment research: A literature review. *Journal of Education and Learning*, Vol. 6 (1), pp. 102-112.

Rau, A. (2009). *The curricula response to HIV/AIDS at Rhodes University*. Rhodes University & Higher Education HIV/AIDS Programme (HEAIDS). Available at: DOI:10.13140/2.1.2752.4160. [Accessed 01 June 2023].

Reddy, S. (2020). Access to HIV Prophylaxis at pharmacies not as easy it seems. *Daily Maverick*, 14 December. Available at: https://www.dailymaverick.co.za. [Accessed 20 August 2023].

Rhodes University. (2006). *Rhodes University Institutional HIV and AIDS Policy. Makhanda: Rhodes University*. Available at: https://healtheducationresources.unesco.org/library/documents/rhodes-university-institutional-hiv-and-aids-policy. [Accessed 28 August 2023].

Rhodes University. (2017). *Student Programmes*. Available at: www.ru.ac.za. [Accessed 28 August 2023].

Rhodes University student leaders' manual 2020. (2020). *Student leadership manual 2020*. Available at: http://www.ru.ac.za. [Accessed 02 June 2023].

Rhodes University. (2023). *Facts and figures 2023 to 2025*. Available at: https:// www.ru.ac.za. [Accessed 02 June 2023].

Ritchie, J. & Lewis, J. (2003). *Qualitative research practice: A guide for social science students and researchers.* London: SAGE.

Rosenstock, I. M., Strecher, V. J. & Becker, M. H. (1974). Social learning theory and the Health Belief Model. *Health Education Quality*, Vol. 15 (2), pp. 175-831.

Rosenstock, I. M., Strecher, V. J. & Becker, M. H. (1994). The Health Belief Model and HIV risk behaviour change. *Preventing: AIDS Prevention and Mental Health*, Vol. 20 (4), pp. 5-24.

San Francisco *AIDS Foundation. (2015). The first Pre-Exposure Prophylaxis 2-1-1 study: Pre-Exposure Prophylaxis 2-1-1 compared to placebo.* Available at: https://www.sfaf.org/collections/beta/for-people-having-anal-sex-prep-211-is-as-effective-as-daily-prep/. [Accessed 20 May 2023].

Sayegh, P., Thaler, N. S., Arentoft, A., Kuhn, T. P., Schonfeld, D., Castellon, S. A., Durvasula, R. S., Myers, H. F. & Hinkin, C. H. (2016). Medication adherence in HIV-positive African Americans: The roles of age, health beliefs, and sensation seeking. *Cogent Psychology*, Vol. 3 (1), p. 1-16.

Sayer, A. (1992). *Method in Social Science: A realist approach*. London: Routledge.

Scarneo, S. E., Kerr, Z. Y., Kroshus, E., Register-Mihalik, J. K., Hosokawa, Y., Stearns, R. L., DiStefano, L. J. & Casa, D. J. (2019). The Socio-Ecological Framework: A multifaceted

approach to preventing sport-related deaths in high school sports. *Journal of Athletic Training*, Vol. 54 (4), pp. 356–360.

Schwartz, J. & Grimm, J. (2019). Stigma communication surrounding PrEP: The experiences of a sample of men who have sex with men. *Health Communication*, Vol. 34 (1), pp. 84-90.

Schwarzer, R. (2016). Health action process approach (HAPA) as a theoretical framework to understand behaviour change. *Actualidades en Psicología*, Vol. 30 (121), pp. 119-130.

Semata, A. S., Muhumuza, R., Stranix-Chibanda, L., Nematadzira, T., Ahmed, N., Hornschuh, S., Dietrich, J. J., Tshabalala, G., Atujuna, M., Ndekezi, D., Nalubega, P., Awino, E., Weiss, H. A., Fox, J., & Seeley, J. (2022). The potential effect of pre-exposure prophylaxis (PrEP) roll-out on sexual-risk behaviour among adolescents and young people in East and Southern Africa. *African Journal of AIDS Research*, Vol. 21 (1), pp. 1–7.

Shah, N. (2011). Ethical issues in biomedical research and publication. *Journal of Conservative Dentistry*, Vol. 14 (3), pp. 205-207.

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*, Vol. 14 (1), pp. 1-10.

Shisana, O., Risher, K., Celentano, D. D., Zungu, N., Rehle, T., Ngcaweni, B. & Evans, M. G. (2016). Does marital status matter in an HIV hyperendemic country? Findings from the 2012 South African National HIV prevalence, incidence and behaviour Survey. *AIDS Care*, Vol. 28 (2), pp. 234–241.

Shrader, C. H., Peters-Jefferson, K., Kanamori, M., Rochat, R. & Siegler, A. (2021). "I'd rather use a refuse bag:" A qualitative exploration of a South African community's perceptions of government-provided condoms and participant-preferred solutions. *Archives of Sexual Behaviour*, Vol. 50 (2), pp. 615–627.

Simelela, N. P. & Venter, W. D. (2014). A brief history of South Africa's response to AIDS. *South African Medical Journal Suid-Afrikaanse Tydskrif vir Geneeskunde*, Vol. 104 (31), pp. 249–251.

Smith, J., Bansi-Matharu, L., Cambiano, V., Dimitrov, D., Bershteyn, A. & Meyer-Rath, G. (2023). Predicted effects of the introduction of long-acting injectable cabotegravir pre-exposure prophylaxis in sub-Saharan Africa: a modelling study. *Lancet HIV*, Vol. 10 (4), pp. e254-e265.

South Africa National AIDS Council (SANAC). (2017). *Let our action count: South Africa's National Strategic Plan for HIV, TB and STIs 2017-2022*. Available at http://sanac.org.za/wp-content/uploads/2017/06/NSP_FullDocument_FINAL.pdf. [Accessed 28 July 2023].

Statistics South Africa. (2018). *Mid-year population estimates 2018*. Available at: Mid-year population estimates 2018 | Statistics South Africa (statssa.gov.za). [Accessed 02 June 2023].

Statistics South Africa. (2022). Mid-year Population estimates, 2022. Available at: HIV/AIDS in Africa - Statistics & Facts | Statista. [Accessed 18 October 2023].

Stoner, M. C. D., Rucinski, K. B., Giovenco, D., Gill, K., Morton, J. F., Bekker, L. G., Celum, C. L. & van der Straten, A. (2021). Trajectories of PrEP adherence among young women aged 16 to 25 in Cape Town, South Africa. *AIDS and Behaviour*, Vol. 25 (7), pp. 2046–2053.

Straub, V., Mercuri, E., Aartsma-Rus, A., Athanasiou, D., Balabanov, P., Buccella, F., Caizergues, D., Carlier, P., Crossley, E., Connolly, A.M. & Duong, T. (2018). Report on the workshop: Meaningful outcome measures for Duchenne muscular dystrophy, London, UK, 30–31 January 2017. *Neuromuscular Disorders*, Vol. 28 (8), pp. 690-701.

Tanga, P. T., De Lange, N. & Van Laren, L. (2014). Listening with our eyes: Collaboration and HIV and AIDS curriculum integration in South African higher education. *The Journal for Transdisciplinary Research in Southern Africa,* Vol.10 (1), pp. 169-186.

Tarkang, E. E. & Zotor, F. B. (2015). Application of the Health Belief Model (HBM) in HIV prevention: A literature review. *Central African Journal of Public Health*, Vol. 1 (1), pp. 1-8.

Tarkang, E. E., Adu-Gyamfi, M., Sackey, E. & Kye-Mensah, E. (2023). Predictive ability of the Health Belief Model in HIV prevention and management in Sub-Saharan Africa: A systematic review. *International Journal of Health Promotion and Education*, Vol. 1 (21), pp. 1-16.

The Guardian. (2023*) Injection HIV-prevention drug to be made in South Africa for the first time*. Available at: https://www.theguardian.com/global-development/2023/may/18/injectable-hiv-prevention-drug-to-be-made-in-south-africa-for-the-first-time. [Accessed 18 October 2023].

Thongsutt, T., Laopaiboonkun, S., Thanon, N., Thongthummachart, V., Yaena, A. & Muthanna F. M. S. (2022). Awareness of existence, knowledge, and acceptability of HIV Pre-Exposure Prophylaxis (PrEP) among university students in Thailand. *Journal of Applied Pharmaceutical Science*, Vol. 12 (12), pp. 49-58.

Tsheola, J. (2002). South Africa in Gear: "A better life for all" or a zero-sum game of globalization? *GeoJournal*, Vol. 57 (12), pp. 79–92.

Tshuma, N., Muloongo, K., Nkwei, E. S., Alaba, O. A., Meera, M. S., Mokgobi, M. G. & Nyasulu, P. S. (2017). The mediating role of self-efficacy in the relationship between pre-motivational cognitions and engagement in multiple health behaviours: A theory-based cross-sectional study among township residents in South Africa. *Journal of Multidisciplinary Health Care*, Vol. 10 (2), pp. 29–39.

Tsope, L. (2020). *A narrative study of student and staff's experience of living with HIV and AIDS at Rhodes University*. Unpublished PhD Thesis. Makhanda: Rhodes University.

UNAIDS. (2007). Male circumcision and HIV: The here and now (Part 2). Available at: https://www.unaids.org/en/resources/presscentre/featurestories/2007/february/20070228mcpt. [Accessed 02 June 2023].

UNAIDS. (2008). *Report on the global AIDS epidemic*. Available at: https://www.unaids.org/sites/default/files/media_asset/jc1510_2008globalreport_en_0.pdf. [Accessed 01 June 2023].

UNAIDS. (2017). *A Snapshot of men and HIV in South Africa*. Available at: https://www.unaids.org/sites/default/files/snapshot-men-hiv-south-africa_en.pdf. [Accessed 28 May 2023].

UNAIDS. (2018). *Transactional sex and HIV risk: From analysis to action*. Available at: https://www.unaids.org/sites/default/files/media_asset/transactional-sex-and-hiv-risk_en.pdf. [Accessed 01 June 2023].

UNAIDS. (2019). *Global HIV statistics: World AIDS day 2019*. Available at https://embargo.Unaids.org/static/files/uploaded_files/UNAIDS_WAD2019_FactSheet_en_em.pdf. [Accessed 10 April 2024].

UNAIDS. (2020). *Seizing the moment*. Available at: https://www.unaids.org/en/resources/documents/2020/unaids-data. [Accessed 01 June 2023].

UNAIDS. (2021). *UNAIDS dATA 2021*.Available at: https://www.unaids.org/sites/default/files/media_asset/JC3032_AIDS_Data_book_2021_En.pdf. [Accessed 27 May 2023].

UNAIDS. (2022). *UNAIDS global AIDS update*. Available at: https://www.unaids.org/sites/default/files/media_asset/2022-global-aids-update-summary_en.pdf. [Accessed 28 October 2023].

UNAIDS. (2023a). *AIDS and the Sustainable Development Goals*. Available at: https://www.unaids.org/en/AIDS_SDGs [Accessed 28 May 2023].

UNAIDS. (2023b). *World AIDS Day 2023*. Available At: https://www.unaids.org/sites/default/files/media_asset/UNAIDS_FactSheet_en.pdf. [Accessed 10 January 2024].

Urich, A. (2017). *Methods for stress management*. https://www.google.com/url?sa=i&url=https%3A%2F%2Fpsu.pb.unizin.org%2Fkines082%2Fchapter%2Fthe-health-belief. [Accessed 12 May 2023]

Van Gerwen, O. T., Austin, E. L., Camino, A. F., Odom, L. V. & Muzny, C. A. (2022). "It's behaviours, not identity": Attitudes and beliefs related to HIV risk and Pre-Exposure Prophylaxis among transgender women in the South-eastern United States. *Plos One*, Vol. 17 (1), pp. 1-13.

Van Wyk, B. & Pieterse, J. (2006). Institutional responses to HIV/AIDS from institutions of higher education in the Southern African Development Community. *Report commissioned by the Southern African Regional Universities Association (SARUA)*. Pretoria: University of Pretoria, Centre for the Study of AIDS.

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., Mgodi, 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 International AIDS Society*, Vol. 23 (3), pp.1-16.

Voglino, G., Gualano, M. R., Rousset, S., Forghieri, P., Fraire, I., Bert, F. & Siliquini, R. (2021). Knowledge, attitudes and practices regarding Pre-Exposure Prophylaxis (PrEP)

in a sample of Italian men who have sex with men (MSM). *International Journal of Environmental Research and Public Health*, Vol. 18 (9), pp.1-14.

Voigt, E. (2024). Pilot project in SA now offering HIV prevention injection. *News24,* 24 February. Available at: http://wwww.news24.com. [Accessed 15 April 2024]

Washburn, L. (2020). *Understanding the Health Belief Model*. Available at: https://extension.tennessee.edu/publications/Documents/W931-C.pdf. [Accessed 02 June 2023].

Weston, R. (2006). *An exploratory study of Rhodes students' attitudes and perceptions towards HIV/AIDS*. Unpublished Masters Thesis. Makhanda: Rhodes University.

White, R.C. (2004). Health belief model, condom use and Jamaican adolescents. *Social and Economic Studies,* Vol. 53 (2), pp. 155-186.

Whitfield, T. (2020). *PrEP and barriers to use among adult and young sexual minority men in the United States*. Available at: http://academicworks.cuny.edu/gc_etds/3919. [Accessed 28 July 2023]

Willie, T. C., Monger, M., Nunn, A., Kershaw, T., Stockman, J. K., Mayer, K. H., Chan, P. A., Adimora, A. A., Mena, L. A., Knight, D., Philllips, K. A. & Baral, S. D. (2021). "PrEP's just to secure you like insurance": A qualitative study on HIV pre-exposure prophylaxis (PrEP) adherence and retention among black cisgender women in Mississippi. *BMC Infectious Diseases*, Vol. 21 (1), pp. 1-12.

Winkelman, S. (2022). A human rights case study on access to Pre-Exposure Prophylaxis for female sex workers in South Africa. *Health and Human Rights*, Vol. 24 (1), pp. 105–115.

Wood, L. (2011). Faculty views of HIV and AIDS education in the curriculum at tertiary level. *South African Journal of Higher Education*, Vol. 25 (4), pp. 819–837.

World Health Organisation (WHO). (2012). *Guidance on pre-exposure oral prophylaxis (PrEP) for serodiscordant couples, men who have sex with men and transgender women at high risk of HIV in implementation research, Annexes*. Available at: https://apps.who.int/iris/handle/10665/75191. [Accessed 10 October 2023].

World Health Organisation. (2015). *Policy brief: Pre-exposure prophylaxis: WHO expands recommendations on oral pre-exposure prophylaxis of HIV infection (PrEP)*. Available at: https://apps.who.int/iris/handle/10665/197906 [Accessed 02 June 2023].

World Health Organisation. (2017). *Global HIV programme Pre-Exposure Prophylaxis (PrEP)*. Available at: https://www.who.int/teams/global-hiv-hepatitis-and-stis programmes/hiv/prevention/pre-exposure-prophylaxis. [Accessed 20 October 2023].

World Health Organisation. (2019). *HIV*. Available at: https://www.who.int/health-topics/hiv-aids#tab=tab_. [Accessed 01 June 2023].

Word Health Organisation. (2020). *HIV global statistics*. Available at: https://www.who.int/data/gho/data/themes/hiv-aids. [Accessed 10 April 2024].

World Health Organisation. (2021*). Pre-Exposure Prophylaxis (PrPE).* Available at: https://www.who.int/teams/global-hiv-hepatitis-and-stis-programmes/hiv/prevention/pre-exposure-prophylaxis. [Accessed 02 June 2023].

World Health Organisation. (2022). *World Health Statistics 2022*. Available at: https://www.who.int/news/item/20-05-2022-world-health-statistics-2022. [Accessed 02 June 2023].

World Health Organisation. (2023). *HIV Statistics, Global and by WHO region, 2023*. Available At: https://cdn.who.int/media/docs/default-source/hq-hiv-hepatitis-and-stis-library/j0294-who-hiv-epi-factsheet-v7.pdf. [Accessed January 2024].

Yakob, B. & Ncama, B. P. (2016). A socio-ecological perspective of access to and acceptability of HIV/AIDS treatment and care services: A qualitative case study research. *BMC Public Health*, Vol. 16, pp. 1-22.

Zewdie, A., Mose, A., Sahle, T., Bedewi, J., Gashu, M., Kebede, N. & Yimer, A. (2022). The Health Belief Model's ability to predict COVID-19 preventive behaviour: A systematic review. *SAGE Open Medicine*, Vol. 10, pp. 1-10.

Zuma, K., Simbayi, L., Zungu, N., Moyo, S., Marinda, E., Jooste, S., North, A., Nadol, P., Aynalem, G., Igumbor, E.,Dietrich, C., Sigida, S., Chibi, B., Makola, L., Kondlo, L., Porter, S & Ramlagan, S. (2022a.)The HIV Epidemic in South Africa: Key Findings from 2017 National Population-Based Survey. *International Journal Environmental Research Public Health,* Vol. 19 (13), pp.1-11.

Zuma, T., Seeley, J., Hlongwane, S., Chimbindi, N., Sherr, L., Floyd, S., Birdthistle, I. & Shahmanesh, M. (2022a). A socio-ecological approach to understanding experiences and perceptions of a multilevel HIV prevention intervention: The determined, resilient, empowered, AIDS-free, mentored, and safe (DREAMS) partnership in uMkhanyakude, KwaZulu-Natal, South Africa. *Qualitative Research in Health*. Vol 2, pp. 2667-3214.

Zwi, A. & Bachmayer, D. (1990). HIV and AIDS in South Africa: What is an appropriate public health response? *Health Policy and Planning*, Vol. 5 (4), pp. 316-326.

APPENDICES

Appendix A: Interview Schedules

Interview Schedule (Students)

1. What is your sexual orientation, gender, and age?
2. Which year are you in at Rhodes University right now?
3. Have you had any formal training or education regarding HIV/AIDS and methods of prevention?
4. How familiar are you with the term PrEP (Pre-Exposure Prophylaxis) in the context of HIV/AIDS prevention?
5. Can you briefly explain what you understand about PrEP and how it works?
6. Have you ever considered using PrEP, or have you or anyone you know used it?
7. What are your initial impressions of PrEP preventive strategy?
8. What potential barriers do you see in the uptake of PrEP among students?
9. Do you think there is a social stigma associated with using PrEP, and how might it affect students' willingness to use it?
10. Do you think there is enough information and awareness about PrEP among students?
11. What factors do you believe may influence the effectiveness of PrEP among university students?
12. What type of educational initiatives do you think would be effective in promoting awareness and understanding of PrEP?
13. Are there specific support systems or resources you believe would enhance the implementation of PrEP as a prevention strategy?

Interview Schedule (Health Care Workers)

1. Have you had any formal training or education regarding HIV/AIDS and methods of prevention?
2. Are you aware of Rhodes University's HIV/AIDS policies?
3. What HIV prevention strategy does the university promote?
4. How familiar are you with the term PrEP (Pre-Exposure Prophylaxis) in the context of HIV/AIDS prevention?
5. Can you briefly explain what you understand about PrEP and how it works?
6. How long does one take PrEP?
7. For how long does one take PrEP before intercourse?
8. Does Rhodes University provide PrEP to students?
9. Do all students have access to PrEP?
10. How is PrEP promoted?
11. Who do you recommend PrEP for, and from what age?
12. What do you think are some of the challenges to PrEP use among students?
13. Do you think there is enough information and awareness about PrEP among students?
14. What factors do you believe may influence the effectiveness of PrEP among Rhodes University students?

Appendix B: Participant Consent Form

RHODES UNIVERSITY
Where leaders learn

PARTICIPANT INFORMED CONSENT DECLARATION

(To be signed by research participant/s)

Project Title: **Students' Perception of Pre-Exposure Prophylaxis (PrEP) as a prevention strategy for Reducing HIV/AIDS Incidences at Rhodes University**.

Mamorena Lepelesana from the Department of sociology, Rhodes University has requested my permission to participate in the above-mentioned research project.

The nature and the purpose of the research project and of this informed consent declaration have been explained to me in a language that I understand.

I am aware that:

1. The purpose of the research project is to examine Rhodes University students' pre-exposure prophylaxis (PrEP) knowledge, perception, practice, and roll-out preference.
2. Rhodes University has given ethical clearance to this research project 7399, and I have seen/may request to see the clearance certificate by contacting the Ethics Coordinator (ethics-committee@ru.ac.za)

3. By participating in this research project, I will be contributing towards existing scholar knowledge of this topic.

Rhodes University, Research Office, Ethical Review Ethics

Coordinator: ethics-commitee@ru.ac.za

Tel: +27 (0) 46 603 7727 f: +27 (0) 86 616 7707

Room 204, Main Admin Building, Drostdy Road, Makhanda, 6139

4. I will participate in the project by answering open-ended question, which the researcher will ask.
5. My participation is entirely voluntary and should I at any stage wish to withdraw from participating further, I may do so without any negative consequences.

6. I have the right to decline to answer any questions should I not want to, at any point during the interview.

7. I will not be compensated for participating in the research, but my out-of-pocket expenses will be reimbursed.

8. The following risks are associated with my participation: Being scrutinised and discriminated against or feeling shy to talk about PrEP and HIV/AIDS. The anonymity and confidentiality will be preserved by not revealing my personal details, names or identity in the data collection, analysis, and reporting of the study findings. This will be done to ensure that I do not get harmed, discriminated against, or scrutinised for participating in the research. Interviews will be on a one-one basis.

9. The Researcher intends to publish the research results in the form of thesis however, confidentiality and anonymity of records will be maintained and my name and identity will not be revealed to anyone who has not been involved in the conducting of the research, ***unless I indicate to the contrary/recognize that as a public figure my identity will inevitably be/become known, in which case I agree to accept the loss of anonymity.***

10. In terms of the Protection of Personal Information Act (No. 4 of 2013) it remains my right to request the Researcher to provide me with a detailed explanation of exactly how confidentiality and anonymity of the data I provide will be achieved. I may also request to know exactly how my personal information will be stored securely, and for how long it will be stored.

11. If any data collected from me for this research project is to be used by the Researcher for any further study, I am to be informed in writing and my written consent requested again. I need not give consent for the new research if it is incompatible with the initial purpose of the present study (POPIA, s15(3)). Equally, I can simply reject the request. In such cases, a formal request needs to be made to me by the researcher via the Ethics Coordinator (ethics-committee@ru.ac.za).

12. In terms of the POPI Act, I possess the right to receive feedback about this research. This will take the form of the researcher making the research available at the Sociology Department and the research will be deposited in the Rhodes University Library**.**

13. Any further questions that I might have regarding the nature of the research and/or my participation in it will be answered by Mamorena Lepelesana. Email address: g22l1733@campus.ru.ac.za or mamorena.lepelesana@gmail.com.

14. By signing this informed consent declaration, I am not waiving any legal claims, rights, or remedies. A copy of this informed consent declaration will be given to me, and the original will be kept on record by the Researcher.

15. I ***agree/disagree*** (delete inapplicable) to the Researcher's request to take photographs, or videoing me as part of this research project, recognizing that agreement here is likely to raise the risk of compromising my anonymity and that steps will be taken to ensure this will not happen it my consent is given.

16. I ***agree/disagree*** (delete inapplicable) to the Researcher's use of voice recording of my comments and opinions during interviews, the purpose of which is to ensure the accurate recordingof my views/responses. Furthermore, I have the right to request a copy of the interview transcriptions to confirm that my opinions are accurately recorded.

I, ……., have read the above information / confirm that the above information has been explained to me in a language that I understand, and I am aware of this document's contents. I have asked all questions that I wished to ask, and these have been answered to my satisfaction. I fully understand what is expected of me during the research.

I have not been pressurised in any way and I voluntarily agree to participate in the above-mentioned project.

……. …… …….

Participants signature Witness Date

Rhodes University, Research Office, Ethical Review Ethics

Coordinator: ethics-commitee@ru.ac.za

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