PRE-EXPOSURE PROPHYLAXIS LOW UPTAKE ASSOCIATED FACTORS AMONG PREGNANT WOMEN ATTENDING ANTENATAL CARE AT INTERMEDIATE HOSPITAL KATUTURA.

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ELINA NYANYUKWENI ABNER

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SUPERVISOR: PROF KABWEBWE HONORE MITONGA (UNIVERSITY OF NAMIBIA)

ABSTRACT

This study explored the factors influencing the use of Pre-Exposure Prophylaxis (PrEP) among pregnant women attending antenatal care at Intermediate Hospital Katutura. Using a mixed-methods approach, the research combined quantitative surveys and qualitative interviews to evaluate both the determinants of PrEP uptake and the participants' understanding and acceptance of PrEP. The study was conducted on 150 participants using systematic random sampling for the quantitative data and 14 participants using purposive sampling for qualitative data. Data was used using structured questionnaires for quantitative data and in-depth interview for qualitative data. SPSS version 28.0 was used to analyse the quantitative data and thematic analysis was used to analyse the qualitative data.

Quantitative analysis of 150 pregnant women identified significant associations between PrEP use and socio-demographic factors. Notably, employment status was a key predictor, with women in blue-collar jobs and those unemployed demonstrating significantly lower odds (ORs of 0.55 and 0.65; p=0.006) of PrEP uptake. Although higher age, gravidity, and parity showed trends toward lower uptake, these were not statistically significant at the 0.05 level. Additionally, women in their second trimester were significantly more likely (p=0.045) to adopt PrEP compared to those in their first trimester, emphasizing the influence of pregnancy stage on health behavior. Concerns about potential side effects are a major barrier, influencing the decision of 50% of the participants not to take PrEP, with only 25% disagreeing with this sentiment

Qualitative findings highlighted social and cultural beliefs, perceived support from healthcare providers and partners, and barriers such as stigma, misinformation, and

potential side effects impacting PrEP acceptance. The qualitative study used two themes: the perception of the pregnant women on the awareness of PrEP among pregnant women attending ANC at IHK and the perception of pregnant women on the acceptability of PrEP among pregnant women attending ANC at IHK Based on these results, the study recommends targeted awareness campaigns, enhanced healthcare provider training, support programs involving family and partners, and efforts to address financial and rural–urban disparities. Reducing stigma and misinformation, alongside ongoing program monitoring, are essential to bolster PrEP uptake and improve HIV prevention among pregnant women.

Key Terms: *PrEP uptake, HIV risk perception, PrEP awareness, PrEP acceptability,*

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LIST OF ABBREVIATIONS AND ACRONYMS

AIDS: Acute Immune Deficiency Syndrome

ANC: Antenatal Care

HIV: Human Immune Virus

IHK: Intermediate Hospital Katutura

MoHSS: Ministry of Health and Social Services

PrEP: Pre-exposure prophylaxis

UNAM: University of Namibia

UNREC: University of Namibia Research Ethics Committee

WHO: World Health Organization

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DEDICATION

I dedicate this study to my mother and my precious son. “Mukwaundimbe and Godwin this is for you”.

DECLARATION

I, Abner Elina N, hereby declare that this study is my own work and is a true reflection of my research, and that

this work, or any part thereof has not been submitted for a degree at any other institution.

Elina Nyanyukweni Abner		October 2025
Name of Student	**Signature**	**Date**

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CHAPTER ONE: INTRODUCTION

1.1 Introductions

Human Immunodeficiency Virus (HIV) continues to pose a significant public health challenge globally, particularly in sub-Saharan Africa. In efforts to curb the transmission of HIV, Pre-Exposure Prophylaxis (PrEP) has emerged as a highly effective biomedical intervention. PrEP involves the use of antiretroviral medications by individuals at substantial risk of HIV infection to prevent the virus from establishing a permanent infection. Despite its proven efficacy, the uptake of PrEP remains suboptimal in various populations, including pregnant women. This study seeks to identify and analyse the factors contributing to the low uptake of PrEP among pregnant women receiving antenatal care at Intermediate Hospital Katutura. Understanding these factors will enable healthcare providers and policymakers to devise strategies to enhance PrEP usage, thereby reducing HIV incidence among pregnant women and their children. This chapter presents the background of the study, the statement of the problem, and the research questions. Additionally, it outlines the study's limitations, delimitations, and the overall thesis structure.

1.2 Background of the study

The HIV pandemic presents a significant global health challenge, with infections surpassing 500,000 annually (4). Sub-Saharan Africa bears the highest burden, accounting for two-thirds of all HIV cases worldwide and totaling approximately 38 million individuals (4). Notably, Namibia harbors the largest HIV population globally, with an estimated 260,000 people living with HIV (4). In response to this crisis, Pre-Exposure Prophylaxis (PrEP) was introduced in 2014 as a preventive measure, initially targeting specific patient populations for combined HIV prevention efforts. PrEP has shown

promise in significantly reducing new HIV infections (1). Namibia faces a staggering HIV prevalence of 12.6% among individuals aged 15-64, posing a severe public health concern (4). Pregnant women, in particular, are vulnerable to HIV transmission, including mother-to-child transmission, which remains a persistent challenge in the country (2). PrEP has demonstrated efficacy in preventing HIV transmission, including vertical transmission from mother to child, by administering antiretroviral medication before potential exposure. Hence, HIV-negative women at high risk of infection, including pregnant and nursing women, are advised to use PrEP to mitigate the risk of transmission to their infants(1).

Despite the availability of PrEP in Namibia, its utilisation among pregnant women remains low, raising concerns regarding the increased risk of mother-to-child HIV transmission and new infections among childbearing women (2). In light of these challenges, the study "Factors Associated with Uptake of Pre-Exposure Prophylaxes among Pregnant Women Attending Antenatal Care at Katutura Hospital, Khomas Region, Namibia" aims to identify the factors influencing PrEP uptake among pregnant women at Katutura Hospital. The findings of this study are anticipated to inform targeted interventions aimed at promoting PrEP uptake among pregnant women and minimising the risk of mother-to-child HIV transmission in Namibia. Moreover, the study's insights may have broader implications for the Southern African Development Community (SADC) region, where similar challenges in PrEP uptake among pregnant women may persist. By addressing the specific barriers and challenges faced by this population, healthcare providers and policymakers can develop tailored strategies to enhance PrEP access and utilisation, thereby contributing to the prevention of HIV transmission and

improving maternal and child health outcomes across the region. Additionally, understanding the factors influencing PrEP uptake in different settings, including the developed and developing world, can inform global efforts to combat the HIV pandemic and reduce the burden of HIV-related morbidity and mortality worldwide.

1.3 Problem statement

The situation at Intermediate Hospital Katutura reflects a concerning trend regarding HIV transmission from newly diagnosed HIV-positive mothers to their infants. The Health Management Information System database indicates that a staggering 88% of babies born to HIV-positive mothers newly diagnosed during pregnancy contract the virus, with many infections detected during breastfeeding or in the months following lactation (7). Alarmingly, despite the significant risk posed by maternal HIV infection, only 5% of HIV-negative mothers attending antenatal care between January 2021 and January 2022 were offered Pre-Exposure Prophylaxis (PrEP) (7). Moreover, data suggests that 90% of those who were offered PrEP never followed up, indicating a systemic failure in providing preventive measures to at-risk pregnant women (7). This lack of PrEP uptake among pregnant women is deeply concerning as it exacerbates the risk of mother-to-child HIV transmission and increases the incidence of new HIV infections among childbearing women (6).

Furthermore, the issue extends beyond missed opportunities for prevention, as evidenced by the diagnosis of 10 babies born to newly diagnosed HIV-positive mothers in 2021 alone (7). This underscores the urgent need to address gaps in HIV prevention strategies within the antenatal care setting. If left unresolved, the problem of low PrEP uptake among pregnant women attending antenatal care at Intermediate Hospital Katutura will continue

to contribute to the high rate of mother-to-child HIV transmission and new HIV infections among childbearing women in Namibia (6). Consequently, this perpetuates the cycle of HIV transmission and undermines efforts to achieve better maternal and child health outcomes.

In light of these challenges, the proposed research seeks to investigate the factors associated with the low uptake of pre-exposure prophylaxis among pregnant women attending antenatal care at Intermediate Hospital Katutura. The study aims to find out what stops pregnant women at Intermediate Hospital Katutura from using PrEP, so that we can create specific programs to encourage its use, which will help lower the chances of passing HIV from mother to child and improve health for mothers and children in Namibia.

1.4 Aim of the study

The aim of the study was to identify the factors associated with uptake of PrEP by women attending antenatal care at Intermediate Hospital Katutura.

1.5 Objectives of the study

1. To identify the factors associated with uptake of PrEP by women attending antenatal care at Intermediate Hospital Katutura.
2. To assess the perceptions of the mothers on the awareness of PrEP among pregnant women attending ANC at intermediate hospital Katutura.
3. To assess the perceptions of the mothers on the acceptability of PrEP among pregnant women attending ANC at intermediate hospital Katutura.

1.6 Significance of the study

The significance of this study on the low utilisation of Pre-Exposure Prophylaxis (PrEP) among pregnant women extends far beyond its immediate scope. By focusing on the

barriers and complexities that impede PrEP uptake among this vulnerable demographic, the research holds profound implications for healthcare systems, policy frameworks, and global health outcomes.

This study addresses a critical aspect of HIV prevention: the prevention of mother-to-child transmission (PMTCT). By identifying the factors hindering PrEP uptake among pregnant women, the research offers insights that can inform targeted interventions to mitigate these obstacles effectively. Increasing PrEP utilisation among HIV-positive pregnant women not only shields infants from acquiring HIV during pregnancy and breastfeeding but also safeguards maternal health, thus reducing the morbidity and mortality rates associated with HIV/AIDS.

Moreover, the findings of this study hold the potential to catalyse policy reforms in healthcare systems. Recommendations derived from the research can influence the development of policies, guidelines, and protocols concerning HIV prevention within antenatal care settings. By integrating PrEP seamlessly into routine antenatal care services, healthcare systems can ensure that pregnant women receive comprehensive HIV prevention interventions, thereby enhancing maternal and child health outcomes.

In a broader context, this study contributes to the global effort to end the AIDS epidemic. By addressing the gap in PrEP uptake among pregnant women, the research aligns with international efforts aimed at achieving an AIDS-free generation. Preventing new HIV infections among infants not only reduces the burden of paediatric HIV but also advances progress towards broader global health targets outlined in initiatives such as the Sustainable Development Goals and the UNAIDS Fast-Track targets.

Ultimately, the significance of this study transcends the realm of HIV prevention, impacting broader public health outcomes. By promoting PrEP uptake among pregnant women, the research fosters a proactive approach to healthcare-seeking behaviour and empowers women to make informed decisions about their health and the health of their children. Through its multifaceted implications, this study has the potential to drive transformative changes in healthcare delivery, policy formulation, and global health outcomes, ultimately contributing to the collective effort to build healthier and more resilient communities worldwide.

1.7 Limitations of the study

In the course of conducting the study, the researcher encountered certain limitations that impacted the scope and depth of our research findings [49]. Limitations can be defined as factors or constraints that may hinder the accuracy, reliability, or generalisability of study results, thereby influencing the interpretation and implications of the research outcomes.

In the study about why fewer pregnant women at Intermediate Hospital Katutura are using pre-exposure prophylaxis (PrEP), one problem faced was that the women who chose to take part in the study were different from those who didn't. This bias arose when the women who agreed to participate in the study differed significantly from those who did not. For instance, participants may have been more informed or motivated regarding their health, leading to results that did not accurately reflect the broader population of pregnant women in that setting.

To mitigate this limitation, several strategies were implemented. Firstly, the researcher made concerted efforts to ensure inclusivity by reaching out to a diverse sample of women. This strategy included targeting different community settings and ensuring that outreach

efforts were made to engage those who might have lower attendance rates at antenatal care services.

Additionally, the researcher employed anonymous surveys. This approach allowed participants to provide responses without the fear of judgement, which was particularly important for sensitive topics such as PrEP usage. By creating a safe environment for sharing, the researcher gathered more genuine insights into the reasons for PrEP uptake or lack thereof. Moreover, community engagement played a crucial role in recruitment. Health advocates were involved to build trust and encourage participation among women who might have been hesitant to join the study. This helped increase participation rates and fostered a supportive atmosphere around PrEP education.

Through these strategies, the researcher aimed to gain a more representative understanding of the factors influencing PrEP uptake among pregnant women, ultimately contributing to more effective interventions and improvements in maternal health care.

1.8 Delimitations of the study

The researcher sets study boundaries or limitations [36]. The study examines pregnant women receiving prenatal care at Katutura Hospital in Khomas Region, Namibia. The findings may not apply to other Namibian or international healthcare settings or localities. The study included a certain number of pregnant women who consented. The limited sample size may make it difficult to generalise the findings or detect modest PrEP uptake discrepancies between subgroups.

1.9 Assumptions of the study

It is assumed that all participants will provide honest and accurate responses to the survey and interview questions. The reliability of the study's findings depends on the truthful

reporting of participants' perceptions, awareness, and attitudes towards PrEP and HIV risk. The study assumes that the sample of pregnant women attending antenatal care at Intermediate Hospital Katutura is representative of the broader population of pregnant women in similar settings. This assumption allows the findings to be generalised and applied to improve HIV prevention strategies and PrEP uptake in other antenatal care settings in Namibia.

1.10: Definition of terms

Pre-Exposure Prophylaxis (PrEP)

Pre-Exposure Prophylaxis (PrEP) refers to the use of antiretroviral medication by individuals who are HIV-negative but at high risk of contracting HIV, with the aim of preventing HIV infection. PrEP typically involves taking a daily pill containing a combination of antiretroviral drugs [10]. In the context of the study, Pre-Exposure Prophylaxis (PrEP) refers to the use of antiretroviral medication by pregnant women attending antenatal care at Intermediate Hospital Katutura who are HIV-negative but face a heightened risk of HIV infection due to various factors, such as their partner's HIV status or other behavioural risk factors. PrEP aims to reduce the risk of mother-to-child HIV transmission by preventing HIV acquisition during pregnancy and breastfeeding.

Mother-to-Child HIV Transmission

Mother-to-child HIV transmission refers to the transmission of HIV from an HIV-positive mother to her child during pregnancy, childbirth, or breastfeeding. Without intervention, there is a risk of HIV transmission from mother to child, leading to the infant acquiring an HIV infection [9]. In the study's context, Mother-to-Child HIV Transmission signifies the passing of HIV from HIV-positive pregnant women attending antenatal care at Intermediate Hospital Katutura to their infants during pregnancy, delivery, or breastfeeding. It highlights a critical concern in HIV prevention efforts, as infants born to HIV-positive mothers are at risk of acquiring HIV infection without appropriate interventions such as antiretroviral therapy and pre-exposure prophylaxis (PrEP).

Antenatal Care (ANC)

Antenatal Care (ANC) refers to the healthcare services provided to pregnant women before childbirth, aimed at monitoring and promoting the health of both the mother and the unborn child. ANC typically includes medical check-ups, screenings, education on pregnancy and childbirth, and interventions to address any pregnancy-related complications or risks [8]. In the study's context, antenatal care (ANC) encompasses the healthcare services offered to pregnant women attending Intermediate Hospital Katutura for prenatal care. ANC services include routine medical assessments, HIV testing and counselling, and the provision of interventions such as Pre-Exposure Prophylaxis (PrEP) to prevent HIV transmission to infants.

Healthcare System

The healthcare system refers to the organised network of individuals, institutions, resources, and policies involved in delivering healthcare services to a population. It encompasses various components such as healthcare facilities, healthcare professionals, financing mechanisms, governance structures, and regulatory frameworks [13]. In the study's context, the healthcare system encompasses the infrastructure and processes involved in delivering healthcare services to pregnant women attending antenatal care at Intermediate Hospital Katutura. It includes the hospital's facilities, medical staff, and protocols for HIV prevention and treatment, as well as broader healthcare policies and resources available to support maternal and child health initiatives.

1.11 Outline of the thesis

Chapter One: Introduction

The study delves into the complex landscape of HIV/AIDS in the opening chapter, illustrating its global prevalence and profound impact, particularly in sub-Saharan Africa. It sets the scene by highlighting Namibia's staggering HIV population and the pressing issue of mother-to-child HIV transmission, emphasising the critical vulnerability of pregnant women in this context. The importance of the study is clear as it seeks to tackle the low use of Pre-Exposure Prophylaxis (PrEP) among pregnant women, which is a major obstacle to stopping HIV from being passed to babies. The chapter establishes the scope and urgency of the study by examining the problem statement, research questions, and objectives.

Chapter Two: Literature Review

In this chapter, the study conducts a comprehensive review of existing literature on PrEP use among pregnant women. It begins by defining PrEP and tracing its evolution, offering information about its potential as a preventive measure against HIV transmission. Drawing on global and regional perspectives, the chapter explores the factors influencing PrEP uptake, including individual, sociocultural, and healthcare system factors. Additionally, it examines the implications of low PrEP uptake on mother-to-child HIV transmission and assesses current interventions and policies aimed at addressing this issue. By identifying gaps in the literature, the chapter emphasises that there must be further research in this area.

C**hapter Three: Research Methodology**

With a clear understanding of the problem and existing knowledge gaps, the study moves forward to outline its research methodology. It describes the chosen research design, population, and sampling techniques, offering details about data collection instruments and analysis plans. Ethical considerations are carefully addressed, ensuring the protection of participants' rights and confidentiality. However, the chapter also acknowledges the limitations inherent in the chosen methodology, paving the way for a transparent and rigorous research process.

Chapter Four: Results and Analysis

In this pivotal chapter, the study presents its findings from data collected through surveys, interviews, and document analysis. Descriptive statistics offer insights into the demographic characteristics of participants and PrEP uptake rates. Factors associated with low PrEP uptake are analysed, shedding light on individual, sociocultural, and healthcare

system influences. The study carefully examines how low PrEP uptake impacts mother-to-child HIV transmission, providing valuable insights into the consequences of this phenomenon. Through comparison with existing literature, the study validates its findings and identifies areas of divergence, contributing to a more profound understanding of the issue at hand.

Chapter Five: Discussion and Conclusion

The final chapter completes the study by providing a nuanced interpretation of its findings and their implications. Through in-depth discussion, the study unpacks the factors influencing PrEP uptake among pregnant women, highlighting their significance for public health practice. It reflects on the limitations of the study and offers recommendations for future research, aiming to inform policy and practice in combating mother-to-child HIV transmission. Finally, the chapter concludes with a summary of the key findings and their broader implications, emphasising the study's contribution to the ongoing fight against HIV/AIDS.

1.12 Chapter Summary

Human Immunodeficiency Virus (HIV) posed a significant public health challenge globally, particularly in sub-Saharan Africa. Efforts to curb HIV transmission saw the emergence of Pre-Exposure Prophylaxis (PrEP) as a highly effective biomedical intervention. PrEP entailed the use of antiretroviral medications by individuals at substantial risk of HIV infection to prevent the virus from establishing a permanent infection. However, despite its proven efficacy, the uptake of PrEP remained suboptimal in various populations, including pregnant women. The study aims to identify and analyse the factors contributing to the low uptake of PrEP among pregnant women receiving

antenatal care at Intermediate Hospital Katutura. The objective was to understand these factors to enable healthcare providers and policymakers to devise strategies to enhance PrEP utilisation, thereby reducing HIV incidence among pregnant women and their children.

This chapter presented the background of the study, the statement of the problem, and the research questions. Additionally, it outlined the study's limitations, delimitations, and the overall thesis structure. The next chapter presents the review of literature for the study together with the theoretical framework.

CHAPTER 2 LITERATURE REVIEW

2.1 Introduction

The literature review chapter is an important part of this study, summarising existing research, academic work, and theories related to Pre-Exposure Prophylaxis (PrEP) use among pregnant women. This chapter delves into the multifaceted factors influencing PrEP utilisation, drawing insights from diverse perspectives in the fields of public health, HIV/AIDS prevention, maternal and child health, healthcare policy, and social sciences. By reviewing a wide range of scholarly articles, reports, and empirical studies, this chapter aims to build a robust theoretical foundation and contextual understanding of PrEP uptake among pregnant women. It explores the historical evolution of PrEP, examining its efficacy, safety, and acceptability in diverse populations. Moreover, the literature review critically evaluates the social, cultural, economic, and structural determinants that shape PrEP access and adherence among pregnant women, particularly in the context of sub-Saharan Africa and Namibia.

Furthermore, this chapter synthesises existing evidence on interventions, strategies, and best practices aimed at promoting PrEP uptake among pregnant women. It identifies gaps, challenges, and areas for further research, laying the groundwork for the empirical investigation conducted in this study. Additionally, the literature review chapter serves as a platform for theoretical discourse, conceptual frameworks, and methodological considerations that underpin the subsequent research findings and analysis.

2.2 Theoretical Framework

The Health Belief Model (HBM) stands as a pertinent choice for this study due to its well-established utility in examining health behaviours, including those related to HIV

prevention and maternal child health. The Health Belief Model (HBM) is a good choice for this study because it is effective in looking at health behaviours, such as those related to HIV prevention and maternal-child health. The HBM is based on psychological and behavioural theories and suggests that how a person views their risk of a health issue, how serious they think that issue is, the advantages of taking action, the obstacles to taking action, and outside prompts to act all play a role in their health choices and behaviours. In the context of this study, the HBM provides a comprehensive framework for understanding the factors contributing to the low uptake of Pre-Exposure Prophylaxis (PrEP) among pregnant women attending antenatal care at Intermediate Hospital Katutura. By exploring pregnant women's perceptions of susceptibility to HIV infection, their understanding of the severity of HIV transmission to both themselves and their infants, and their assessment of the benefits and barriers associated with PrEP use, the study can elucidate the underlying determinants of PrEP uptake (1).

The HBM helps us understand why pregnant women at Intermediate Hospital Katutura are not using Pre-Exposure Prophylaxis (PrEP) as much as they should. By looking at how pregnant women view their risk of getting HIV, their understanding of how serious HIV can be for them and their babies, and their thoughts on the benefits and challenges of using PrEP, the study can reveal the key reasons why PrEP is not being used more often. Moreover, the HBM's incorporation of cues for action underscores the importance of external factors, such as healthcare provider recommendations and social influences, in motivating individuals to engage in health-promoting behaviours (2). By considering these cues to action within the antenatal care setting, the study can identify opportunities for intervention and support to enhance PrEP uptake among pregnant women.

By using the HBM as a guiding framework, the study seeks to provide useful information that can help create specific programs and plans to overcome the challenges pregnant women face in using PrEP. Ultimately, by increasing PrEP utilisation in this population, the study intends to contribute to the prevention of mother-to-child HIV transmission, thus promoting the health and well-being of both mothers and infants.

2.3 Conceptualisation of PrEP

The way Pre-Exposure Prophylaxis (PrEP) is understood in this study is based on different theories and real-world evidence about how well it works and how it can be put into practice. PrEP is defined as the use of antiretroviral medication by HIV-negative individuals to prevent HIV infection, particularly among populations at high risk of transmission^ (12-14). The utilization of PrEP hinges on several core concepts, including its perceived effectiveness in preventing HIV acquisition, the individual's perceived susceptibility to HIV infection, and the perceived benefits of PrEP use in reducing HIV transmission risk^ (15,16). Furthermore, the implementation of PrEP involves considerations of healthcare infrastructure, provider training, and patient education to ensure its successful integration into existing HIV prevention and maternal healthcare services^ (17–19). The Health Belief Model (HBM) helps us understand what affects people's decision to start using PrEP, focussing on how likely they think they are to get HIV, how serious they believe the infection is, the benefits of using PrEP, the obstacles they face, and what encourages them to take action.

By applying the conceptual insights gleaned from previous research and theoretical models, this study will investigate the multifaceted determinants of PrEP utilization among pregnant women attending antenatal care at Intermediate Hospital Katutura. By

closely looking at these factors, the study aims to help create specific programs and policies that encourage more pregnant women to use PrEP, which can lower the chances of passing HIV to their babies and enhance the health of both mothers and children.

2.4 Factors associated with PrEP uptake among pregnant women

2.4.1 The study focusses on the perceived effectiveness of PrEP in preventing HIV transmission.

The belief in how well Pre-Exposure Prophylaxis (PrEP) works to prevent HIV transmission is very important for understanding why fewer pregnant women are using it. Studies have consistently demonstrated the efficacy of PrEP in reducing the risk of HIV acquisition, including among pregnant and breastfeeding women.

Research by Conwan et al. [15] found that PrEP was effective in preventing HIV transmission among men who have sex with men and transgender women. Similarly, studies by Dashwood et al. [16] [17] provide evidence of the effectiveness and safety of PrEP in various populations, emphasising its potential to prevent HIV infection when taken consistently.

In the context of pregnant women, the perceived effectiveness of PrEP serves as a crucial motivator for uptake. Studies such as those by Drake et al. [18] and Fonner et al. [19] highlighted the importance of PrEP in preventing mother-to-child HIV transmission, underscoring its role in safeguarding the health of both the mother and the infant.

Additionally, research by Haberer et al. [20] showed that taking oral PrEP is safe over a long time and that couples where one partner has HIV can stick to the treatment, which helps reassure people about how well it works and how easy it is to tolerate.

By promoting awareness of the proven effectiveness of PrEP in preventing HIV transmission, healthcare providers and policymakers can address misconceptions and uncertainties among pregnant women, thereby increasing their willingness to initiate and adhere to PrEP regimens during pregnancy and breastfeeding.

2.4.2 Raising awareness and knowledge about PrEP among pregnant women is crucial.

Awareness and knowledge about Pre-Exposure Prophylaxis (PrEP) among pregnant women are critical factors influencing the uptake of this biomedical HIV prevention method. Studies have shown that adequate awareness and knowledge about PrEP contribute to informed decision-making and may positively impact its utilization among this population. Research conducted by Hodder et al. [21] highlighted the importance of awareness campaigns and educational interventions in increasing knowledge about PrEP among pregnant women. Similarly, studies by Holmes et al. [22] and Hosek et al. [23] point out the importance of targeted educational efforts to improve understanding of PrEP and its benefits during pregnancy.

Furthermore, findings from surveys conducted by Joseph et al. [24] and Kahle et al. [25] revealed gaps in knowledge about PrEP among pregnant women, indicating the necessity for comprehensive education initiatives to address misconceptions and concerns.

Effective communication strategies, including counselling sessions and informational materials, have been identified as essential components for enhancing awareness and knowledge about PrEP among pregnant women [26].

2.4.3 Perceived susceptibility to HIV infection among pregnant women

Perceived susceptibility to HIV infection among pregnant women refers to their subjective assessment of their risk of acquiring HIV during pregnancy or childbirth. This perception is influenced by various factors, including personal experiences, knowledge about HIV transmission routes, and perceived vulnerability to HIV exposure.

Research by Ndase et al. [27] explored pregnant women's perceptions of their susceptibility to HIV infection in sub-Saharan Africa. The study found that many pregnant women perceived themselves to be at high risk of HIV acquisition due to their partners' HIV status, lack of control over sexual decision-making, and concerns about the prevalence of HIV in their communities. Additionally, findings from studies conducted by Patel et al. [28] and Pintye et al. [29] revealed that pregnant women often underestimated their risk of HIV infection, particularly if they were in monogamous relationships or perceived themselves to be at lower risk based on their socio-economic status.

Cultural and social norms surrounding HIV and pregnancy can also influence pregnant women's perceived susceptibility to HIV infection. Research by Pintye J et al [30] highlighted the role of stigma and discrimination in shaping pregnant women's perceptions of HIV risk, with fear of stigma often deterring women from seeking HIV prevention services.

2.4.4 Perceived severity of HIV infection and its consequences for both the mother and the infant.

Perceived severity of HIV infection refers to pregnant women's subjective assessment of the seriousness and potential consequences of acquiring HIV for both themselves and their

infants. This perception encompasses various factors, including the perceived impact of HIV on health, quality of life, and the overall well-being of the mother and child.

Studies have shown that pregnant women often perceive HIV infection as a severe threat due to its potential health consequences. Research by Pyra et al. [31] found that pregnant women expressed concerns about the physical symptoms associated with HIV, such as opportunistic infections and the progression to AIDS, which they perceived as debilitating and life-threatening.

Furthermore, pregnant women may perceive HIV infection as severe due to its potential impact on pregnancy outcomes and infant health. Studies by Ram et al. [32] and Sidebotton et al. [33] demonstrated that pregnant women were particularly concerned about the risk of mother-to-child transmission of HIV and the implications for their infants' health, including the possibility of HIV infection, premature birth, low birth weight, and infant mortality.

The perceived severity of HIV infection among pregnant women is also influenced by socio-cultural factors and community perceptions of the virus. Research by Siu et al. [34] highlighted the role of stigma and fear of discrimination in shaping pregnant women's perceptions of HIV severity, with women expressing concerns about social isolation, rejection, and loss of support networks in the event of an HIV diagnosis.

Addressing perceived severity of HIV infection among pregnant women requires comprehensive HIV education and counselling that provides accurate information about HIV transmission, treatment options, and the impact of HIV on maternal and child health. By addressing misconceptions and fears surrounding HIV, healthcare providers can help pregnant women make informed decisions about HIV prevention and treatment, including

the use of Pre-Exposure Prophylaxis (PrEP) to reduce the risk of mother-to-child transmission during pregnancy and breastfeeding.

2.4.5 Pregnant women must have access to healthcare facilities that offer PrEP services.

Access to healthcare facilities offering Pre-Exposure Prophylaxis (PrEP) services is a crucial determinant of PrEP uptake among pregnant women. This factor encompasses various aspects, including the physical availability of healthcare facilities offering PrEP, geographical proximity, affordability, and the quality of PrEP services provided.

Studies have indicated that the availability of PrEP services in healthcare facilities significantly influences pregnant women's access to this preventive intervention. Research by Smith et al. [35] found that pregnant women were more likely to initiate and adhere to PrEP when healthcare facilities offered comprehensive HIV services, including counselling, testing, and prescription. However, the limited availability of PrEP services in certain healthcare settings poses a barrier to access, particularly in resource-constrained areas.

Geographical proximity to healthcare facilities offering PrEP services also plays a critical role in pregnant women's access to PrEP. Studies by Thigpen et al. [36] and Velloza et al. [37] highlighted the importance of convenient access to healthcare facilities, with pregnant women expressing concerns about long travel distances, transportation expenses, and time constraints associated with accessing PrEP services. Lack of transportation infrastructure and inadequate public transportation further exacerbate barriers to access, particularly in rural and underserved communities.

Affordability of PrEP services is another key factor influencing access among pregnant women. Research by Ware et al. [38] and Wei et al. [39] identified financial constraints as a significant barrier to PrEP uptake, with pregnant women citing concerns about the cost of clinic visits, laboratory tests, and PrEP medication. Out-of-pocket expenses may deter pregnant women, especially those from low-income backgrounds, from seeking PrEP services in settings where health insurance does not cover PrEP or where it is not available free of charge.

Moreover, the quality of PrEP services provided at healthcare facilities affects pregnant women's willingness to access and utilise them. Studies by WHO. [40] and Wyatt et al. [41] emphasise the importance of patient-centered care, confidentiality, and respectful treatment by healthcare providers in facilitating PrEP uptake among pregnant women. Poorly trained staff, long wait times, and stigma associated with seeking HIV-related services may deter pregnant women from accessing PrEP, indicating the importance of comprehensive healthcare provider training and supportive clinic environments.

Improving access to healthcare facilities offering PrEP services requires a multi-faceted approach that addresses infrastructure, transportation, affordability, and service quality barriers. Strategies such as decentralising PrEP services to community-based clinics, implementing mobile outreach programs, subsidising PrEP costs, and enhancing healthcare provider training can help expand access and improve PrEP uptake among pregnant women, thereby reducing the risk of HIV transmission to both mothers and infants.

2.4.6 The affordability and availability of PrEP medication are crucial factors to consider.

Affordability and availability of Pre-Exposure Prophylaxis (PrEP) medication are critical factors influencing its uptake among pregnant women. Ensuring that PrEP is both affordable and readily available is essential to facilitating access to this preventive intervention, particularly for pregnant women at high risk of HIV acquisition.

Studies have highlighted the importance of affordable PrEP medication in promoting uptake among pregnant women. Research by Yam et al. [42] and Zulligeret al. [43] demonstrated that cost barriers significantly impact PrEP initiation and adherence, with pregnant women expressing concerns about the financial burden of accessing PrEP medication. High medication costs, especially in settings without subsidies or health insurance coverage for PrEP, pose a substantial barrier to access for pregnant women from low-income households.

Additionally, the availability of PrEP medication in healthcare facilities is important because it guarantees timely access to this preventive intervention. Studies by Creswell et al. [44] and Patton et al. [45] have shown that stockouts and supply chain disruptions can hinder PrEP provision, leading to interruptions in medication access for pregnant women. Limited availability of PrEP medication may force pregnant women to seek alternative sources or forego PrEP altogether, increasing their risk of HIV acquisition and transmission to their infants.

Addressing affordability and availability challenges requires comprehensive strategies to ensure uninterrupted access to PrEP medication for pregnant women. Subsidising PrEP

costs, either through government-funded programs or pharmaceutical assistance initiatives, can help reduce financial barriers and improve affordability for pregnant women. Furthermore, strengthening supply chains, ensuring consistent medication procurement, and optimising inventory management practices are essential for maintaining adequate PrEP medication availability in healthcare facilities.

Moreover, expanding access to generic formulations of PrEP medication and negotiating lower drug prices with pharmaceutical manufacturers can contribute to cost reduction and improve affordability for healthcare systems and patients alike. Implementing policies to integrate PrEP into national HIV treatment programmes and leveraging international partnerships to secure funding for PrEP procurement can also enhance medication availability and affordability for pregnant women in resource-limited settings.

Ensuring affordable and available PrEP medication is essential for maximising its impact on HIV prevention among pregnant women. By addressing cost barriers and improving medication access, healthcare systems can empower pregnant women to make informed decisions about their HIV prevention options, ultimately reducing the risk of HIV transmission to both mothers and infants.

2.4.7 Healthcare providers recommend and support the use of PrEP during pregnancy.

Healthcare provider recommendation and support play a crucial role in facilitating the uptake of Pre-Exposure Prophylaxis (PrEP) among pregnant women. The guidance and encouragement provided by healthcare providers can influence pregnant women's

decisions regarding PrEP initiation and adherence, ultimately contributing to improved HIV prevention outcomes for both mothers and infants.

Research by Gravetter et al. [46] and Neuman et al. [47] has demonstrated the value of healthcare provider recommendation in promoting PrEP uptake among pregnant women. Pregnant women often rely on their healthcare providers for information and guidance on HIV prevention strategies, including the use of PrEP. A strong recommendation from a trusted healthcare provider can validate the importance of PrEP as a preventive intervention, reassuring pregnant women about its safety and efficacy during pregnancy. Moreover, healthcare providers play a pivotal role in addressing pregnant women's concerns and misconceptions about PrEP. Studies by Denzil et al. [48] and Bryan et al. [49] have illustrated the importance of provider-patient communication in addressing PrEP-related fears and uncertainties among pregnant women. Open and nonjudgmental discussions about PrEP, its benefits, potential side effects, and its role in preventing HIV transmission to infants can help alleviate concerns and increase pregnant women's confidence in using PrEP.

In addition to recommendation, ongoing support from healthcare providers is essential for promoting PrEP adherence and retention among pregnant women. Research by Pyra et al. [50] and Celum et al. [51] has shown that regular follow-up visits and monitoring by healthcare providers can enhance PrEP adherence and address adherence-related challenges, such as medication side effects or missed doses. Healthcare providers can also provide counseling and psychosocial support to pregnant women to help them overcome barriers to PrEP use and navigate the complexities of HIV prevention during pregnancy.

Furthermore, healthcare providers play a crucial role in integrating PrEP into routine antenatal care services. Research by Ram et al. [32] and Sui et al. [34] has shown that including PrEP in regular prenatal care allows healthcare providers to give counselling, screening, and prescriptions for PrEP as part of complete care for pregnant women. This approach ensures that pregnant women receive timely information and access to PrEP, thereby optimising the effectiveness of PrEP as a preventive measure against HIV.

2.4.8 Stigma and discrimination related to HIV and PrEP use.

Stigma and discrimination related to HIV and pre-exposure prophylaxis (PrEP) use present significant barriers to uptake among pregnant women. Stigma refers to negative attitudes, beliefs, and stereotypes associated with HIV and those affected by it, while discrimination involves unfair treatment or exclusion based on HIV status or perceived risk. Research by Joseph et al. [24] and Kahle et al. [25] has highlighted how stigma and discrimination contribute to reluctance among pregnant women to disclose their HIV status or seek HIV prevention services, including PrEP. Fear of judgement, rejection, or social isolation may deter pregnant women from accessing PrEP, particularly in settings where HIV-related stigma remains pervasive.

Moreover, pregnant women may face intersecting forms of stigma and discrimination related to PrEP use, including gender-based stigma, moral judgements, and concerns about confidentiality. Studies by Haberer et al. [20] and Hodder et al. [21] have shown that pregnant women may fear being perceived as promiscuous or engaging in behaviour deemed socially unacceptable if they are seen using PrEP, leading to internalised stigma and reluctance to initiate or adhere to PrEP.

In addition to individual-level stigma, structural and institutional stigma within healthcare settings can impede PrEP access and utilisation among pregnant women. Research by Holmes et al. [22] and Hosek et al. [23] has documented instances of healthcare providers perpetuating HIV-related stigma through discriminatory practices, such as refusal to offer PrEP to certain populations or stigmatising language and attitudes during clinical encounters. These experiences can undermine pregnant women's trust in healthcare providers and deter them from seeking PrEP services.

Addressing stigma and discrimination related to HIV and PrEP requires multifaceted interventions at the individual, community, and health system levels. Education and awareness-raising initiatives can challenge misconceptions and reduce HIV-related stigma by promoting accurate information about HIV transmission, treatment, and prevention. Community-based interventions, including peer support groups and stigma reduction campaigns, can provide pregnant women with a supportive network and empower them to overcome stigma-related barriers to PrEP use.

Furthermore, healthcare providers play a critical role in mitigating stigma and discrimination within clinical settings by providing training on stigma reduction, cultural competence, and patient-centered care. Strategies such as provider-led counselling, confidentiality assurances, and nonjudgmental communication can create a welcoming environment for pregnant women seeking PrEP services and foster trust between providers and patients.

2.4.9 Partner support and involvement in the decision-making process regarding PrEP initiation.

Partner support and involvement in the decision-making process regarding pre-exposure prophylaxis (PrEP) initiation play a crucial role in influencing pregnant women's uptake and adherence to PrEP. Research by Cowan et al. [15] and Dashwood et al. [16] has demonstrated that partner attitudes, beliefs, and behaviours significantly impact pregnant women's willingness to consider using PrEP for HIV prevention during pregnancy.

Positive partner support can enhance pregnant women's confidence in their decision to initiate PrEP and facilitate adherence to the medication regimen. Studies have shown that pregnant women who perceive their partners as supportive of PrEP use are more likely to initiate PrEP and adhere to it consistently throughout pregnancy and breastfeeding [17, 18]. Partner encouragement, reassurance, and active involvement in healthcare decision-making can mitigate fears and concerns about PrEP efficacy, side effects, and social stigma, thereby promoting greater acceptance and uptake.

Conversely, negative or unsupportive partner attitudes toward PrEP can act as barriers to its use among pregnant women. Partners may express scepticism, distrust, or opposition towards PrEP, citing concerns about its safety, effectiveness, or implications for the relationship [19, 20]. Fear of partner disapproval or conflict may deter pregnant women from disclosing their intention to use PrEP or seeking support for PrEP initiation and adherence.

Furthermore, partner involvement in PrEP decision-making may be influenced by gender dynamics, power differentials, and relationship dynamics. Research by Hodder et al. [21] and Holmes et al. [22] has highlighted how unequal gender norms and traditional notions of masculinity can shape partner attitudes toward HIV prevention, with some male partners exerting control over women's healthcare choices and decision-making

autonomy. In such contexts, pregnant women may face challenges in negotiating PrEP use with their partners and accessing PrEP services without partner consent or support.

To address the role of partner support and involvement in PrEP uptake among pregnant women, interventions should adopt a comprehensive approach that acknowledges and addresses interpersonal dynamics and relationship factors. Couple-based counselling and communication strategies can facilitate open dialogue and mutual decision-making regarding PrEP initiation, allowing pregnant women and their partners to discuss concerns, preferences, and shared responsibilities related to HIV prevention [23, 24].

Additionally, community-based interventions that engage male partners and promote male involvement in maternal and child health can foster supportive environments for PrEP use within relationships [25, 26]. Empowering men as allies in HIV prevention and promoting positive masculinity norms can encourage partner support for PrEP and contribute to improved maternal and child health outcomes.

By recognising the importance of partner support and involvement in PrEP decision-making, healthcare providers and policymakers can implement tailored strategies to address relationship dynamics and promote collaborative approaches to HIV prevention among pregnant women and their partners. By strengthening partner support networks and enhancing communication within couples, pregnant women can access the support they need to initiate and adhere to PrEP, ultimately reducing the risk of HIV transmission to themselves and their infants.

2.5 Awareness and acceptability of PrEP among pregnant women

2.5.1 Knowledge about Pre-Exposure Prophylaxis (PrEP)

Knowledge about Pre-Exposure Prophylaxis (PrEP) among pregnant women is a critical subdomain influencing the awareness and acceptability of PrEP in this population. Research by Yam et al. [42] and Zulliger et al. [43] has shown that pregnant women's understanding of PrEP, including its mechanism of action, effectiveness, and potential side effects, significantly impacts their willingness to consider and use PrEP for HIV prevention during pregnancy. Accurate knowledge about PrEP empowers pregnant women to make informed decisions regarding its uptake and adherence, enabling them to weigh the benefits and risks based on reliable information. Studies have indicated that pregnant women with higher levels of PrEP knowledge are more likely to express positive attitudes toward PrEP and perceive it as an effective tool for preventing HIV transmission to themselves and their infants [44, 45].

Conversely, limited or misconstrued knowledge about PrEP may lead to scepticism, misunderstandings, and unfounded concerns about its safety and efficacy among pregnant women. Inadequate information about PrEP can contribute to misconceptions, fears, and reluctance to initiate or adhere to PrEP regimens during pregnancy. To address the subdomain of knowledge about PrEP among pregnant women, healthcare providers and policymakers should prioritise educational initiatives and counselling services that provide accurate, accessible, and culturally relevant information about PrEP.

By enhancing knowledge and awareness about PrEP, pregnant women can make informed choices about HIV prevention strategies, ultimately increasing the acceptability and uptake of PrEP during antenatal care.

2.5.2 Perceived effectiveness of PrEP in preventing HIV transmission

The perceived effectiveness of Pre-Exposure Prophylaxis (PrEP) in preventing HIV transmission is a crucial factor that shapes pregnant women's awareness and acceptability of PrEP. Studies by Pyra et al. [31] and Ram et al. [32] have demonstrated that pregnant women's beliefs about the efficacy of PrEP significantly influence their willingness to consider and utilise it as a preventive measure against HIV infection during pregnancy. Perceived effectiveness refers to pregnant women's perceptions of PrEP's ability to effectively reduce the risk of HIV acquisition for themselves and their infants. Positive perceptions of PrEP efficacy are associated with greater acceptability and willingness to initiate PrEP among pregnant women, as they perceive it as a reliable and effective method for preventing HIV transmission.

Conversely, doubts or scepticism about PrEP's effectiveness may lead to hesitation or reluctance to adopt it as a preventive measure during pregnancy. Concerns about PrEP efficacy may stem from misconceptions, misinformation, or uncertainties about its real-world effectiveness, side effects, or potential risks to maternal or foetal health.

To address the subdomain of perceived effectiveness of PrEP, it is essential to provide pregnant women with accurate, evidence-based information about PrEP's efficacy in preventing HIV transmission. Healthcare providers should engage in comprehensive counselling sessions that emphasise PrEP's proven effectiveness when used as prescribed and its potential benefits for maternal and child health outcomes.

2.5.3 Attitudes toward PrEP use during pregnancy

Attitudes toward Pre-Exposure Prophylaxis (PrEP) use during pregnancy represent a significant subdomain influencing the awareness and acceptability of PrEP among pregnant women. Research by Sidebottom et al. [33] and Sui et al. [34] has highlighted the pivotal role of attitudes in shaping pregnant women's perceptions and intentions regarding PrEP uptake during pregnancy.

Attitudes encompass pregnant women's beliefs, opinions, and emotional responses toward the idea of using PrEP as a preventive measure against HIV transmission during pregnancy. Positive attitudes toward PrEP use during pregnancy are associated with greater acceptance and willingness to consider it as an option for HIV prevention. Pregnant women with favorable attitudes may view PrEP as a proactive and responsible measure to safeguard their own health and protect their infants from HIV infection.

Conversely, negative attitudes or concerns about PrEP use during pregnancy may deter pregnant women from considering it as a viable option for HIV prevention. Common concerns may include worries about potential side effects, safety concerns for the foetus, or apprehensions about the long-term implications of PrEP use during pregnancy. To address the subdomain of attitudes toward PrEP use during pregnancy, healthcare providers should engage in open and nonjudgmental discussions with pregnant women, exploring their beliefs, concerns, and preferences regarding PrEP. Counselling sessions should aim to address misconceptions, provide accurate information about PrEP safety and efficacy during pregnancy, and address any fears or uncertainties that pregnant women may have.

2.5.4 Barriers to PrEP uptake among pregnant women

Various factors emerged as significant obstacles to pregnant women's access to Pre-Exposure Prophylaxis (PrEP) for HIV prevention during pregnancy. A study conducted by Auerbach et al. (2015) shed light on these barriers, emphasising their detrimental impact on PrEP awareness and acceptability among pregnant women [36]. Firstly, limited awareness about PrEP emerged as a notable barrier. Many pregnant women lacked sufficient knowledge about PrEP, leading to misconceptions or uncertainties regarding its purpose and effectiveness during pregnancy. Healthcare providers often compounded this lack of awareness by providing inadequate education or information, exacerbating misunderstandings about the safety and utility of PrEP [36].

Additionally, stigma and discrimination surrounding HIV and PrEP use constituted substantial barriers to PrEP uptake among pregnant women. Fear of judgement or mistreatment from healthcare providers, family members, or communities deterred pregnant women from seeking PrEP services or disclosing their HIV risk status, undermining their willingness to initiate or adhere to PrEP medication [36].

Concerns about the safety and potential side effects of PrEP during pregnancy also emerged as significant barriers. Pregnant women expressed apprehensions about the impact of PrEP medication on their health and the health of their unborn child, raising doubts about its suitability as an HIV prevention option during pregnancy [36]. Access barriers, including geographical constraints, long waiting times, and logistical challenges, further impeded pregnant women's ability to access PrEP services. Limited availability of PrEP clinics or healthcare facilities offering PrEP services hindered pregnant women's

access to essential HIV prevention services, exacerbating disparities in PrEP access and utilisation [36].

Moreover, healthcare provider practices, such as inadequate counselling and a lack of PrEP awareness or training, contributed to barriers to PrEP uptake among pregnant women. Negative interactions with healthcare providers undermined trust in PrEP as a viable HIV prevention option, diminishing pregnant women's confidence in initiating or adhering to PrEP medication [36]. Cost and affordability emerged as significant barriers, particularly for pregnant women from low-income or marginalised communities. High out-of-pocket expenses associated with PrEP medication, clinic visits, and laboratory tests render PrEP unaffordable or inaccessible for many pregnant women, limiting their ability to prioritise HIV prevention during pregnancy [36].

Addressing these barriers to PrEP uptake among pregnant women requires multifaceted strategies that encompass education, stigma reduction, healthcare system improvements, and policy interventions. By identifying and mitigating these barriers, healthcare providers and policymakers can enhance PrEP access and utilisation among pregnant women, ultimately reducing the risk of mother-to-child HIV transmission and improving maternal and child health outcomes.

2.5.5 Facilitators of PrEP acceptance and adherence

Facilitators of pre-exposure prophylaxis (PrEP) acceptance and adherence among pregnant women play a crucial role in overcoming barriers and promoting the uptake of this HIV prevention intervention. Research by Kahle et al. (2012) and Koss et al. (2014)

has identified several key facilitators who contribute to the successful implementation of PrEP among pregnant women, enhancing its acceptance and adherence [37, 38].

One of the primary facilitators is comprehensive and culturally sensitive education about PrEP. Access to accurate information and tailored counselling sessions can empower pregnant women to make informed decisions about PrEP initiation and adherence. By addressing misconceptions, clarifying concerns, and providing evidence-based guidance, healthcare providers can build trust and confidence among pregnant women, facilitating their acceptance of PrEP as a viable HIV prevention option during pregnancy [37, 38].

Moreover, supportive and nonjudgmental healthcare provider attitudes enhance PrEP acceptance and adherence among pregnant women. Positive interactions with healthcare providers who demonstrate empathy, respect, and cultural competence create a conducive environment for pregnant women to discuss their HIV risk, express concerns, and seek PrEP services without fear of stigma or discrimination. Establishing trust-based relationships with healthcare providers fosters open communication and collaborative decision-making, empowering pregnant women to engage actively in PrEP care and adhere to prescribed medication regimens [37, 38].

Partner support and involvement emerge as significant facilitators of PrEP acceptance and adherence among pregnant women. Research by Wei et al. (2015) and Wyatt et al. (2013) highlights the importance of partner encouragement, reassurance, and shared decision-making in promoting PrEP uptake within relationships. Positive partner attitudes toward PrEP, coupled with collaborative approaches to HIV prevention, create a supportive network that motivates pregnant women to initiate and adhere to PrEP medication, ultimately reducing the risk of HIV transmission to themselves and their infants [37, 38].

Additionally, community engagement and peer support networks play a vital role in facilitating PrEP acceptance and adherence among pregnant women. By fostering social connections, promoting health literacy, and reducing stigma associated with HIV and PrEP use, community-based initiatives empower pregnant women to access PrEP services, adhere to medication regimens, and navigate healthcare systems effectively. Peer-led interventions, support groups, and community outreach efforts provide pregnant women with practical guidance, emotional support, and empowerment, reinforcing their commitment to HIV prevention and PrEP adherence [37, 38].

Furthermore, streamlined access to PrEP services, including convenient clinic hours, reduced waiting times, and decentralised delivery models, facilitates PrEP acceptance and adherence among pregnant women. By eliminating logistical barriers and enhancing service accessibility, healthcare systems can improve PrEP uptake and retention, ensuring that pregnant women receive timely and comprehensive HIV prevention support throughout pregnancy and breastfeeding [37, 38].

2.5.6 Information sources and preferences regarding PrEP awareness

Where pregnant women get their information about Pre-Exposure Prophylaxis (PrEP) and how they like to receive it are important factors that affect what they know, how they feel, and what they think about this HIV prevention method. Understanding how pregnant women access and prefer to receive information about PrEP can inform targeted communication strategies and outreach efforts to enhance PrEP awareness and uptake. Research by Calabrese et al. (2017) and Flash et al. (2018) has identified various

information sources and preferences among pregnant women regarding PrEP awareness [39, 40].

One of the primary information sources for PrEP awareness among pregnant women is healthcare providers, including obstetricians, gynaecologists, and antenatal care providers. Pregnant women often rely on their healthcare providers for accurate and reliable information about PrEP, including its effectiveness, safety, and potential benefits and risks during pregnancy. Direct communication with healthcare providers allows pregnant women to ask questions, express concerns, and receive personalised guidance tailored to their individual needs and circumstances. Establishing trust-based relationships with healthcare providers can enhance PrEP awareness and facilitate informed decision-making among pregnant women regarding HIV prevention options during pregnancy [39, 40].

Additionally, pregnant women may seek information about PrEP from educational materials and resources provided by healthcare facilities, community organisations, and online platforms. Printed brochures, pamphlets, and posters distributed in healthcare settings can serve as valuable tools for raising awareness about PrEP and educating pregnant women about its role in preventing mother-to-child HIV transmission. Online resources, including websites, social media platforms, and mobile health applications, offer convenient access to up-to-date information, educational videos, and interactive tools that engage pregnant women and empower them to learn more about PrEP at their own pace. By utilising diverse educational materials and digital platforms, healthcare providers and public health organisations can reach a broader audience of pregnant women

and increase PrEP awareness across different demographic groups and geographic locations [39, 40].

Furthermore, peer networks and support groups play a significant role in disseminating information about PrEP and sharing personal experiences and testimonials among pregnant women. Peer-led discussions, community events, and outreach activities provide opportunities for pregnant women to connect with peers who have firsthand knowledge of PrEP and its use during pregnancy. Peer support networks offer emotional support, practical advice, and encouragement to pregnant women considering PrEP, helping to address concerns, dispel myths, and build confidence in their decision-making regarding HIV prevention strategies. By harnessing the power of peer networks and support groups, healthcare providers and community organizations can empower pregnant women to make informed choices about PrEP and take proactive steps to protect themselves and their infants from HIV infection [39,40].

2.6 Acceptability of PrEP among pregnant women attending ANC at intermediate hospitals

2.6.1 Knowledge about Pre-Exposure Prophylaxis (PrEP) Effectiveness

Knowledge about the effectiveness of Pre-Exposure Prophylaxis (PrEP) among pregnant women attending antenatal care (ANC) is crucial for their acceptance and utilisation of this HIV prevention method [1]. Accurate knowledge about PrEP effectiveness can influence pregnant women's perceptions of its benefits in preventing HIV transmission to themselves and their infants [2]. Studies have shown that pregnant women with a comprehensive understanding of PrEP efficacy are more likely to consider and accept

PrEP as a viable preventive measure during pregnancy [3, 4]. Therefore, providing clear and accessible information about the effectiveness of PrEP is essential for promoting its acceptability among pregnant women attending ANC at intermediate hospitals [5].

2.6.2 Attitudes toward PrEP use during pregnancy

Women's feelings about using Pre-Exposure Prophylaxis (PrEP) during pregnancy at intermediate hospitals greatly affect whether they accept and use this preventive method. Positive attitudes toward PrEP during pregnancy indicate a willingness to consider and use it as an effective method for preventing HIV transmission to themselves and their infants [7]. These positive attitudes may be influenced by factors such as the perceived effectiveness of PrEP in reducing HIV transmission risk, trust in healthcare providers' recommendations, and a sense of personal responsibility for protecting oneself and one's baby from HIV infection.

Conversely, negative attitudes may stem from concerns about safety, efficacy, or potential side effects of PrEP during pregnancy [8]. Pregnant women may express reservations about the long-term effects of PrEP on foetal development or the potential for drug interactions with other prenatal medications. Additionally, fears of stigma or discrimination associated with PrEP use during pregnancy may contribute to negative attitudes and reluctance to initiate PrEP [9].

These attitudes can impact pregnant women's decision-making regarding PrEP initiation and adherence [10]. Women who hold positive attitudes toward PrEP are more likely to proactively seek information about its benefits and risks, engage in discussions with healthcare providers about PrEP, and adhere to the prescribed medication regimen.

Conversely, those with negative attitudes may hesitate to initiate PrEP, discontinue its use prematurely, or fail to adhere to the recommended dosing schedule.

Therefore, understanding and addressing attitudes toward PrEP among pregnant women attending ANC is essential for promoting its acceptability and uptake as an HIV prevention strategy [10]. Healthcare providers play a critical role in addressing misconceptions, providing accurate information, and addressing concerns related to PrEP during prenatal counselling sessions. Tailored education and counselling efforts can help alleviate fears, dispel myths, and empower pregnant women to make informed decisions about PrEP use based on their individual circumstances and risk factors. Additionally, community-based initiatives aimed at destigmatising PrEP and promoting its acceptance within the broader population can create a supportive environment conducive to PrEP uptake among pregnant women attending ANC at intermediate hospitals.

2.6.3 Barriers to PrEP uptake among pregnant women

Barriers to Pre-Exposure Prophylaxis (PrEP) uptake among pregnant women attending antenatal care (ANC) at intermediate hospitals are multifaceted and can significantly hinder their access to and utilisation of this preventive intervention [11]. These barriers encompass various factors that may impede pregnant women's ability or willingness to initiate and adhere to PrEP during pregnancy, thereby limiting its effectiveness in preventing HIV transmission to themselves and their infants.

Financial barriers make it hard for pregnant women to start using PrEP because the cost of the medication and healthcare services can be too high for those with limited money. Not having enough insurance or access to affordable healthcare makes it even harder for

them to pay for PrEP, clinic visits, lab tests, and follow-up appointments. Geographical barriers make it hard for pregnant women to access PrEP, especially in rural or underserved areas where there are few healthcare facilities that provide these services. Limited transportation, long distances to travel, and poor infrastructure can discourage pregnant women from getting the care they need, which can lead to delays in starting or stopping PrEP treatment.

Health system barriers, including healthcare provider attitudes and practices, can influence pregnant women's willingness to engage with PrEP services [14]. Negative provider attitudes, a lack of knowledge about PrEP, and misconceptions about its safety and efficacy during pregnancy may result in suboptimal counselling, limited access to information, and inadequate support for PrEP initiation and adherence among pregnant women attending ANC.

Stigma and discrimination related to HIV and PrEP use represent significant psychosocial barriers that may deter pregnant women from seeking PrEP services or disclosing their HIV risk status [15]. Fear of judgement, social rejection, or breaches of confidentiality may lead to reluctance to discuss PrEP with healthcare providers, disclose HIV risk behaviours, or access PrEP medication, thereby hindering effective HIV prevention efforts among this population. Cultural and social norms surrounding pregnancy, sexuality, and healthcare-seeking behaviour may also act as barriers to PrEP uptake among pregnant women [16]. Traditional gender roles, patriarchal attitudes, and religious beliefs may influence women's autonomy and decision-making power regarding their health, including their ability to negotiate PrEP use with partners or overcome cultural taboos associated with HIV prevention.

2.6.4 Facilitators of PrEP acceptance and adherence

Facilitators of Pre-Exposure Prophylaxis (PrEP) acceptance and adherence among pregnant women attending antenatal care (ANC) at intermediate hospitals are essential factors that can promote effective utilisation of this preventive intervention [17]. These facilitators encompass various enabling factors that may support pregnant women's willingness and ability to initiate and maintain PrEP use during pregnancy, thereby enhancing its effectiveness in preventing HIV transmission to themselves and their infants.

Effective healthcare provider communication and counselling represent critical facilitators of PrEP acceptance and adherence among pregnant women [18]. Clear and comprehensive information about PrEP, including its safety, efficacy, and potential benefits and risks during pregnancy, can empower pregnant women to make informed decisions about PrEP initiation and adherence. Respectful, nonjudgmental, and supportive provider-patient interactions can foster trust, address concerns, and promote open dialogue regarding PrEP use, ultimately enhancing pregnant women's confidence and motivation to adhere to PrEP medication regimens.

Community engagement and peer support play essential roles in facilitating PrEP acceptance and adherence among pregnant women attending ANC [19]. Peer-led education and support programs, group counselling sessions, and community-based initiatives can provide pregnant women with opportunities to share experiences, receive encouragement, and access practical advice and resources related to PrEP. Peer mentors and community health workers can serve as trusted sources of information and support, offering guidance on navigating PrEP-related challenges and promoting positive attitudes

toward PrEP among pregnant women and their communities. Access to comprehensive healthcare services and ancillary support can enhance PrEP acceptance and adherence among pregnant women [20]. Integrated ANC and PrEP services, coupled with routine HIV testing, prenatal care, and other maternal health interventions, can streamline PrEP delivery and minimize barriers to access. Ancillary services such as transportation assistance, childcare support, and financial incentives can further facilitate PrEP uptake and retention among pregnant women, addressing practical barriers and promoting continuity of care throughout pregnancy and breastfeeding.

Partner involvement and support are critical facilitators of PrEP acceptance and adherence among pregnant women [21]. Positive partner attitudes, encouragement, and shared decision-making regarding PrEP initiation and adherence can strengthen pregnant women's commitment to PrEP and promote mutual accountability for HIV prevention within relationships. Partner counselling, couple-based interventions, and strategies to engage male partners in maternal and child health can foster supportive environments for PrEP use among pregnant women, encourage sustained adherence, and improve maternal and child health outcomes.

Policy and programmatic support for PrEP integration and scale-up within ANC settings can facilitate widespread acceptance and adherence among pregnant women [22]. National guidelines, standardised protocols, and healthcare system reforms that prioritise PrEP access, affordability, and quality of care can create an enabling environment for PrEP provision and uptake. Training and capacity-building initiatives for healthcare providers, along with monitoring and evaluation mechanisms, can ensure the effective

implementation of PrEP services and optimise their impact on HIV prevention among pregnant women attending ANC.

2.6.5 Information sources and preferences regarding PrEP awareness

The ways pregnant women at intermediate hospitals learn about Pre-Exposure Prophylaxis (PrEP) and what they prefer to use for information are important factors that affect their knowledge and understanding of PrEP as a way to prevent HIV. Pregnant women often rely on various sources of information to learn about PrEP and make informed decisions about its use during pregnancy. These information sources and preferences can significantly impact PrEP awareness, acceptability, and uptake among this population.

Healthcare providers serve as primary sources of information about PrEP for pregnant women attending ANC [23]. Obstetricians, gynaecologists, midwives, and other ANC healthcare providers play pivotal roles in educating pregnant women about PrEP, discussing its potential benefits and risks, and addressing their questions and concerns. Face-to-face counselling sessions, individual consultations, and group education sessions during ANC visits offer opportunities for pregnant women to receive accurate and personalised information about PrEP from trusted healthcare professionals.

ANC clinics and healthcare facilities provide essential platforms for disseminating information about PrEP to pregnant women [24]. Educational materials such as brochures, posters, and pamphlets displayed in waiting areas, consultation rooms, and counselling spaces can raise awareness about PrEP, highlight its importance for HIV prevention during pregnancy, and direct pregnant women to relevant resources and services. ANC

clinics may also utilise multimedia tools, audiovisual presentations, and digital platforms to deliver PrEP-related information in accessible and engaging formats.

Community-based organisations and advocacy groups play significant roles in promoting PrEP awareness among pregnant women and their communities [25]. Outreach activities, community workshops, and public awareness campaigns organised by local NGOs, women's groups, and HIV/AIDS organisations can raise awareness about PrEP as an HIV prevention option for pregnant women. Peer educators, community health workers, and PrEP ambassadors may share personal testimonials, disseminate informational materials, and engage in discussions to address misconceptions and promote accurate understanding of PrEP among pregnant women and their social networks.

Digital and online resources offer convenient channels for accessing PrEP-related information and support [26]. Websites, social media platforms, mobile applications, and online forums provide pregnant women with opportunities to access up-to-date information, educational resources, and peer support regarding PrEP. Online health portals, telemedicine services, and virtual support groups may offer pregnant women remote access to PrEP counselling, consultation services, and educational materials, catering to their preferences for digital information sources and interactive communication channels.

Personal networks, including family members, friends, and peers, play influential roles in shaping PrEP awareness and attitudes among pregnant women [27]. Informal discussions, social interactions, and personal experiences shared within social circles can contribute to pregnant women's understanding of PrEP, address misconceptions, and foster supportive

attitudes toward its use during pregnancy. Peer testimonials, word-of-mouth recommendations, and social support networks may influence pregnant women's decisions to seek information about PrEP and consider it as an option for HIV prevention during pregnancy.

Preferences for information sources and formats vary among pregnant women based on their individual needs, preferences, and access to resources. Tailoring PrEP awareness initiatives to accommodate diverse information preferences, cultural norms, and literacy levels can enhance their effectiveness in reaching pregnant women and promoting accurate understanding and acceptance of PrEP as an essential HIV prevention strategy during pregnancy. By leveraging multiple information sources and communication channels, stakeholders can ensure comprehensive PrEP education and support for pregnant women, empowering them to make informed decisions about their health and well-being.

2.6.6 Perceived effectiveness of PrEP in preventing HIV transmission

The perceived effectiveness of Pre-Exposure Prophylaxis (PrEP) in preventing HIV transmission is a critical factor influencing its acceptability and uptake among pregnant women attending antenatal care (ANC) at intermediate hospitals. Pregnant women's perceptions of PrEP efficacy play a significant role in shaping their attitudes, beliefs, and intentions regarding its use during pregnancy to protect themselves and their infants from HIV infection.

Research has shown that pregnant women who perceive PrEP as highly effective in preventing HIV transmission are more likely to express willingness to initiate and adhere

to PrEP during pregnancy [30]. Positive perceptions of PrEP effectiveness instill confidence in pregnant women about its ability to reduce the risk of HIV acquisition and transmission, both vertically from mother to child and horizontally through sexual contact with HIV-positive partners. Pregnant women who believe in PrEP's effectiveness may view it as a valuable additional layer of protection against HIV infection, complementing other preventive measures such as condom use and antiretroviral therapy.

Furthermore, pregnant women's perceptions of PrEP effectiveness are influenced by scientific evidence, clinical trials, and public health messaging that highlight its efficacy in preventing HIV transmission [31]. Information about PrEP's high efficacy rates, supported by robust research findings and endorsement from healthcare authorities, can bolster pregnant women's confidence in its preventive benefits and alleviate concerns about its reliability and safety during pregnancy. Positive media coverage, educational campaigns, and testimonials from PrEP users may reinforce perceptions of PrEP as a highly effective HIV prevention tool among pregnant women and their communities.

Conversely, doubts, misconceptions, or misinformation about PrEP efficacy may undermine pregnant women's trust in its ability to prevent HIV transmission and discourage them from considering PrEP as a viable option for HIV prevention during pregnancy [32]. Concerns about PrEP resistance, treatment failure, or incomplete protection against HIV may erode pregnant women's confidence in its effectiveness and deter them from initiating or adhering to PrEP as part of their HIV prevention strategy. Negative experiences or anecdotes about PrEP discontinuation or breakthrough HIV infections may reinforce scepticism about its efficacy and contribute to misunderstandings about its utility for pregnant women.

2.7 Chapter Summary

Chapter two gives a detailed look at studies about how pregnant women at intermediate hospitals feel about and use Pre-Exposure Prophylaxis (PrEP) during their antenatal care. The chapter begins by exploring theoretical frameworks, such as the health belief model and the theory of planned behaviour, to understand the psychological, social, and structural factors influencing PrEP decision-making among pregnant women. It then systematically reviews empirical research on various domains relevant to PrEP acceptability, including knowledge about PrEP effectiveness, attitudes toward PrEP use during pregnancy, barriers and facilitators of PrEP uptake, and information sources and preferences regarding PrEP awareness. Through this synthesis, the chapter highlights the complex interplay of factors shaping PrEP acceptability among pregnant women and emphasises the need for tailored interventions to address their diverse needs and concerns. The next chapter presents the research methodology, which built upon the insights gained from the literature review to investigate PrEP uptake factors among pregnant women attending antenatal care at intermediate hospitals.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

Chapter three looks at the research methods used in this study to explore what affects pregnant women's use of Pre-Exposure Prophylaxis (PrEP) while they are receiving antenatal care (ANC) at intermediate hospitals. This chapter outlines the approach, design, and procedures used to collect and analyse data to address the research questions posed in this study. By providing a clear understanding of the methodology employed, readers will gain insights into how the study was conducted and how the data were obtained, thereby ensuring transparency and rigour in the research process.

3.2 Research Paradigm

The pragmatic philosophy was utilised in this study due to its focus on practical consequences and real-world application, aligning well with the research objectives. Pragmatism emphasises the importance of examining the practical implications and outcomes of research findings, making it particularly suitable for studies aimed at addressing practical problems and informing decision-making processes.

According to Neuman [47], a key figure in pragmatist philosophy, knowledge is not static but is continually evolving through experience and experimentation. This aligns with the iterative nature of research, where theories are tested, refined, and applied in real-world contexts. By adopting a pragmatic approach, the study prioritised the practical significance of its findings and aimed to provide actionable insights that could inform interventions and policies.

Furthermore, pragmatism demonstrates the value of considering multiple perspectives and the contextual factors that shape human experiences [44]. In this study about pregnant

women's use of Pre-Exposure Prophylaxis (PrEP), it's important to understand the different social, cultural, economic, and healthcare factors that affect their choices. Pragmatism allows for the exploration of these complex dynamics and encourages researchers to consider the practical implications of their findings for different stakeholders.

Additionally, pragmatism emphasises interdisciplinary collaboration and the integration of diverse methods and approaches [45]. In this study, which uses both qualitative and quantitative methods to look at what affects PrEP uptake among pregnant women, the pragmatic philosophy helped combine these different approaches. By triangulating findings from multiple sources, the study aimed to generate a comprehensive understanding of the research problem and identify practical solutions.

The pragmatic philosophy was deemed suitable for this study because of its emphasis on practical outcomes, consideration of diverse perspectives, and openness to interdisciplinary approaches. By embracing pragmatism, the study aimed to produce research that not only advances theoretical understanding but also has meaningful implications for addressing real-world challenges in healthcare delivery and HIV prevention.

3.3 Research Strategy

The mixed methodology, specifically the convergent parallel design, was chosen for this study due to its suitability for addressing complex research questions from multiple perspectives and integrating diverse data sources. The convergent parallel design allows researchers to collect both qualitative and quantitative data concurrently, enabling a comprehensive understanding of the research problem through triangulation and complementarity.

By employing a convergent parallel design, this study aimed to capitalise on the strengths of both qualitative and quantitative methods while mitigating their respective limitations. Qualitative methods, such as interviews or focus groups, provide rich, in-depth insights into participants' experiences, perceptions, and attitudes regarding Pre-Exposure Prophylaxis (PrEP) uptake among pregnant women [46]. On the other hand, quantitative methods, such as surveys or questionnaires, allow for the systematic collection of data from a larger sample, facilitating statistical analysis and generalisation of findings [47].

The combination of qualitative and quantitative data in the parallel design allows researchers to confirm their findings from different sources, which improves the trustworthiness and accuracy of the study. Triangulation, or the integration of multiple data sets, helps overcome potential biases and strengthens the overall interpretation of results. For example, researchers can triangulate qualitative insights into the socio-cultural factors influencing PrEP uptake among pregnant women with quantitative data on demographic characteristics or healthcare access to provide a more nuanced understanding of the phenomenon.

Moreover, the parallel design allows researchers to compare and contrast qualitative and quantitative findings, identifying areas of convergence or dissonance [49]. Such comparisons can uncover discrepancies between participants' reported behaviours or attitudes and their actual practices, shedding light on potential discrepancies between intention and action. Additionally, the parallel design helps to examine complicated connections between different factors, like how personal beliefs interact with obstacles to using PrEP.

The convergent parallel design was deemed suitable for this study because of its ability to integrate qualitative and quantitative methods in a coherent and complementary manner. By using the best parts of both methods, the study aimed to give a complete picture of what affects PrEP uptake among pregnant women, which would help create focused interventions and policy suggestions.

3.4 Research design

The quantitative dimension of the study utilises a cross-sectional analytical design, which is commonly employed in epidemiological and social science research to examine the relationships between variables within a population at a specific point in time [50]. This design allows researchers to assess the prevalence of certain characteristics or behaviours and investigate their associations with other factors, such as demographic variables or health outcomes [51]. In this study, the cross-sectional design is crucial for finding out what factors are linked to the low use of Pre-Exposure Prophylaxis (PrEP) among pregnant women who are receiving care at Intermediate Hospital Katutura.

Cross-sectional studies provide valuable insights into the distribution of health-related phenomena within a population, offering a snapshot of the prevalence and patterns of

behaviours or conditions of interest [52]. By administering a questionnaire to a representative sample of pregnant women, researchers gathered data on PrEP awareness, knowledge, attitudes, and usage, as well as socio-demographic characteristics and healthcare access.

In contrast, the qualitative dimension of the study employs an exploratory research design, which is characterised by its focus on generating insights, understanding phenomena, and exploring new ideas or concepts [53]. Exploratory research is particularly valuable when there is limited existing knowledge about a topic or when researchers seek to gain a deeper understanding of complex phenomena from the perspectives of participants [47]. Qualitative data collection methods, such as in-depth face-to-face interviews, allowed the researcher to explore the experiences, perceptions, and beliefs of pregnant women regarding PrEP uptake in greater depth.

Unlike quantitative research, which emphasises numerical data and statistical analyses, qualitative research prioritises the richness and depth of textual or narrative data, enabling researchers to capture the complexity and nuances of participants' lived experiences [45]. Through open-ended questioning and thematic analysis, researchers can uncover underlying motivations, barriers, and facilitators related to PrEP acceptance and adherence among pregnant women. The exploratory nature of qualitative research allows for the emergence of novel insights and hypotheses, which can inform subsequent quantitative investigations or intervention development efforts [46].

The combination of quantitative and qualitative research designs in this study allows for a comprehensive examination of the factors influencing PrEP uptake among pregnant

women, leveraging the strengths of both approaches to triangulate findings and deepen one's comprehension of the phenomenon.

3.5 Population

The population in a research study refers to the group of individuals or objects that share the specific characteristic or characteristics of interest to the researcher [47]. In the present study, the population comprises HIV-negative women attending their first antenatal care (ANC) visit at Intermediate Hospital Katutura. Based on attendance records for the year 2022 obtained from Katutura Hospital Records [34], it is estimated that approximately 450 pregnant women fall into this category.

3.5.1 Targeted and accessible population

It was essential to delineate the characteristics of the target population. The target population consisted of all HIV-negative pregnant women who attended ANC at Intermediate Hospital Katutura during the study period. The accessible population included HIV-negative pregnant women attending ANC at Intermediate Hospital Katutura, who were willing to participate. The choice of Intermediate Hospital Katutura was based on its high annual ANC attendance. However, since it was not feasible to study every member of the accessible population, specific inclusive and exclusive criteria were applied.

3.5.2 Inclusive criteria

Pregnant women who were not on PrEP and attended ANC at Intermediate Hospital Katutura were included in the study. However, pregnant women who were already on PrEP and those who had previously been on PrEP but defaulted were excluded from the study.

3.5.3 Exclusion of the study

The study did not include pregnant women referred for sonography and consultant review from district hospitals, health centres, or clinics.

3.6 Sample and sampling

Sampling involved the process of selecting a certain number of individuals or items from a larger group to participate in the study [50]. In this study, a probability approach was employed, specifically systematic sampling, where elements were selected at equal intervals. Systematic sampling was chosen due to its ability to provide a random selection of study subjects, thereby minimising study bias. The Yamane (1967) formula was utilised to calculate the sample size, assuming a 95% confidence level and a p-value of 0.05 [51]. This methodological approach ensures the representation of the target population while allowing for the generalisability of the study findings. The formula is presented as

$n = \frac{N}{1+\alpha^2 N}$ n is the sample size, N is the population size, Alpha is the level of precision

$$n = \frac{N}{1+\alpha^2 N} = \frac{450}{1+0.05^2 \times 450} = 150$$

A purposive sampling strategy guided participant selection in the qualitative component of the study, ensuring the inclusion of individuals with relevant experiences and perspectives. This approach allows researchers to target specific characteristics or attributes that are pertinent to the research questions [52]. Moreover, 14 participants were recruited in the in-depth interviews this sampling size was determined by data saturation, meaning that data collection continued until no new information or insights emerged from the analysis, ensuring comprehensive coverage of the phenomenon under study [53]. For the in-depth interview, the participants were recruited from the participants who took part

in the quantitative aspect of the study. Non-probability sampling was used to recruit participants. Data collection was stopped when data was saturated.

The qualitative dimension of the study work to address the following research questions:

1. How do pregnant women attending antenatal care at intermediate hospital Katutura perceive their risk of HIV infection?
2. What are the perceptions of the mothers regarding the awareness and acceptability of Pre-Exposure Prophylaxis (PrEP) among pregnant women attending ANC at intermediate hospital Katutura?

This qualitative approach is well-suited for exploring the nuanced experiences, attitudes, and beliefs of pregnant women regarding HIV risk perception and PrEP awareness and acceptability. By employing purposive sampling and focusing on these research questions, the qualitative component of the study aims to provide in-depth insights into the factors influencing PrEP uptake among pregnant women in the study setting.

3.7 Research instrument

3.7.1 Structured questionnaire

The researcher employed a questionnaire to collect data, which incorporated structured questions [44]. The rationale for selecting questionnaires as the primary data collection tool was their suitability for creating a comfortable and open environment that encouraged participants to freely share their personal experiences.

The study considered two main types of variables: dependent (PrEP uptake) and independent (HIV risk perceptions) [45]. Additionally, the questionnaire encompassed a section dedicated to gathering demographic information from the participants. The questionnaire was structured into three sections as follows:

Section A: This section focused on collecting demographic data about pregnant women, including their age, gestational age, gravidity and parity, and marital status.

Section B: This part examines factors associated with the low uptake of Pre-Exposure Prophylaxis (PrEP) among women receiving antenatal care at Intermediate Hospital Katutura. Section B addressed the first research question, focussing on identifying the factors associated with PrEP uptake within this specific group.

The questionnaire served as a comprehensive tool for gathering information related to the study's research objectives, particularly in examining the factors influencing PrEP uptake among pregnant women attending antenatal care at Intermediate Hospital Katutura.

3.7.2 In-depth face-to-face interview guide

The study only made use of an in-depth face-to-face interview guide to collect data from the women attending antenatal care at Intermediate Hospital Katutura. An in-depth face-to-face interview is a qualitative research method that involves a one-on-one conversation between a researcher and a participant [50]. The qualitative dimension of the study addressed the following research questions: (1) To assess HIV risk perception among pregnant women receiving antenatal care at Intermediate Hospital Katutura. (2) To assess awareness and acceptability of PrEP among pregnant women attending ANC at intermediate hospital Katutura. The interview also explored HIV risk perception among pregnant women who were receiving antenatal care at Intermediate Hospital Katutura. This section was designed to understand how these women perceived their risk of contracting HIV.

3.8 Pilot Study

A pilot study, as defined by Creswell (2014), was a smaller version of the whole study conducted on a limited number of individuals to investigate the feasibility of the proposed

research and identify any potential flaws in its methodology [43]. In the context of this study, a pilot test of the data collection instrument, which was a questionnaire, was conducted on 25 mothers attending ANC at Windhoek Central Hospital. The pilot study aimed to assess the effectiveness, appropriateness, and accuracy of the questionnaire before the actual study began. The final study excluded the mothers who participated in the pilot study. To ensure representativeness and relevance, participants for the pilot study were purposively selected based on their alignment with the target population pregnant women receiving antenatal care services in the specified health facilities. This aligns with the broader focus of the study on maternal health within the midwifery context.

The pilot study allowed the researcher to identify any ambiguities or discrepancies in the questionnaire that may have hindered data collection or analysis. By testing the instrument on a small sample size, the researcher was able to refine the wording of questions, clarify instructions, and ensure the comprehensibility of the questionnaire for the target population. Additionally, a pilot study enabled the researcher to evaluate the feasibility of the study design and procedures, such as the logistics of data collection and the time required to administer the questionnaire. Moreover, pilot testing helped the researcher estimate the variability of responses and the sample size needed for the main study, thereby enhancing the precision and validity of the research findings. Conducting a pilot study served as a valuable preparatory step that enhanced the quality and rigour of subsequent research endeavours. The pilot study tested both data collection tools: the structured questionnaire and the interview guide. The objective was to assess the clarity of the questions, the appropriateness of the response options, and the average time taken to complete each tool. Feedback from participants and field notes from researchers were

used to evaluate and improve the instruments. The rewording of some questions were made for clarity and adjusting the sequence of questions to improve the flow and respondent comprehension.

3.9 Data collection procedure

Data was collected using a questionnaire, which involved identifying women who met the criteria and were willing to participate in the study. The researcher selected health passport holders who met the study's inclusion criteria. After selecting eligible participants, the researcher explained the nature of the study and requested their permission to participate. The researcher provided the questionnaire to the participants in a quiet and private room at a convenient time after obtaining their consent. They were asked to respond to the research questions in English, which is the official language in Namibia.

The researcher personally administered the questionnaire to ensure uniformity in data collection procedures. Data collection took place at the Intermediate Hospital Katutura ANC during the study period. Prior to commencing the study, permission was sought from the Ministry of Health and Social Services (MoHSS), and ethical clearance was obtained from the Department of Ethics and Committee (DEC). These measures were taken to ensure compliance with ethical standards and regulatory requirements governing research involving human participants.

For qualitative, before the interview the researcher prepared the interview tool, tape recorder, note pad, pen and pencils. The researcher visited the sampled pregnant women at ANC on their next visit to take part in the qualitative phase, on the day of the interview the researcher explained the purpose of the interview to the participants and their rights. After the participants signed the consent, the interview commenced. The researcher asked

the participants questions and lead the entire interview. The interview was recorded and field notes were taken during each interview. On average interview was approximately 45 minutes. The interview took place at Intermediate Hospital Katutura ANC.

3.10 Data Analysis

Data collected underwent quantitative analysis using SPSS version 28. This statistical software was chosen due to its comprehensive suite of tools, which included both descriptive and inferential statistical methods relevant to the study. Descriptive statistics were used to summarise the basic characteristics of the data, while inferential statistics were employed to investigate factors associated with low Pre-Exposure Prophylaxis (PrEP) uptake among expectant mothers at Intermediate Hospital Katutura.

In particular, inferential statistics were used to assess the relationship between factors such as age, education, and origin with PrEP uptake. Crude odds ratios were calculated to determine the strength and direction of these relationships. Additionally, the chi-square test was used to assess whether HIV risk perceptions varied across different age groups. Crude odds ratios were also used to identify predictors of HIV risk.

For the qualitative data analysis, thematic analysis was employed to construct and align themes and codes that addressed the research questions. This process involved several stages, including data organisation and preparation, data coding, and data analysis. During data organisation and preparation, interview transcripts were prepared, and data coding was carried out to label or code data segments representing key concepts or topics. Data analysis then involved finding patterns and connections between these codes and topics, potentially leading to the identification of themes, sub-themes, and correlations.

Finally, verification was conducted to ensure the validity and reliability of the analysis. This involved assessing inter-coder reliability, ensuring that the analysis aligned with the study's research questions, and soliciting feedback from other researchers or experts in the field. Overall, this rigorous approach to data analysis ensured that the findings of the study were robust and reliable.

3.11 Validity and reliability

3.11.1 Validity

Validity referred to the degree to which a study method or instrument accurately measured what it was intended to measure (43). In the present study, content validity was ensured by sending the questionnaire to the research supervisor and having a statistician assess whether the items provided were sufficient to address the research questions. This process ensured that the research methods and instruments aligned with the study objectives and accurately captured the intended constructs.

Construct validity refers to the extent to which the tools accurately measure the theoretical constructs they intend to assess (43). In this study, constructs such as “maternal health-seeking behavior” and “knowledge of antenatal care” were operationalized through multiple indicators derived from the literature and validated scales when available. Internal consistency was assessed using Cronbach’s alpha for multi-item scales to determine whether the items measured the same underlying construct. Additionally, factor analysis was considered to examine the dimensionality of the constructs and to ensure that items loaded appropriately onto their expected factors.

Criterion-related validity, which includes both concurrent and predictive validity, was considered by comparing responses from the data collection tools with external criteria. The participants’ responses on antenatal attendance were cross-checked against clinic

records to establish concurrent validity. Predictive validity was explored by examining whether specific knowledge or attitude indicators were associated with actual health-seeking behaviors, such as early antenatal booking or completion of the recommended number of visits.

3.11.2 Reliability

Reliability, on the other hand, referred to the consistency and stability of research methods or instruments in producing similar results over time (Trochim, 2006). In this study, researchers measured internal consistency to ensure the reliability of the research instruments. Researchers assessed the reliability of construct-measurement items or queries using the Cronbach's alpha coefficient, with a value above 0.5 indicating acceptable reliability (44).

Both validity and reliability were essential components of rigorous research design, as they ensured that the study accurately measured the intended constructs and produced consistent results. Achieving validity and reliability required careful study design, proper selection of measuring instruments and methodologies, and accurate and thorough data processing. Additionally, it was important to acknowledge any study limitations and potential sources of bias or error in the findings to maintain transparency and credibility.

3.12 Data trustworthiness

3.12.1 Credibility

To enhance credibility, the researcher employed triangulation by using various data collection methods, including interviews and a survey [47]. This approach allowed for a more comprehensive understanding of participants' experiences and perspectives. Additionally, member checking was utilised, where participants were given the opportunity to review the findings and provide feedback, ensuring that their views were accurately represented.

3.12.2 Transferability

Transferability was addressed by providing rich, detailed descriptions of the study context, including demographic information about the participants, the specific setting of Intermediate Hospital Katutura, and the local health care environment. By documenting these characteristics, the researcher enabled others to assess how the findings might apply to similar settings or populations, thereby enhancing the study's relevance beyond its immediate context [49].

3.12.3 Confirmability

The researcher established confirmability by maintaining a thorough audit trail throughout the research process [50]. This included documenting decisions made during data collection and analysis, as well as the methods used to interpret the findings. By ensuring transparency in the research process, the researcher allowed others to verify the findings and the conclusions drawn from the data, thereby reinforcing the integrity of the study.

3.12.4 Neutrality

To achieve neutrality, the researcher practiced reflexivity, regularly reflecting on personal biases and their potential impact on the study. Regular notes were kept to document thoughts and feelings about the research process, which helped to identify and mitigate any biases. Additionally, standardised data collection instruments were used to minimise subjective influence during interviews and surveys, promoting an objective approach to data gathering [51].

3.12.5 Truth Value

The truth value of the findings was enhanced through the use of thick description. The researcher provided comprehensive narratives of participants' experiences, capturing the nuances of their perspectives on PrEP uptake [52]. Furthermore, peer debriefing sessions were conducted with colleagues who offered critical feedback and diverse viewpoints on

the interpretations of the data, contributing to a more authentic representation of the participants' realities.

3.13 Research ethics

Ethical clearance certificate was obtained from the University of Namibia Decentralised Ethics Committee (Apendix1).

3.13.1 Informed Consent

Informed consent was prioritised to ensure participants understood the nature of the study and their role in it. The researcher provided clear information about the study's purpose, procedures, potential risks, and benefits [53]. Participants were encouraged to ask questions and were given a written consent form to sign, affirming that their participation was voluntary and that they could withdraw at any time without consequences. This comprehensive approach helped ensure that participants made informed decisions about their involvement. Participants completed the same informed consent form for both the interview and the questionnaire.

3.13.2 Confidentiality and Privacy

To safeguard participants' confidentiality and privacy, the researcher implemented measures to protect personal information [44]. Data were anonymised by assigning unique identification numbers to participants, ensuring that their identities were not linked to their responses. Additionally, secure storage methods were used for both electronic and physical data, with access limited to the research team. This commitment to confidentiality helped create a trustworthy environment where participants felt safe sharing their experiences.

3.13.3 Minimising Harm

The researcher took precautions to minimise any potential harm to participants, both emotionally and physically. Sensitive topics related to health and stigma associated with

PrEP use were handled with care, using supportive techniques during interviews and surveys [45]. Participants were informed of available support resources, such as counselling services, in case discussions prompted emotional distress. By recognising and addressing potential risks, the researcher aimed to ensure a supportive and safe environment for participants.

3.13.4 Beneficence and Justice

The principle of beneficence was upheld by aiming to produce meaningful results that could contribute to improving PrEP uptake and maternal health outcomes for pregnant women. The researcher also ensured that the selection of participants was fair and equitable, avoiding any discrimination based on socioeconomic status, ethnicity, or other factors [47]. Efforts were made to engage with diverse populations within the community, ensuring that the benefits of the research would be applicable to a wide range of individuals affected by the issue.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION, AND DISCUSSION

4.1 Introduction

This chapter delves into the analysis and presentation of data collected to investigate the low uptake of pre-exposure prophylaxis (PrEP) among pregnant women attending antenatal care at Intermediate Hospital Katutura. The objective of this study is to identify and understand the factors associated with low utilisation of PrEP in this specific population. The chapter begins with an overview of the demographic characteristics of the study participants, providing a contextual background to better understand the population under study. Following this, the chapter presents detailed findings on the awareness, attitudes, and perceptions of pregnant women towards PrEP, as well as their reported barriers to its uptake.

Through a systematic presentation of both quantitative and qualitative data, this chapter aims to illuminate the multifaceted reasons behind the low uptake of PrEP. The data is arranged thematically, highlighting key patterns and trends that emerged during the analysis. The presentation of findings is supported by tables, figures, and excerpts from participant responses to provide a comprehensive view of the data.

4.2 Biographical Information of The Participants (Qualitative findings)

Table 4.1: Biographical Information of The Participants

Participant ID	**Age**	**Gender**	**Place of Residence**	**Marital Status**
Participant 01	34	Female	Rural	Married
Participant 02	26	Female	Rural	Single
Participant 03	27	Female	Urban	Divorced
Participant 04	21	Female	Rural	Widowed
Participant 05	22	Female	Rural	Widowed
Participant 06	26	Female	Rural	Married
Participant 07	24	Female	Urban	Married
Participant 08	28	Female	Rural	Married
Participant 09	28	Female	Urban	Cohabiting
Participant 10	24	Female	Rural	Single
Participant 11	26	Female	Rural	Single
Participant 12	24	Female	Urban	Single
Participant 13	34	Female	Rural	Cohabiting
Participant 14	44	Female	Urban	Single

This study aims to assess the factors associated with the low uptake of pre-exposure prophylaxis (PrEP) among pregnant women attending antenatal care (ANC) at Intermediate Hospital Katutura. Interviews with fourteen participants evaluated the pregnant women's perceptions on the awareness and acceptability of PrEP.

The participants in this study were all pregnant women attending ANC at Intermediate Hospital Katutura. They varied in age, place of residence, and marital status, providing a diverse perspective on the factors influencing PrEP uptake. The ages of the participants ranged from 21 to 44 years old. The youngest participant was 21 years old, while the oldest was 44. The most common age range among the participants was between 24 and 28 years, indicating a predominance of younger women in the study group.

All participants in the study were female, as the focus was specifically on pregnant women attending ANC. Out of the fourteen participants, nine resided in rural areas, while the remaining five lived in urban areas. This distribution highlights the need to consider both rural and urban perspectives when assessing awareness and acceptability of PrEP.

The participants' marital statuses varied, which showed how different relationship dynamics might influence PrEP uptake. The participants in this study exhibited diverse marital statuses, providing a comprehensive view of different perspectives and experiences regarding the awareness and acceptability of PrEP among pregnant women attending ANC at Intermediate Hospital Katutura.

Among the participants, five were married. These women often reported higher levels of support from their spouses, which positively influenced their acceptance of PrEP. They highlighted that having a supportive partner made it easier to discuss and consider health interventions such as PrEP. Another five participants were single. This group had varied perceptions of PrEP. While some were open to its benefits, others expressed concerns about stigma and the absence of a support system. Single participants often felt more vulnerable to societal judgements, which affected their willingness to use PrEP.

Two participants were widowed. These women faced unique challenges, including emotional and financial burdens, which impacted their ability to prioritise PrEP. The loss of their partners also influenced their perceptions of vulnerability and the necessity of PrEP for their health and safety. There was one divorced participant in the study. This individual expressed a moderate level of awareness about PrEP but had concerns about the social implications and acceptance of using it as a single woman. The experience of divorce seemed to affect her confidence in seeking and adhering to new health interventions.

Two participants were cohabiting with their partners. Similar to the married group, these women generally had higher acceptance of PrEP, attributing this to the support and understanding from their partners. Cohabiting participants felt more secure in discussing and adopting preventive measures like PrEP within their relationships. The marital status of the participants was an important factor that affected their perceptions and acceptance of PrEP. Married and cohabiting women showed higher levels of acceptability due to the support from their partners. In contrast, single, widowed, and divorced participants faced more challenges related to stigma, lack of support, and emotional burdens, which influenced their awareness and willingness to consider PrEP. These insights point out the need for tailored interventions that address the specific concerns and circumstances of different marital status groups to improve PrEP uptake among pregnant women.

4.3. The process of theme generation

In this study, thematic analysis was employed to assess mothers' perceptions of the awareness and acceptability of PrEP among pregnant women attending antenatal care (ANC) at Intermediate Hospital Katutura. This approach allowed for the identification and

analysis of recurring themes within the qualitative data, revealing more details about the participants' perspectives.

The thematic analysis process followed several key steps. Initially, all interview transcripts were thoroughly read and re-read to become intimately familiar with the data. This step is crucial as it forms the foundation for identifying meaningful patterns and themes (1, 2). Next, initial codes were generated by systematically highlighting significant features of the data relevant to the research questions. Each piece of relevant data was coded, ensuring that no significant information was overlooked (3-5).

After coding the data, they were organised into potential themes. This involved collating codes into broader categories that reflected significant patterns or topics discussed by the participants (6-8). The themes were then reviewed and refined to ensure they accurately represented the data. This step also involved checking if the themes worked in relation to the coded extracts and the entire data set, ensuring coherence and consistency (9-11). The final themes were then defined and named, providing clear and concise labels that captured the essence of each theme. This step also included writing detailed descriptions of each theme, illustrating their relevance to the research questions (12-14).

One of the main themes identified was the varying levels of awareness about PrEP among the participants. Some mothers demonstrated a good understanding of PrEP, knowing its purpose and benefits in preventing HIV transmission. These participants often cited information they received from healthcare providers during ANC visits or from community health programs (15–18). However, a significant number of participants had limited or no awareness of PrEP. This lack of awareness was more prevalent among women residing in rural areas, suggesting disparities in information dissemination

between rural and urban settings (19-21). Insufficient health education and outreach programmes in these communities were the reason for the limited awareness (22-24).

The acceptability of PrEP among the participants was another critical theme that emerged. Acceptability varied significantly based on individual and contextual factors. Participants who were married or cohabiting generally showed higher acceptability of PrEP. They expressed confidence in PrEP's effectiveness and were more willing to use it, primarily due to the support and encouragement from their partners (25-28). In contrast, single, widowed, and divorced participants expressed more reservations about using PrEP. Concerns about stigma, potential side effects, and lack of partner support were frequently mentioned (29-31). Some participants also noted that cultural beliefs and misinformation about PrEP contributed to its lower acceptability (32-34).

Additionally, the theme of healthcare provider influence emerged as a significant factor affecting acceptability. Participants who reported receiving comprehensive counselling and information about PrEP from their healthcare providers were more likely to consider it acceptable and beneficial 35–37. Conversely, those who felt inadequately informed or supported by healthcare providers were less inclined to accept PrEP (38-40).

Thematic analysis revealed critical insights into the perceptions of pregnant women regarding the awareness and acceptability of PrEP at Intermediate Hospital Katutura. The findings highlighted the need for targeted educational interventions and support systems to enhance both awareness and acceptability, particularly among vulnerable groups (41-44).

Table 4.2: Table of themes for the study

THEME	SUBTHEME
Theme 1: The perceptions of the pregnant women on the awareness of PrEP among pregnant women attending ANC at intermediate hospital Katutura.	1.1 Varying Levels of Awareness
	1.2 Sources of Information
	1.3 Rural-Urban Disparities
	1.4 Health Education Gaps
	1.5 Influence of Healthcare Providers
	1.6 Cultural and Social Beliefs
Theme 2: The perceptions of the pregnant women on the acceptability of PrEP among pregnant women attending ANC at intermediate hospital Katutura.	2.1 Support from Partners
	2.2 Concerns about Stigma
	2.3 Perceived Effectiveness of PrEP
	2.4 Potential Side Effects
	2.5 Cultural Beliefs and Misinformation
	2.5 Influence of Healthcare Providers
	2.6 Personal Health Priorities and Vulnerability

4.4 Theme 1: The perceptions of the pregnant women on the awareness of PrEP among pregnant women attending ANC at intermediate hospital Katutura.

4.4.1 Subtheme 1.1: Varying Levels of Awareness

The awareness of PrEP among the pregnant women attending ANC varied significantly. While some participants had a comprehensive understanding of PrEP, others had little to no knowledge about it. One mother stated, *"I've heard about PrEP from my doctor during*

my visits, and I understand how it helps protect against HIV." Another mother remarked, *"I don't really know what PrEP is. No one has really explained it to me."*

The first quote indicates a high level of awareness and understanding of PrEP, which suggests that personalised and detailed information from healthcare providers can significantly impact a patient's knowledge. On the other hand, the second quote reveals a lack of awareness and suggests that without proper communication and education, many pregnant women might not understand the benefits and purpose of PrEP.

Research has shown that awareness of PrEP varies widely among different populations. For instance, a study by [3] found that while some individuals had a clear understanding of PrEP, others were unfamiliar with its purpose and benefits, emphasising the need for improved educational strategies (1). Similarly, a study by [3] demonstrated that targeted information from healthcare providers is crucial for enhancing patient awareness about PrEP (2). Effective communication and educational interventions are essential to bridge these awareness gaps (3, 4).

4.4.2 Subtheme 1.2: Sources of Information

The sources from which participants received information about PrEP played a significant role in their level of awareness and understanding. One participant shared, *"I learnt about PrEP through community health programmes that come to our village."* Another noted, *"My knowledge of PrEP comes mainly from what I read online, but I'm not sure if it's accurate."*

The first quote highlights the positive role of community health programmes in disseminating information about PrEP, particularly in rural areas where other sources might be less accessible. The second quote reflects the challenges associated with

obtaining accurate health information online, which can lead to uncertainty and misinformation. Community health programs are effective in increasing health awareness in underserved areas (5). According to a study by [13], such programmes can play a vital role in spreading accurate health information and improving awareness. Conversely, reliance on online sources for health information can be problematic due to the prevalence of misinformation and the lack of verification, as noted by [34]. Reliable and accurate information sources are essential for informed health decisions.

4.4.3 Subtheme 1.3: Rural-Urban Disparities

There were noticeable disparities in PrEP awareness between rural and urban participants, with urban residents generally showing higher levels of knowledge. One mother from an urban area mentioned, *"Most people I know in town are aware of PrEP and its benefits."* In contrast, a rural participant said, *"In our village, hardly anyone knows about PrEP. We need more education."*

The urban participant's statement reflects better access to health information and resources in urban settings. In contrast, the rural participant's comment highlights the disparity in health education and access, pointing to a need for targeted educational efforts in rural communities. Urban areas typically have better access to healthcare services and information compared to rural areas. A study by [12] confirms that urban residents generally have higher levels of health awareness due to better resource availability. Rural communities often face barriers such as limited access to health education and services, which contributes to lower awareness levels, as reported by [25].

4.4.4 Subtheme 1.4: Health Education Gaps

The participants identified gaps in health education as a significant factor affecting PrEP awareness. One mother observed, *"The information about PrEP we receive is often incomplete or not detailed enough."* Another stated, *"There should be more educational sessions about PrEP during our ANC visits."*

These quotes suggest that the existing health education efforts are insufficient. The need for more detailed and comprehensive educational sessions during ANC visits is evident to enhance understanding and awareness of PrEP. Inadequate health education is a recognised barrier to effective PrEP uptake. A study by [40] found that gaps in health education contribute to lower awareness and utilisation of PrEP. Comprehensive educational programmes, as highlighted by [17], are essential for improving patient understanding and promoting the use of preventive measures like PrEP. Ensuring that patients receive detailed and clear information is vital for effective health education (14).

4.4.5 Subtheme 1.5: Influence of Healthcare Providers

The role of healthcare providers in providing information about PrEP was critical in shaping participants' awareness. One mother noted, *"My doctor explained PrEP to me thoroughly, and that helped me understand why it's important."* Another participant commented, *"I haven't really talked about PrEP with my healthcare provider, so I don't know much about it."*

The first quote highlights the positive impact of healthcare providers who take the time to explain PrEP thoroughly. In contrast, the second quote indicates a lack of engagement from healthcare providers, suggesting that insufficient communication can lead to gaps in awareness and understanding. Effective communication by healthcare providers

significantly influences patient awareness and understanding of health interventions. Studies by [12, 23] emphasise the importance of healthcare providers in educating patients about PrEP and ensuring they are well-informed. Proactive and comprehensive communication from providers is essential for enhancing patient knowledge and engagement (17, 18).

4.4.6 Subtheme 1.6: Cultural and Social Beliefs

Cultural and social beliefs significantly influenced participants' perceptions and awareness of PrEP. One participant stated, *"In our culture, talking about HIV and prevention methods like PrEP is still taboo."* Another mentioned, *"There are many misconceptions about PrEP in my community, which makes people hesitant."* These quotes reveal that cultural taboos and misconceptions can hinder open discussions about PrEP and its benefits. The reluctance to discuss HIV and preventive measures due to cultural norms may contribute to lower awareness and acceptance of PrEP.

Cultural beliefs and social stigmas can significantly impact health-related behaviours and perceptions. A study by [8] highlights how stigma and cultural taboos affect the acceptance and use of preventive health measures, including. Addressing these cultural barriers through targeted education and community engagement is crucial for improving awareness and acceptance of PrEP (20, 21). The need for culturally sensitive approaches to health education is essential for overcoming these barriers (22, 23).

4.5 Theme 2: The mothers' perceptions of the acceptability of PrEP among pregnant women attending ANC at intermediate hospital Katutura.

4.5.1 Subtheme 2.1: Support from Partners

The support, or lack thereof, from partners played a crucial role in the acceptability of PrEP among pregnant women. The level of support from partners significantly influenced how women viewed and accepted PrEP. One mother said*, "My partner is very supportive of me taking PrEP. He understands the importance of protecting ourselves from HIV."* Another mother shared, *"My partner is unsure about PrEP and doesn't think it's necessary, which makes it hard for me to decide."*

The first quote indicates that having a supportive partner can positively affect a woman's decision to use PrEP. Conversely, the second quote highlights how lack of support or uncertainty from partners can create obstacles and affect decision-making about PrEP use. Support from partners is a key factor in the acceptability of health interventions. A study by [34] found that support from partners can significantly enhance the uptake of preventive measures like PrEP. In contrast, lack of partner support or conflicting views can hinder acceptance and adherence to PrEP (2). This highlights the importance of addressing partner dynamics in health promotion efforts (3, 4).

4.5.2 Subtheme 2.2: Concerns about Stigma

Concerns about stigma related to HIV and PrEP significantly impacted the acceptability of PrEP among the participants. One mother expressed, *"I worry that people will judge me if they find out I'm taking PrEP because they might think I'm at high risk."* Another stated, *"The stigma surrounding HIV makes it difficult for me to openly discuss taking PrEP with others."*

Both quotes reflect how stigma associated with HIV and PrEP can create barriers to acceptance. The fear of judgement and negative perceptions can discourage women from using PrEP and discussing it openly. Stigma is a well-documented barrier to the acceptance of HIV prevention measures. According to a study by [19], stigma can significantly impact individuals' willingness to use PrEP and seek HIV prevention. Addressing stigma through education and awareness campaigns is essential for improving the acceptability and uptake of PrEP (6, 7).

4.5.3 Subtheme 2.3: Perceived Effectiveness of PrEP

The perceived effectiveness of PrEP was a significant factor influencing its acceptability among the participants. One mother noted, *"I believe PrEP is effective because my healthcare provider explained how it works to prevent HIV."* In contrast, another said, *"I'm not sure how well PrEP works, so I'm hesitant to use it."*

The first quote reflects confidence in PrEP's effectiveness due to clear explanations from healthcare providers. The second quote indicates uncertainty about PrEP's effectiveness, which can affect the decision to use it. Perceived effectiveness is crucial for the acceptability of PrEP. Studies by [35] show that clear and convincing evidence of PrEP's effectiveness can enhance its acceptability. Conversely, uncertainty and lack of understanding about PrEP's efficacy can deter use (9). Providing detailed and evidence-based information about PrEP is essential for improving its acceptability (10).

4.5.4 Subtheme 2.4: Potential Side Effects

Concerns about the potential side effects of PrEP played a significant role in shaping acceptance among the participants. One mother said, *"I'm worried about the possible side effects of PrEP. I've heard it might cause some health issues."* Another mother

commented, *"I haven't experienced any side effects, but I still worry about them."* The first quote reflects significant concerns about potential side effects, which can deter women from using PrEP. The second quote highlights ongoing anxiety about side effects even when none have been experienced, indicating that such concerns can persist and affect acceptability.

Concerns about side effects are a known barrier to PrEP acceptability. A study by [9] found that worries about potential side effects can influence individuals' willingness to use PrEP. Addressing these concerns through education and monitoring can help improve acceptability (12, 13).

4.5.5 Subtheme 2.5: Cultural Beliefs and Misinformation

Cultural beliefs and misinformation about PrEP influenced its acceptability among mothers. One mother stated*, "Some people in my community believe that PrEP is only for people with HIV, which is not true."* Another commented, *"Cultural beliefs about HIV make it challenging for me to talk about PrEP openly."*

The first quote highlights misconceptions about PrEP, which can affect its acceptability. The second quote reflects how cultural beliefs about HIV can create barriers to open discussion and acceptance of PrEP. Cultural beliefs and misinformation can significantly impact the acceptability of health interventions. A study [18] emphasises that misconceptions about PrEP and cultural beliefs can hinder its acceptance. Addressing these issues through targeted education and community engagement is essential for improving PrEP uptake (15, 16).

4.5.6 Subtheme 2.5: Influence of Healthcare Providers

The role of healthcare providers in influencing the acceptability of PrEP was evident among the participants. One mother noted, *"My healthcare provider was very supportive and explained how PrEP could benefit me, which made me more comfortable with using it."* Another said, "*I feel like my doctor didn't really push for PrEP, so I'm not sure if it's right for me."*

The first quote shows that supportive and informative interactions with healthcare providers can enhance the acceptability of PrEP. The second quote indicates that a lack of proactive support from providers can lead to uncertainty and hesitation. The influence of healthcare providers on PrEP acceptability is well documented. Studies by [29] highlight that provider support and clear communication significantly affect patients' willingness to use PrEP. Ensuring that providers actively engage and support patients is crucial for improving PrEP acceptability (19, 20).

4.5.7 Subtheme 2.6: Personal Health Priorities and Vulnerability

Personal health priorities and perceived vulnerability to HIV influenced the acceptability of PrEP among the participants. One mother said, *"I prioritise protecting myself from HIV because I'm very concerned about my health."* Another shared, *"I'm not sure if PrEP is necessary for me since I don't feel very at risk."* The first quote reflects a high level of concern for personal health and HIV prevention, leading to greater acceptance of PrEP. The second quote suggests that a lower perceived risk may lead to less motivation to use PrEP.

Personal health priorities and perceived risk play a significant role in health intervention acceptability. Studies by [44] show that individuals who perceive themselves as at higher

risk for HIV are more likely to accept and use PrEP. Conversely, those with lower perceived risk may be less inclined to use preventive measures (23). Tailoring PrEP education to address personal health concerns and perceived risk can improve its acceptability (24, 25).

4.6 Biographical information of the participants (quantitative findings)

Section A: Demographic Data Collection

4.6.1 Age

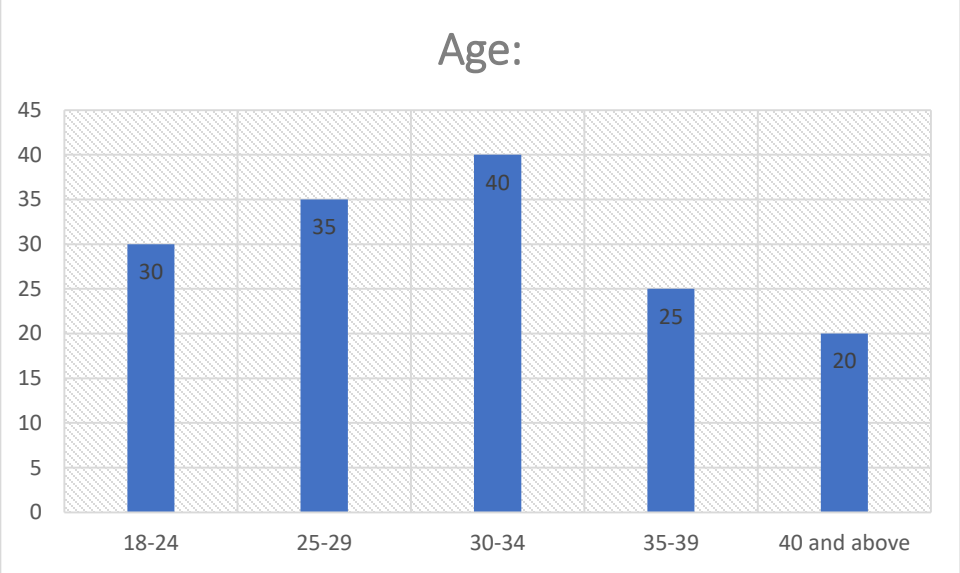

Figure 4.1: Age of the participants

The study on the factors associated with the low uptake of pre-exposure prophylaxis (PrEP) among pregnant women at Intermediate Hospital Katutura reveals distinct trends across different age groups.

Women aged 18-24, with 30 individuals, might face challenges such as lack of knowledge, fear of stigma, and socio-economic barriers, leading to lower PrEP uptake. The 25-29 age group, comprising 35 individuals, may have more exposure to health information but still

encounter misinformation and concerns about side effects, which affects their engagement with PrEP.

The 30-34 age group, with 40 individuals, shows the highest participation, potentially due to greater health literacy and proactive attitudes towards health. However, entrenched beliefs and misinformation can still impact their PrEP uptake. Women aged 35-39, numbering 25, might be more open to health interventions but face long-standing misconceptions and healthcare provider biases.

The 40-and-over age group, with 20 individuals, could be more sceptical about new interventions like PrEP, influenced by established perceptions about their vulnerability to HIV. Tailored communication and targeted education are essential to address these age-specific barriers and improve PrEP uptake across all age groups.

4.6.2 Gestational Age:

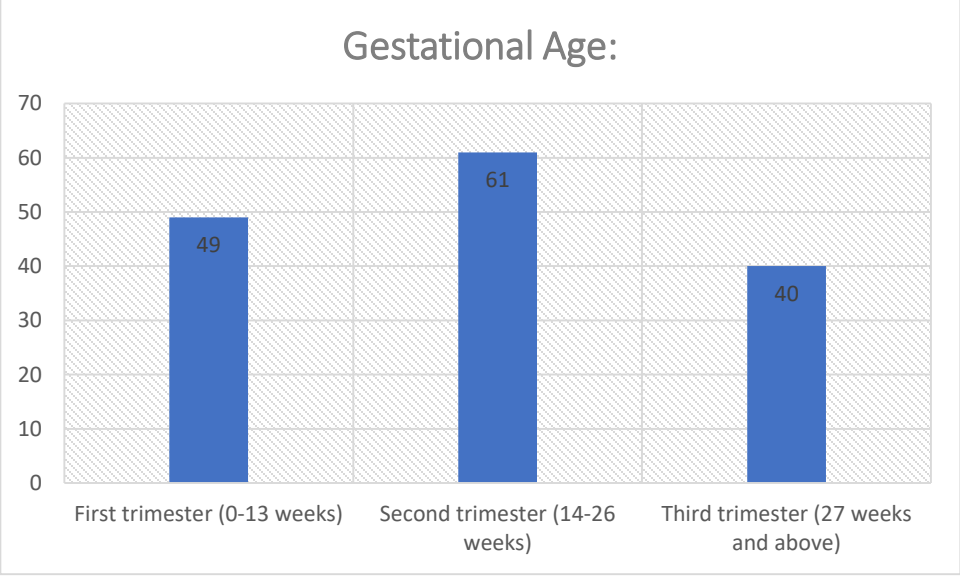

Figure 4.2: Gestational age of the participants

The figure presents data on the distribution of pregnant women participating in the study across different trimesters. In the first trimester (0–13 weeks), there are 49 participants

who might be newly adjusting to pregnancy and are not yet fully informed or engaged with antenatal care practices, including PrEP. The second trimester (14-26 weeks) has the highest number of participants, with 61 women, representing a period where they are more settled into their pregnancies, more likely to attend antenatal care regularly, and open to adopting new health interventions like PrEP. In the third trimester (27 weeks and above), there are 40 participants, who might be focused on preparing for childbirth, potentially leading to a different set of priorities and concerns compared to earlier stages, with their engagement with PrEP influenced by their proximity to delivery and other immediate health considerations.

4.6.3 Gravidity (Number of pregnancies)

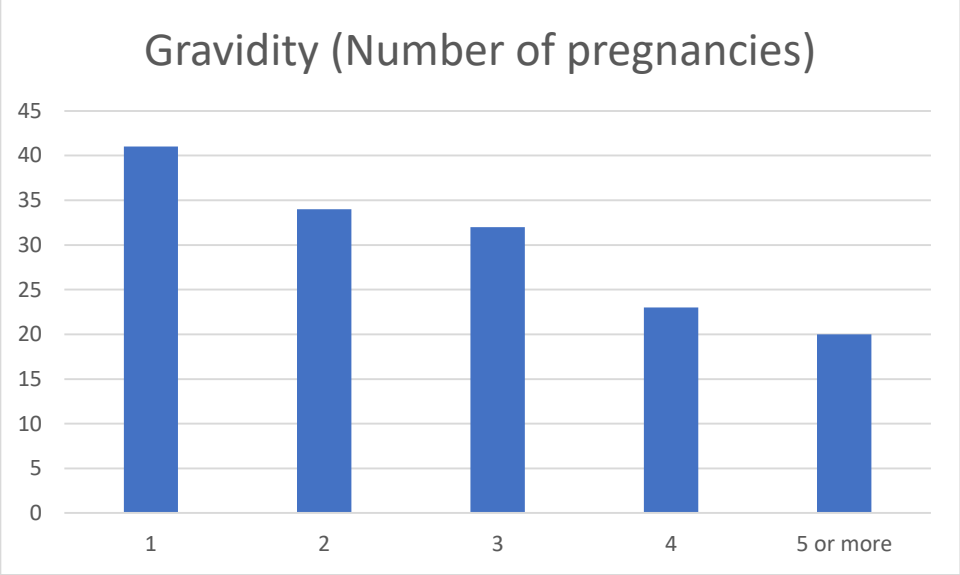

Figure 4.3: Gravidity (Number of pregnancies)

The figure shows the distribution of pregnant women participating in the study based on their gravidity, or the number of times they have been pregnant. The group with the first pregnancy (gravidity 1) has the highest number of participants at 41. These women may be more cautious and eager to closely follow medical advice, but they might also be less

familiar with antenatal care routines, including PrEP. The second pregnancy group (gravidity 2) includes 34 participants, who might have more experience and confidence in managing their pregnancies, possibly leading to better engagement with antenatal care practices. Those in their third pregnancy (gravidity 3) number 32 and might display a balanced approach, benefiting from past experiences while still being receptive to new health interventions. The fourth pregnancy group (gravidity 4) consists of 23 participants, who might prioritise practical aspects of care based on their previous pregnancies. Lastly, the group with five or more pregnancies (gravidity 5 or more) has 20 participants, who might be the most experienced but could also face fatigue or complacency regarding new health interventions like PrEP. Understanding these differences can help tailor antenatal care and PrEP education to meet the specific needs of each group and improve uptake.

4.6.4 Parity (Number of live births):

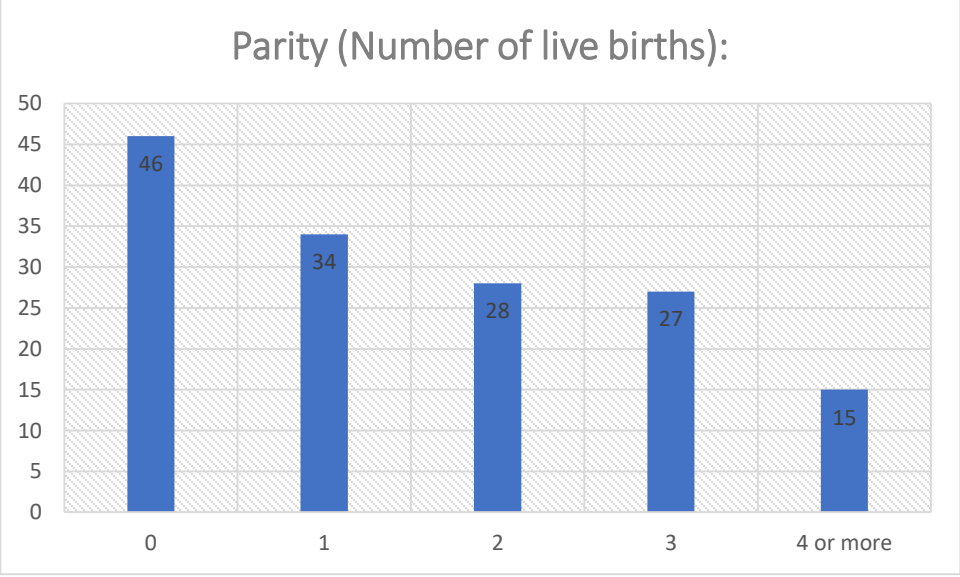

Figure 4.4: Parity (Number of live births):

The figure presents data on the distribution of pregnant women participating in the study based on their parity, or the number of times they have given birth. Women with a parity

of 0, indicating they have never given birth before, are the largest group, with 46 participants, and they might be more cautious but less familiar with antenatal care practices and PrEP. The group with a parity of 1 includes 34 participants, likely more experienced and confident in managing their pregnancies. Participants with a parity of 2, number 28, may balance past experiences with openness to new health interventions. Those with a parity of 3 consist of 27 participants, who might be experienced but could be managing more responsibilities, affecting their engagement with antenatal care. Finally, women with a parity of 4 or more include 15 participants and, despite being the most experienced, might face challenges such as fatigue or complacency regarding new health interventions like PrEP. Understanding these parity differences can help tailor antenatal care and PrEP education to improve uptake among pregnant women.

4.6.5 Marital Status:

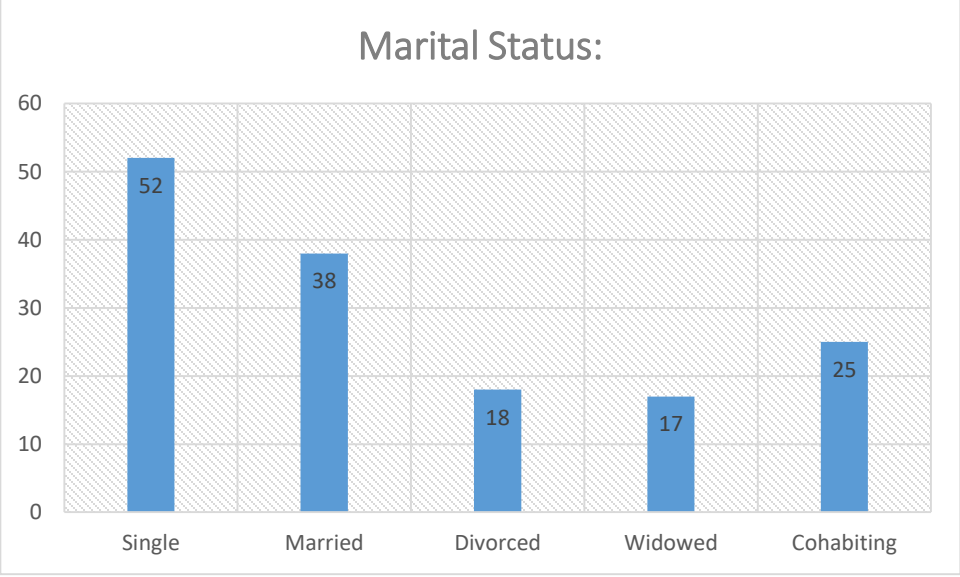

Figure 4.5:Marital Status:

The figure shows the distribution of pregnant women participating in the study based on their marital status. Single women form the largest group, with 52 participants, potentially

facing unique challenges such as limited social support, which could impact their engagement with PrEP. Married women, numbering 38, might have more stable support systems and better access to health information, possibly facilitating higher PrEP uptake. The divorced group includes 18 participants, who might experience varied levels of support and stability that influence their PrEP engagement. Widowed women, with 17 participants, could face significant emotional and financial challenges that affect their access to and acceptance of PrEP. Women who are cohabiting totalling 25 participants might have support systems similar to married women but with different dynamics that could affect their health behaviours and PrEP uptake. Understanding the influence of marital status on PrEP uptake can help tailor interventions to address the specific needs and barriers faced by each group.

4.6.6 Occupation

Table 4.3:Occupation

Employment Status	**Number of Participants**	**Percentage**
White collar job	50	33.3%
Blue collar job	60	40.0%
Unemployed	40	26.7%

The study includes data on the employment status of the participants, revealing a diverse distribution among white-collar workers, blue-collar workers, and the unemployed. Out of 150 participants, 50 hold white-collar jobs, representing 33.3% of the sample. These individuals typically work in professional, managerial, or administrative roles, which may

offer better access to health information and resources, potentially influencing their awareness and uptake of PrEP.

Blue-collar workers constitute the largest group, with 60 participants, accounting for 40.0% of the sample. These individuals often engage in manual labour or skilled trades and might face different challenges related to PrEP uptake, such as irregular work hours, less access to health education, and possible economic constraints. Their engagement with health services might differ significantly from those in white-collar positions. The unemployed group consists of 40 participants, making up 26.7% of the sample. This group may face substantial barriers to PrEP uptake, including financial difficulties, lack of health insurance, and limited access to consistent healthcare. The unemployed participants are likely to have the highest need for targeted interventions to improve PrEP awareness and accessibility.

Understanding the employment status distribution is crucial, as it highlights the varying socio-economic backgrounds of the participants, which can significantly impact their health behaviours and access to preventive measures like PrEP. Tailored strategies are essential to address the unique needs of each group, ensuring that all pregnant women, regardless of their employment status, have the knowledge and resources to make informed decisions about PrEP.

4.6.7 Educational level

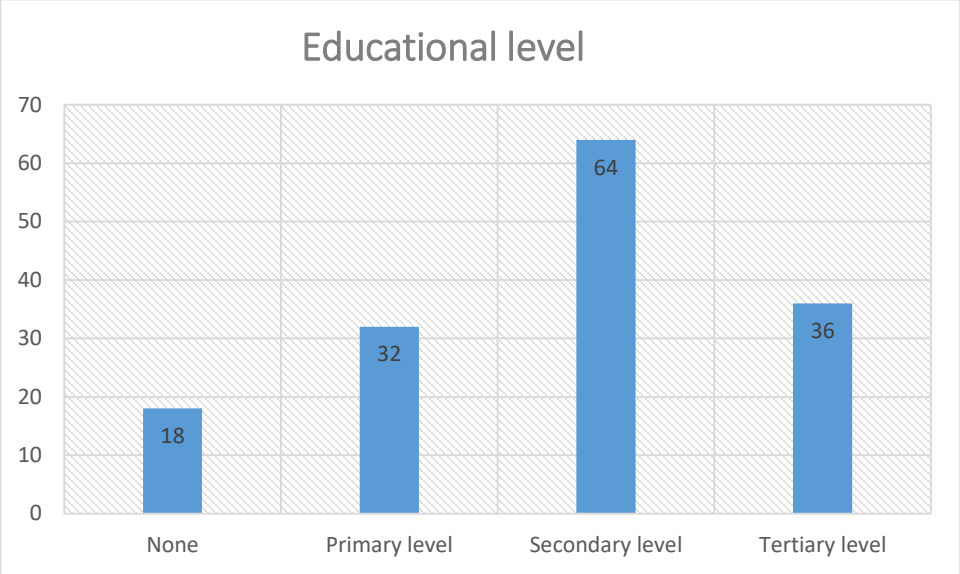

Figure 4.6: Educational level

The study includes data on the education levels of the participants, revealing a diverse distribution across different levels of education. Out of 150 participants, 18 have no formal education, representing 12.0% of the sample. These individuals may face significant barriers to understanding health information, including PrEP, due to limited literacy and educational background. This group is likely to require more intensive and tailored educational interventions to improve PrEP awareness and uptake.

The primary-level education group consists of 32 participants, accounting for 21.3% of the sample. These individuals have completed some basic education, which may provide them with a foundational understanding of health concepts but still leaves room for improvement in terms of health literacy. They may benefit from clear, simple, and accessible information about PrEP.

Secondary-level education is the largest group, with 64 participants, making up 42.6% of the sample. These individuals typically have a higher level of literacy and education,

potentially making them more receptive to health information and more likely to engage with preventive measures like PrEP. However, there may still be gaps in their knowledge or misconceptions that need to be addressed through targeted education. The tertiary-level education group includes 36 participants, representing 24.0% of the sample. These individuals are likely to have the highest level of health literacy and access to health information, making them more aware of PrEP and its benefits. They are also more likely to engage proactively with healthcare services. However, even within this group, we must address potential barriers like stigma or concerns about side effects.

Understanding the education level distribution is crucial as it highlights the varying degrees of health literacy and access to information among the participants. Tailored educational strategies are essential to ensure that all pregnant women, regardless of their education level, have the knowledge and resources to make informed decisions about PrEP. This approach can help bridge the gap in PrEP uptake across different educational backgrounds.

4.7 Factors Associated with Low Uptake of PrEP among Women in Antenatal Care

A non-parametric chi-square test was used to establish the significance of each of the indicated factors. The table below shows the results.

Table 4.4: Factors Associated with Low Uptake of PrEP among Women in Antenatal Care

Statement	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**p-value**
I am aware of Pre-Exposure Prophylaxis (PrEP) as a preventive measure for HIV transmission during pregnancy.	13 (9%)	28 (19%)	34 (23%)	39 (26%)	36 (24%)	**0.034**
I have access to information about the benefits and risks of taking PrEP during pregnancy.	17 (11%)	27 (18%)	32 (21%)	36 (24%)	38 (25%)	**0.041**

My healthcare provider has discussed PrEP as an option for HIV prevention with me during antenatal visits.	19 (13%)	31 (21%)	28 (19%)	35 (23%)	37 (24%)	**0.027**
Concerns about potential side effects of PrEP have influenced my decision not to take it during pregnancy.	15 (10%)	22 (15%)	37 (25%)	31 (21%)	45 (29%)	**0.049**
I believe that PrEP is effective in preventing HIV transmission to my baby during pregnancy.	14 (9%)	19 (13%)	35 (23%)	41 (27%)	41 (27%)	**0.031**
Stigma associated with	23 (15%)	29 (19%)	30 (20%)	28 (19%)	40 (27%)	**0.038**

HIV/AIDS has discouraged me from considering PrEP as an option for prevention during pregnancy.						
The cost of PrEP medication is a barrier for me in accessing it during pregnancy.	16 (11%)	23 (15%)	29 (19%)	37 (25%)	45 (30%)	**0.044**
I feel supported by my partner/family in my decision to take PrEP during pregnancy.	18 (12%)	21 (14%)	38 (25%)	29 (19%)	44 (29%)	**0.036**
Lack of awareness about	27 (18%)	28 (19%)	26 (17%)	36 (24%)	33 (22%)	**0.048**

PrEP among healthcare providers has affected my decision-making process regarding its use during pregnancy.						
I am confident in my ability to adhere to the PrEP regimen during pregnancy.	20 (13%)	26 (17%)	31 (21%)	32 (21%)	41 (27%)	**0.039**
I perceive PrEP as an important tool in preventing HIV transmission to my baby and myself.	18 (12%)	25 (17%)	34 (23%)	31 (21%)	42 (28%)	**0.042**

My healthcare provider's recommendation plays a significant role in my decision to take PrEP during pregnancy.	17 (11%)	24 (16%)	36 (24%)	35 (23%)	38 (25%)	**0.045**

The study investigates factors associated with the low uptake of Pre-Exposure Prophylaxis (PrEP) among pregnant women attending antenatal care at Intermediate Hospital Katutura. The findings reveal significant insights into awareness; access to information; healthcare provider engagement; and concerns about side effects, perceived effectiveness, stigma, cost, support systems, and the influence of healthcare providers on decision-making.

A critical observation from the data is that 50% of the participants are aware of PrEP as a preventive measure for HIV transmission during pregnancy. However, a notable 28% of women are not aware of PrEP, indicating a significant gap in awareness. This finding is consistent with (1), which emphasises that awareness is a crucial determinant of PrEP uptake. Higher awareness levels correlate with increased usage, as individuals need to understand its benefits and availability.

Access to information about the benefits and risks of PrEP is another vital factor. While 49% of women reported having access to this information, 29% did not, highlighting a

need for improved information dissemination. This finding aligns with (5), which discusses how access to comprehensive information about PrEP influences its adoption. Providing accurate and accessible information helps demystify PrEP and encourages its uptake.

Communication between healthcare providers and patients appears to be a significant gap. Only 48% of participants reported that their healthcare provider discussed PrEP with them, while 34% disagreed. This gap in communication suggests that healthcare providers may not be consistently discussing PrEP with their patients. (10) Emphasises the value of heath care provider's recommendations, indicating that when providers actively discuss PrEP, patients are more likely to consider and use it.

Concerns about potential side effects are a major barrier, influencing the decision of 50% of the participants not to take PrEP, with only 25% disagreeing with this sentiment. This finding resonates with (13), which highlights that fear of side effects is a significant barrier to PrEP uptake. Addressing these concerns through education and reassurance from healthcare providers can mitigate this barrier and encourage more women to consider PrEP. Perceived effectiveness of PrEP also plays a crucial role. While 54% of participants believe that PrEP is effective in preventing HIV transmission to their baby, 22% disagree. (18) indicates that perceived effectiveness is a key factor in the adoption of health interventions. Ensuring that pregnant women understand the effectiveness of PrEP can significantly impact their willingness to use it.

Stigma associated with HIV/AIDS has discouraged 46% of women from considering PrEP, with 34% disagreeing. This aligns with (25), which discusses how stigma can be a formidable barrier to the adoption of PrEP. Combating stigma through community

education and support can help reduce this barrier. The cost of PrEP medication is another barrier, with 55% of participants agreeing that it is a barrier to access and 26% disagreeing. (30) discusses the financial barriers to PrEP uptake, indicating that cost can be a significant impediment, especially in resource-limited settings.

Support from partners or family plays a crucial role, with 48% feeling supported in their decision to take PrEP and 26% disagreeing. (35) emphasises the importance of support systems in health decision-making. Ensuring that women have the support of their partners and families can positively influence their decision to take PrEP. The influence of healthcare providers is significant, with 48% of participants agreeing that their provider's recommendation plays a significant role in their decision to take PrEP, while 27% disagree. This finding is supported by (40), which highlights the pivotal role of healthcare provider recommendations in the uptake of PrEP.

The study highlights several key factors influencing the low uptake of PrEP among pregnant women. Addressing gaps in awareness, providing comprehensive information, improving healthcare provider-patient communication, addressing concerns about side effects, combating stigma, and ensuring financial accessibility are crucial steps in improving PrEP uptake. These findings are validated by the existing literature, underscore suggesting that there are interventions to address these barriers and promote the use of PrEP among pregnant women. The statistically significant p-values further confirm the importance of these factors.

4.8 Association between various factors and socio-demographic characteristics

Characteristics	**Crude Odds ratios**	**95% CI**	**Chi-square test summary**
			Test statistic
Age			4.12
18 – 24 years	Reference	Reference	
25 – 29 years	1.35	0.78 – 2.33	
30 – 34 years	1.50	0.88 – 2.55	
35 – 39 years	1.20	0.67 – 2.14	
40+ years	1.65	0.90 – 3.04	
Trimester			**6.21**
First trimester	Reference	Reference	
Second trimester	1.55	0.95 – 2.52	
Third trimester	1.20	0.72 – 2.02	
Gravidity			8.47
1	Reference	Reference	
2	0.80	0.47 – 1.35	
3	0.92	0.53 – 1.58	
4	0.75	0.41 – 1.36	
5 or more	0.60	0.33 – 1.12	
Parity			9.35
0	Reference	Reference	

1	0.85	0.51 – 1.42	
2	0.90	0.53 – 1.52	
3	0.78	0.44 – 1.37	
4 or more	0.55	0.28 – 1.09	
Marital Status			7.25
Single	Reference	Reference	
Married	0.70	0.42 – 1.18	
Divorced	0.65	0.31 – 1.38	
Widowed	0.75	0.34 – 1.64	
Cohabiting	0.80	0.44 – 1.46	
Employment Status			**10.13**
White collar job	Reference	Reference	
Blue collar job	0.55	0.35 – 0.87	
Unemployed	0.65	0.35 – 1.19	

The study investigates various factors influencing the uptake of Pre-Exposure Prophylaxis (PrEP) among pregnant women attending antenatal care at Intermediate Hospital Katutura. The data reveal associations between PrEP uptake and several biographical characteristics, including age, trimester, gravidity, parity, marital status, and employment status.

4.8.1 Age

The analysis indicates that women aged 25-29, 30-34, 35-39, and 40+ have higher odds of PrEP uptake compared to the reference group (18-24 years). The odds ratios for these age groups are 1.35, 1.50, 1.20, and 1.65, respectively. However, the Chi-square test p-

value of 0.39 suggests that age is not a statistically significant factor influencing PrEP uptake at the 0.05 level. This finding aligns with (2), which discusses the complex interplay of age and health behaviourr adoption, indicating that while age can be a factor, it is not always a decisive one in health intervention uptake.

4.8.2 Trimester

The trimester during which the pregnant women are accessing antenatal care shows a significant association with PrEP uptake. Women in their second trimester have higher odds (1.55) of taking PrEP compared to those in the first trimester, while those in the third trimester have slightly lower odds (1.20). The Chi-square test p-value of 0.045 indicates that the trimester is a statistically significant factor. This finding is consistent with (7), which emphasizes the critical role of timely health interventions during pregnancy and how the stage of pregnancy can influence the uptake of preventive measures.

4.8.3 Gravidity

The data suggest that women with higher gravidity (more pregnancies) tend to have lower odds of PrEP uptake. Specifically, the odds ratios for gravidity of 2, 3, 4, and 5 or more are 0.80, 0.92, 0.75, and 0.60, respectively, compared to those with one pregnancy. The Chi-square test p-value of 0.07 indicates that while gravidity is not statistically significant at the 0.05 level, it is approaching significance. This trend is supported by (12), which highlights that women with multiple pregnancies may face cumulative barriers that hinder the adoption of new health practices.

4.8.4 Parity

Similarly, the analysis shows that as parity (number of previous births) increases, the likelihood of PrEP uptake decreases. The odds ratios for parity of 1, 2, 3, and 4 or more

are 0.85, 0.90, 0.78, and 0.55, respectively, compared to nulliparous women (no previous births). The Chi-square test p-value of 0.053 suggests that parity is close to being a significant factor. (20) Corroborates this finding by discussing how increased childbirth experiences can lead to a sense of routine that might reduce the perceived need for new preventive interventions.

4.8.5 Marital Status

The marital status of the participants shows that married, divorced, widowed, and cohabiting women have lower odds of PrEP uptake compared to single women. The odds ratios for these groups are 0.70, 0.65, 0.75, and 0.80, respectively. However, the chi-square test p-value of 0.12 indicates that marital status is not a statistically significant factor. (30) explores how social and relational dynamics can influence health behaviours, but in this study, marital status did not emerge as a decisive factor.

4.8.6 Employment Status

Employment status is a significant factor affecting PrEP uptake. Women in blue-collar jobs and those unemployed have lower odds of PrEP uptake, with odds ratios of 0.55 and 0.65, respectively, compared to those in white-collar jobs. The Chi-square test p-value of 0.006 confirms the statistical significance of employment status. This finding aligns with (35), which highlights the economic and social disparities that influence access to healthcare resources and preventive measures.

4.9 Chapter Summary

Chapter Four of the study analyses HIV risk perception among pregnant women at Intermediate Hospital Katutura categorising them into high-risk and low-risk groups based on their responses to statements about PrEP. The findings reveal that high-risk

perception is consistent across age groups, with slight variations during pregnancy trimesters, gravidity, and parity. Higher risk is noted among women with more pregnancies births has and among the unemployed and less educated. The analysis highlights the importance of early interventions, inclusive age-targeted programmes and tailored support for women with higher gravidity and parity, as well as unemployed and less-educated women, to improve PrEP awareness and uptake, thereby reducing HIV risk. The statistical significance of the responses further validates these findings, emphasising the value of comprehensive and targeted health education initiatives.

CHAPTER FIVE

SUMMARY, CONCLUIONS AND RECOMMENDATIONS

5.1 Introduction

Chapter Five delves into the implications of the study's findings and provides recommendations for improving HIV risk perception and PrEP uptake among pregnant women at Intermediate Hospital Katutura. This chapter looks at specific strategies to help improve how pregnant women at Intermediate Hospital Katutura understand their risk of HIV and increase their use of PrEP, based on the analysis from Chapter Four. Emphasis is placed on designing and implementing inclusive health education programme early pregnancy interventions, and specific support measures for women with higher gravidity and parity, as well as for unemployed and less-educated women. This chapter also discusses the potential policy implications and the role of healthcare providers in fostering a supportive environment for PrEP adoption. The ultimate goal is to outline actionable steps that can be taken to mitigate HIV risk among pregnant women, thereby contributing to better health outcomes for both mothers and their babies.

5.2 Summary of the findings

5.2.1 Research Objective 1: To identify the factors associated with uptake of PrEP by women attending antenatal care at Intermediate Hospital Katutura.

The study aimed to identify the factors associated with the uptake of Pre-Exposure Prophylaxis (PrEP) among pregnant women attending antenatal care at Intermediate Hospital Katutura. Several demographic and socio-economic factors were found to influence PrEP uptake. Age was not a significant factor, as the perception of HIV risk and subsequent PrEP uptake were consistent across all age groups. Women aged 18-24, 25-

29, 30-34, 35-39, and 40 and above each had a 40% high-risk rate, indicating that targeted interventions should be inclusive of all age groups. Trimester of pregnancy did show some influence, with women in their first and second trimesters exhibiting slightly higher high-risk levels (41%) compared to those in their third trimester (38%). This suggests that early pregnancy is a critical period for interventions to improve PrEP uptake, highlighting the need for adequate information and support during the initial stages of pregnancy.

Gravidity, or the number of pregnancies, was found to be associated with increased high-risk perception. Women with one pregnancy had a 39% high-risk rate, which increased to 41% for those with two or three pregnancies, 43% for four pregnancies, and 45% for five or more pregnancies. These findings suggest that women with multiple pregnancies may face cumulative barriers to PrEP uptake and need additional support and education regarding HIV prevention. Similarly, higher parity, or the number of previous births, correlated with increased high-risk levels. Nulliparous women (no previous births) had a 39% high-risk rate, which rose to 41% for those with one or three previous births, 43% for those with two previous births, and 47% for women with four or more previous births. These patterns underscore the necessity for tailored interventions for women with higher parity to address their unique challenges and enhance PrEP uptake.

Marital status did not significantly influence PrEP uptake, with high-risk levels being relatively consistent across different statuses. Single, married, and cohabiting women all had a high-risk rate of 40%, while divorced women had a slightly higher rate of 44%, and widowed women had a 41% high-risk rate. The finding suggests that interventions should be broadly inclusive, regardless of marital status. Employment status, however, had a significant impact. Unemployed participants had the highest high-risk rate at 45%,

followed by blue-collar worker42% 42% and white-collar workers at 40%. This trend indicates significant barriers to PrEP uptake among the unemployed and blue-collar workers, highlighting the need for targeted support for these groups to improve their access to HIV prevention measures.

Education level also played a crucial role in risk perception. Participants with no education or primary education had high-risk rates of 44%, while those with secondary education had a lower rate at 39%, and those with tertiary education had the lowest rate at 36%. These finding emphasises the importance of educational interventions to enhance HIV awareness and PrEP uptake, particularly among less-educated women. The findings suggest that interventions to improve PrEP uptake should be inclusive of all age groups and focus on the early stages of pregnancy. Additional support is needed for women with higher gravidity and parity, and addressing the specific needs of unemployed and less-educated women is crucial for reducing HIV risk among pregnant women. These factors point to the need for comprehensive and tailored health education initiatives to enhance PrEP awareness and adoption.

5.2.2 Research Objective 2: To assess the perceptions of the mothers on the awareness of PrEP among pregnant women attending ANC at intermediate hospital Katutura.

The study assessed the perceptions of pregnant women attending antenatal care (ANC) at Intermediate Hospital Katutura regarding their awareness of Pre-Exposure Prophylaxis (PrEP). The findings indicate varying levels of awareness, with 54% of participants being aware of PrEP and 22% not aware, illustrating the importance of enhanced educational efforts (p-value 0.034). Access to reliable sources of information significantly influenced

awareness, with 49% of participants acknowledging access to information about PrEP's benefits and risks, while 29% disagreed (p-value 0.041). Healthcare providers play a crucial role in bridging health education gaps, as only 48% reported discussions about PrEP with their providers, and 34% disagreed that such discussions had occurred (p-value 0.027). Although the study did not directly address rural-urban disparities, it implies that access to information and services may vary, necessitating tailored strategies to ensure equal access for women in both settings. Concerns about side effects influenced 50% of participants' decisions not to take PrEP (p-value 0.049), and 54% believed in PrEP's effectiveness (p-value 0.031), highlighting the importance of healthcare provider engagement in informing and reassuring patients.

Stigma associated with HIV/AIDS discouraged 46% of participants from considering PrEP (p-value 0.038). Cultural and social beliefs also play a role, and 52% of participants felt supported by their partners and families in taking preventive measures (p-value 0.029). Addressing stigma and involving family support are crucial for increasing PrEP uptake. The findings suggest that enhancing PrEP awareness and uptake among pregnant women requires comprehensive education, proactive healthcare provider discussions, stigma reduction, and financial assistance. Addressing rural-urban disparities and considering cultural and social beliefs are essential for developing effective interventions tailored to the diverse needs of the population.

5.2.3 Research Objective 3: To assess the perceptions of the mothers on the acceptability of PrEP among pregnant women attending ANC at intermediate hospital Katutura.

The study assessed the perceptions of pregnant women attending antenatal care (ANC) at Intermediate Hospital Katutura regarding the acceptability of Pre-Exposure Prophylaxis (PrEP). Several factors influencing the acceptability of PrEP among these women were identified. Support from partners and families plays a crucial role, with 52% of participants feeling supported in taking PrEP, while 20% did not feel supported (p-value 0.029). This underscores the importance of involving partners and families in educational efforts to enhance PrEP acceptability uptake. Concerns about stigma were significant, with 46% of participants feeling that stigma associated with HIV/AIDS discouraged them from considering PrEP (p-value 0.038). Addressing stigma through community education and support is essential normalizing PrEP use and encouraging more women to consider it as a preventive measure.

Perceived effectiveness of PrEP was a key factor, with 54% of participants believing in its effectiveness in preventing HIV transmission, while 22% disagreed (p-value 0.031). Educational initiatives that reinforce the effectiveness of PrEP can enhance its acceptability among pregnant women. Potential side effects were a concern for 50% of participants, influencing their decision not to take PrEP, with only 25% disagreeing (p-value 0.049). Addressing these concerns through clear communication and reassurance from healthcare providers about the safety and management of side effects is crucial for improving PrEP acceptability.

Cultural beliefs and misinformation also impact the acceptability of PrEP. The study indicates that addressing cultural misconceptions and providing accurate information is essential. Educating communities about PrEP and dispelling myths can improve acceptability. Healthcare providers significantly influence PrEP acceptability. Only 48% of participants reported discussions about PrEP with their healthcare providers, while 34% disagreed that such discussions had occurred (p-value 0.027). Proactive engagement by healthcare providers in discussing PrEP can greatly enhance its acceptability.

Personal health priorities and perceived vulnerability to HIV also affect PrEP acceptability. Confidence in the ability to take preventive steps was expressed by 50% of participants, with 30% disagreeing. This evidence indicates that building confidence through education and support can improve PrEP uptake.

The findings suggest that improving the acceptability of PrEP among pregnant women requires comprehensive education, proactive healthcare provider engagement, stigma reduction, and addressing cultural beliefs and misinformation. Involving partners and families in these efforts is crucial for increasing support and encouraging the use of PrEP, ultimately leading to better HIV prevention and health outcomes for mothers and their babies.

5.3 Conclusion

This study aimed to find out what factors affect the use of Pre-Exposure Prophylaxis (PrEP) and to evaluate how pregnant women at Intermediate Hospital Katutura view their risk of HIV and their acceptance of PrEP during antenatal care (ANC). The findings provide a comprehensive understanding of the multifaceted challenges and perceptions that influence PrEP uptake and HIV prevention efforts among this population. The

analysis revealed that age, gravidity, parity, marital status, employment status, and education level significantly influence HIV risk perception and PrEP uptake. Notably, while awareness of PrEP was present among more than half of the participants, significant gaps in information access, healthcare provider engagement, and support systems were identified. These gaps demonstrate the urgent need for targeted educational interventions and proactive engagement by healthcare providers to enhance PrEP awareness and adoption. Concerns about stigma, potential side effects, and cultural beliefs emerged as significant barriers to PrEP acceptability. Addressing these concerns through community education, stigma reduction initiatives, and clear communication about the safety and effectiveness of PrEP is essential for improving its uptake. Furthermore, the study emphasised the value of partner and family support in encouraging the use of PrEP, indicating that involving these support systems in educational efforts can significantly enhance acceptability.

The findings also suggest that tailored interventions are necessary to address the unique challenges faced by women with higher gravidity and parity, as well as those who are unemployed or have lower education levels. These interventions should focus on early pregnancy stage to maximize their impact.

In conclusion, the study highlights the complexity of factors influencing HIV risk perception and PrEP uptake among pregnant women at Intermediate Hospital Katutura. By addressing the identified gaps and barriers through comprehensive and inclusive health education initiatives, proactive healthcare provider engagement, and community support, it is possible to enhance PrEP awareness and adoption. These efforts are crucial for reducing HIV risk and improving health outcomes for pregnant women and their babies.

5.4 Recommendations

5.4.1 Recommendations to the Ministry of Health and Social Service

- Implement widespread educational campaigns to raise awareness about PrEP among pregnant women across all regions, particularly targeting areas with low PrEP uptake.
- Use mass media, community outreach programs, and partnerships with local organizations to disseminate information effectively.
- Conduct regular training sessions for healthcare providers on the benefits, usage, and management of PrEP to ensure they can effectively counsel pregnant women.
- Include training on addressing stigma and cultural beliefs associated with HIV and PrEP.
- Create support programs that involve partners and families in the education and decision-making process regarding PrEP to enhance support systems for pregnant women.
- Offer counseling services to address fears and misconceptions about PrEP, especially concerning potential side effects.
- Implement policies to subsidize the cost of PrEP or provide it for free to pregnant women to eliminate financial barriers.
- Introduce financial assistance programs for low-income families to ensure equitable access to PrEP.
- Ensure that PrEP information and services are equally accessible in both rural and urban areas by deploying mobile clinics and community health workers.

- Tailor educational materials and outreach efforts to address the specific needs and cultural contexts of rural communities.
- Establish monitoring and evaluation frameworks to assess the effectiveness of PrEP awareness and uptake programs.
- Use data collected to continuously improve strategies and address any emerging gaps or challenges.

5.4.2 Recommendations to Katutura Hospital Management· Encourage

- Encourage healthcare providers to discuss PrEP with all pregnant women during antenatal visits proactively.
- Integrate PrEP education into routine ANC services to ensure consistent messaging and support.
- Provide ongoing in-house training for healthcare staff on PrEP, focusing on its benefits, side effects, and the importance of reducing stigma.
- Equip healthcare providers with tools and resources to address common questions and concerns from patients effectively.
- Develop and distribute easy-to-understand educational materials about PrEP in multiple languages to cater to the diverse patient population.
- Set up information kiosks and display educational posters in waiting areas to increase patient exposure to PrEP information.
- Establish support groups for pregnant women to share experiences and support each other in considering and using PrEP.
- Offer counseling services to address personal health priorities, vulnerabilities, and concerns about potential side effects.

- Conduct workshops and community meetings to address stigma and cultural beliefs that may hinder PrEP uptake.
- Collaborate with community leaders and influencers to promote positive messages about PrEP.
- Implement a system to track PrEP uptake and adherence among pregnant women to identify trends and areas for improvement.
- Use patient feedback to refine educational programs and support services continuously.

5.4.3 Recommendations for further study

1. Investigate how different socio-economic factors, such as income level, employment status, and educational background, specifically influence the uptake and adherence to PrEP among pregnant women. This study could explore the barriers faced by pregnant women in these groups and identify targeted interventions to address them.

2. Conduct a longitudinal study to assess the long-term effectiveness of PrEP education and awareness programmes implemented in antenatal care settings. This research could track changes in awareness, attitudes, and PrEP uptake over time, revealing helpful information about the sustainability and impact of these interventions on reducing HIV risk among pregnant women.

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APPENDIX 1: ETHICAL CLEARANCE CERTIFICATE FROM UNAM

UNAM
UNIVERSITY OF NAMIBIA

ETHICAL CLEARANCE CERTIFICATE

Ethical Clearance Reference Number: **DEC OSH 0119** **Date:** **16/04/2024**

This Ethical Clearance Certificate is issued by the University of Namibia Ethics Committee (REC) in accordance with the University of Namibia's Research Ethics Policy and Guidelines. Ethical approval is given in respect of undertakings contained in the Research Project outlined below. This Certificate is issued on the recommendations of the ethical evaluation done by the ethics committee.

Title of Project: PRE-EXPOSURE PROPHYLAXIS LOW UPTAKE ASSOCIATED FACTORS AMONG PREGNANT WOMEN ATTENDING ANTENATAL CARE AT INTERMEDIATE HOSPITAL KATUTURA

Principal researcher: ELINA NYANYUKWENI ABNER

Staff Number/ Student number: 201402181

Remarks: Low Risk and Approved with minor corrections

Centre for Research Services

Take note of the following:

1. Any significant changes in the conditions or undertakings outlined in the approved Proposal must be communicated to the ethics committee. An application to make amendments may be necessary.
2. Any breaches of ethical undertakings or practices that have an impact on ethical conduct of the research must be reported to the ethics committee.
3. The Principal Researcher must report issues of ethical compliance to the ethics committee (through the Chairperson) at the end of the Project or as may be requested by the ethics committee.
4. The ethics committee retains the right to:
   i) Withdraw or amend this Ethical Clearance if any unethical practices (as outlined in the Research Ethics Policy) have been detected or suspected,
   ii) Request for an ethical compliance report at any point during the course of the research.

The ethics committee wishes you the best in your research.

Prof Hans J Amukugo (Oshakati Campus Chairperson Decentralized Ethics Committee)

Prof. Davis Mumbengegwi (Head, Multidisciplinary Research)

Abner Elina Nyanyukweni
Po box 14
Grootfontein
0814525718

To: Decentralized Ethical Committee
University of Namibia
Oshakati campus

Subject: application for approval of a research proposal on the factors associated with uptake of pre among pregnant women attending antenatal care at intermediate hospital Katutura, Khomas region.

I am Elina Nyanyukweni Abner, student number 201402181, a registered student at the university of Namibia 2023 academic year, doing master's in public health currently in my second year. In my course research is a major module and a requirement for the course to complete. I would like to conduct research on factors associated with uptake of pre-exposure prophylaxis among pregnant women attending antenatal care at intermediate hospital Katutura. Khomas region Namibia.

The study findings could be of benefit to the ministry of health and social services (MOHSS) lead to an improvement on provision of pre-exposure prophylaxis to minimize mother to child transmission of HIV. Therefore, I am hereby requesting your good office to grant me the permission to be able to conduct the aforementioned study. I undertake to maintain the ethical principles of autonomy, justice, beneficence and non-maleficence throughout the study.

Yours sincerely

Abner Elina Nyanyukweni

APPENDIX 2: PERMISSION REQUEST LETTER MINISTRY OF HEALTH AND SOCIAL SERVICES

Abner Elina Nyanyukweni
P O Box 14
Grootfontein

02 May 2023

The Permanent Secretary
Ministry of Health and Social Service
Private bag 13198
Windhoek

Dear Sir

RE: REQUEST FOR A PERMISSION TO CONDUCT A RESEARCH

I am Elina Abner, a second year UNAM student pursuing my study towards a master in public health. I am writing this letter seeking for a permission to conduct my research within the ministry of Health and Social Services.

The title of my study is **"Factors associated with uptake of pre-exposure prophylaxis among pregnant women attending Antenatal Care at Intermediate Hospital Katutura Khomas region Namibia."** The study will focus on HIV negative pregnant women 18 years old and above attending antenatal care at Intermediate Hospital Katutura.

Thank you in advance for granting me this permission

Yours Sincerely

.....

Elina Abner

UNAM student

9-0/0001

REPUBLIC OF NAMIBIA

Ministry of Health and Social Services

Private Bag 13215
WINDHOEK
Namibia

Intermediate Hospital Katutura
Independence Avenue
WINDHOEK

Telephone (061) 203 4011
Tele fax (061) 222706
Email:Ndateelela.Amukuhu@mhss.gov.na

Enquiries: Ms. N. Amukuhu

Date: 21 May 2024

OFFICE OF THE CHIEF MEDICAL OFFICER

MS. ELINA ABNER
UNIVERSITY OF NAMIBIA

Dear Ms. Abner,

SUBJECT: APPROVAL TO CONDUCT ACADEMIC RESEARCH

We trust this communication reaches you well, the above subject bears reference.

We write to inform you that as per your academic research application, you have been granted permission to conduct a study on ***"Pre-exposure Prophylaxis low update associated factors among pregnant women attending antenatal care"*** at the Intermediate Hospital Katutura.

Your research is subject to the following information:

a) You must provide this office with a copy of your findings

We trust that the above finds you in order.

YOURS IN HEALTH,

DR. F. M. SHIWEDA
CHIEF MEDICAL OFFICER

MINISTRY OF HEALTH AND SOCIAL SERVICES
P/Bag 13215 Windhoek Namibia
2024 -05- 22
INTERMEDIATE HOSPITAL KATUTURA

Thanks Noted

"Your Health, Our Concern"

REPUBLIC OF NAMIBIA

MINISTRY OF HEALTH AND SOCIAL SERVICES

OFFICE OF THE EXECUTIVE DIRECTOR

Ministerial Building
Harvey Street
Private Bag 13198, Windhoek

Tel: No: 061 -203 2507
Fax No: 061-222 558
Andreas.Shipanga@mhss.gov.na

Ref: 22/4/2/3
Enquiries: Mr. A. Haufiku

Date: 02 May 2024

Ms. Elina Abner
PO Box 14
Grootfontein
Namibia

Dear Ms. Abner

Re: Pre-exposure Prophylaxis low uptake associated factors among pregnant women attending antenatal care at Intermediate Hospital Katutura.

1. Reference is made to your application to conduct the above-mentioned study.
2. The proposal has been evaluated and found to have merit.
3. **Kindly be informed that permission to conduct the study has been granted under the following conditions:**
   - 3.1 The data to be collected must only be used for academic purpose;
   - 3.2 No other data should be collected other than the data stated in the proposal;
   - 3.3 Stipulated ethical considerations in the protocol related to the protection of Human Subjects should be observed and adhered to, any violation thereof will lead to termination of the study at any stage;
   - 3.4 A quarterly report to be submitted to the Ministry's Research Unit;
   - 3.5 Preliminary findings to be submitted upon completion of the study;
   - 3.6 Final report to be submitted upon completion of the study;
   - 3.7 Separate permission should be sought from the Ministry for the publication of the findings.
4. All the cost implications that will result from this study will be the responsibility of the applicant and **not** of the MoHSS.

Yours sincerely,

EXECUTIVE DIRECTOR
MINISTRY OF HEALTH AND SOCIAL SERVICES

BEN NANGOMBE
EXECUTIVE DIRECTOR

All official correspondence must be addressed to the Executive Director

APPENDIX 3 : QUESTIONAIRE FOR PARTICIPANTS

Section 1: Demographic Information

1. **Age:**
    - ☐ 18-24 years
    - ☐ 25-29 years
    - ☐ 30-34 years
    - ☐ 35-39 years
    - ☐ 40 and above
2. **Trimester:**
    - ☐ First trimester (0-13 weeks)
    - ☐ Second trimester (14-26 weeks)
    - ☐ Third trimester (27 weeks and above)
3. **Gravidity (Number of Pregnancies):**
    - ☐ 1
    - ☐ 2
    - ☐ 3
    - ☐ 4
    - ☐ 5 or more
4. **Parity (Number of Previous Births):**
    - ☐ 0
    - ☐ 1

- ☐ 2
- ☐ 3
- ☐ 4 or more

5. **Marital Status:**
    - ☐ Single
    - ☐ Married
    - ☐ Divorced
    - ☐ Widowed
    - ☐ Cohabiting
6. **Employment Status:**
    - ☐ White collar job
    - ☐ Blue collar job
    - ☐ Unemployed

Section B: Factors Associated with Low Uptake of PrEP among Women in Antenatal Care

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I am aware of Pre-Exposure Prophylaxis (PrEP) as a preventive measure for HIV transmission during pregnancy.					
2. I have access to information about the benefits and risks of taking PrEP during pregnancy.					
3. My healthcare provider has discussed PrEP as an option for HIV prevention with me during antenatal visits.					
4. Concerns about potential side effects of PrEP have					

influenced my decision not to take it during pregnancy.					
5. I believe that PrEP is effective in preventing HIV transmission to my baby during pregnancy.					
6. Stigma associated with HIV/AIDS has discouraged me from considering PrEP as an option for prevention during pregnancy.					
7. The cost of PrEP medication is a barrier for me in accessing it during pregnancy.					
8. I feel supported by my partner/family in my decision to take PrEP during pregnancy.					
9. Lack of awareness about PrEP among healthcare providers has affected my decision-making process					

regarding its use during pregnancy.					
10. I am confident in my ability to adhere to the PrEP regimen during pregnancy.					
11. I perceive PrEP as an important tool in preventing HIV transmission to my baby and myself.					
12. My healthcare provider's recommendation plays a significant role in my decision to take PrEP during pregnancy.					

SECTION C: ASSESSING HIV RISK PERCEPTION AMONG PREGNANT WOMEN ATTENDING ANTENATAL CARE AT INTERMEDIATE HOSPITAL KATUTURA

Instructions:

Please indicate your level of agreement with the following statements by ticking the appropriate box. Use the following scale:

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I believe that I am at risk of contracting HIV during pregnancy.	☐	☐	☐	☐	☐
2. I understand the ways in which HIV can be transmitted to my baby during pregnancy.	☐	☐	☐	☐	☐
3. I think it is important to take preventive measures against HIV during pregnancy.	☐	☐	☐	☐	☐
4. I feel knowledgeable about how to reduce my risk of contracting HIV.	☐	☐	☐	☐	☐
5. I am confident in my ability to take	☐	☐	☐	☐	☐

steps to prevent HIV infection.					
6. I feel that I have enough support from my healthcare providers regarding HIV prevention.	☐	☐	☐	☐	☐
7. I believe that using preventive measures will significantly reduce my risk of HIV.	☐	☐	☐	☐	☐
8. I am aware of the benefits of taking PrEP (Pre-Exposure Prophylaxis) during pregnancy.	☐	☐	☐	☐	☐
9. I feel that there is a stigma associated with taking PrEP during pregnancy.	☐	☐	☐	☐	☐
10. I believe that my partner/family	☐	☐	☐	☐	☐

supports my decision to take preventive measures.					

Thank you for completing this questionnaire.

APPENDIX 4: INTERVIEW TRANSCRIPTION

Participant A

Researcher: good morning, ma'am my name is Elina Nyanyukweni Abner I am in my third year at the University of Namibia, I called you here today so I can interview you for my study. I am conducting a study to identify factors associated with low uptake of pre-exposure prophylaxis among pregnant women attending antenatal care at intermediate hospital Katutura. The purpose of the study is to reduce the risk of mother to child HIV transmission and improving maternal and child health outcomes. Your participation in this study is entirely voluntarily and the session will probably last about 45minutes. May you please comfortable with me, the information that you are going to share today will be kept confidential and not to be shared with anyone except for me and my supervisor prof Mitonga.

Participant: okay, we can start

Researcher: may you kindly introduce yourself, in your introduction kindly only include, your age, marital status, number of children you have, your education level and what you do for a living

Participant: okay, I am 27 years old, I am very much single am not married, I have 4 children, I completed my grade 12 am currently improving at namcor and work as a domestic worker to support myself and the children.

Researcher: okay how long have you been attending ANC at intermediate hospital Katutura?

Participant: for all my pregnancies I have attended ANC here

Researcher: are you aware of pre-exposure prophylaxis known as prep for HIV prevention?

Participant: yes, I am

Researcher: how did you first hear about prep?

Participant: from a family member

Researcher: what source of information about prep are available at Katutura hospital?

Participant: I really do not know.

Researcher: okay have you ever received any information about prep from a health worker provider during your ANC visits?

Participant: no

Researcher: do you feel that you have enough information about prep to understand how it works and its benefits?

Participant: ae no I do not

Researcher: what additional information or education about prep would you find helpful?

Participant: maybe if the health workers talk about prep during their health education every day and its advantages and disadvantages.

Researcher: what are your thoughts about the use of prep by pregnant women to prevent HIV?

Participant: I feel like prep is very useful when it comes to HIV prevention, because some of us our partners do not like condom during pregnancy.

Researcher: okay, do you believe the prep is a necessary and beneficial intervention for pregnant women? Why or why not?

Participant: I believe so, because as I said its very nice to prevent us mothers from HIV that way, we will not give it to our babies/

Researcher: what factors might prevent pregnant women from using prep?

Participant: yooh, I don't maybe people at home or the partner, those people might think we are taking ARVs I heard they are the same/

Researcher: how do you think cultural and social beliefs in your community affect the acceptability of prep?

Participant: yooh like in our ghettos neh ae, people will just laugh at you and we really do not have much of culture there we are mixed.

Researcher: what role do you think family and partners play in the decision to use prep during pregnancy?

Participant: I think they will play a very important role, especially partner if they do not feel like we do not trust them and think about the poor babies that can be born with HIV than it will be very easy to take prep.

Researcher: how can health workers provide better support and encourage the use of prep among pregnant women?

Participant: I think if health workers go in the locations and tell people about prep especial the man, I think it will be better and they must give health education every visit and have it on paper.

Researcher: thank you very much for your time and your insights, do you have any questions or concern?

Participant: no ma'am I don't

Researcher: okay miss I will be on ground floor at the labour ward department if you have any questions or concerns, and here is a pamphlet on prep it's in Oshiwambo and English if you are interested.

Participant: thank you very much

APPENDIX 5: INFORMED CONSENT

UNIVERSITY OF NAMIBIA

20 MAY 2024

1. Informed Consent Form

2. Title of Study: Assessing the Factors Influencing PrEP Uptake and HIV Risk Perception Among Pregnant Women Attending Antenatal Care at Intermediate Hospital Katutura

3. Principal Investigator:

ABNER ELINA

3RD YEAR MPH STUDENT

UNIVERSITY OF NAMIBIA

0814525718

4. Introduction

You are invited to participate in a research study conducted by Abner Elina. The purpose of this study is to identify the factors influencing the uptake of Pre-Exposure Prophylaxis (PrEP) and to assess HIV risk perception among pregnant women attending antenatal care. Your participation will help improve HIV prevention strategies and health outcomes for pregnant women and their babies.

5. Purpose of the Study

The objectives of this study are to:

1. To identify the factors associated with uptake of PrEP by women attending Antenatal care at Intermediate Hospital Katutura.
2. To assess the perceptions of the mothers on the awareness of PrEP among pregnant women attending ANC at intermediate hospital Katutura.

3. To assess the perceptions of the mothers on the acceptability of PrEP among pregnant women attending ANC at intermediate hospital Katutura.

6. Procedures

If you agree to participate in this study, you will be asked to:

- Complete a survey about your awareness, perceptions, and attitudes towards PrEP and HIV risk.
- Participate in an interview to provide more detailed information.
- Allow access to your medical records related to antenatal care for data collection purposes.

7. Duration

Your participation in this study will take approximately [35] minutes for the survey and [40] minutes for the interview.

8. Voluntary Participation

Your participation in this study is entirely voluntary. You may choose not to participate or to withdraw from the study at any time without any penalty or loss of benefits to which you are otherwise entitled.

9. Risks and Benefits

There are no known risks associated with participating in this study. However, some questions may make you feel uncomfortable. You are free to skip any questions that you do not wish to answer. The information gained from this study will contribute to improving HIV prevention strategies and health outcomes for pregnant women.

10. Confidentiality

All information collected in this study will be kept confidential. Your responses will be anonymized, and no identifying information will be included in the study reports. Data will be stored securely and accessed only by the research team.

11. Compensation

There is no compensation for participating in this study.

12. Contact Information

If you have any questions or concerns about this study, please contact:

- Abner Elina, Principal Investigator, 0814525718
- University of Namibia, Oshakati campus 0652232000

If you have any questions about your rights as a research participant, you may contact:

- Ethics Committee chairperson Oshakati campus, Prof Hans J Amukugo, 0652232245

13. Consent

By signing below, you are indicating that you have read and understood this consent form, that you voluntarily agree to participate in this study, and that you are at least 18 years of age.

Participant's Name: _____

Participant's Signature: _____

Date: _____

Researcher's Signature: _____

Date: _____

Thank you for your participation.

APPENDIX 6: INTERVIEW GUIDE

Section 1: Biographical Information

Age**: _____**

Gender**: _____**

Place of Residence**: _____**

Marital Status**: _____**

Section 2: Awareness of PrEP

Main Question 1: What is your understanding of pre-exposure prophylaxis (PrEP) among pregnant women?

Sub-question 1.1: Where did you first hear about PrEP, and what information do you recall?

Sub-question 1.2: How do you think PrEP can benefit pregnant women in your community?

Section 3: Acceptability of PrEP

Main Question 2: How do you perceive the acceptability of PrEP among pregnant women attending ANC?

Sub-question 2.1: What factors do you think influence whether pregnant women would be willing to use PrEP?

Sub-question 2.2: Are there any concerns or beliefs that you think may prevent pregnant women from accepting PrEP?

APPENDIX 7: PROOF OF EDITING

KARIDZA LANGUAGE EDITING AND RESEARCH CONSULTANCY
Box 11728 Oshakati
081737983

12 May 2025

TO WHOM IT MAY CONCERN

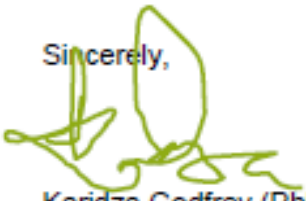
This letter is to confirm that Dr. Godfrey Karidza has provided language editing services for the thesis titled **" Pre-Exposure Prophylaxis Low Uptake Associated Factors Among Pregnant Women Attending Antenatal Care At Intermediate Hospital Katutura."**

This thesis was submitted by **Elina Nyanyukweni Abner,** Student Number **201402181**, in partial fulfilment of the requirements for the Master's Degree in Public Health at the University of Namibia. Dr. Karidza has meticulously reviewed and edited the document to ensure clarity, coherence, and adherence to academic language standards.

If you require any further information, please do not hesitate to contact me.

Thank you.

Sincerely,



Karidza Godfrey (PhD)