RELATIONSHIP BETWEEN SOCIOECONOMIC STATUS AND HUMAN IMMUNODEFICIENCY VIRUS INFECTION AMONGST ADULTS IN SELECTED VILLAGES OF CAPRICORN DISTRICT, LIMPOPO PROVINCE.

by

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[redacted]

MINI-DISSERTATION

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DEDICATION

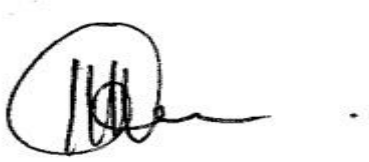
This research is devoted to my dear mother, Emmah Nkhangweni Mbedzi, whose unwavering support and boundless love have been my guiding light throughout this journey. To my only son, Mulinda Isaac Mashamba, you inspire me every day to strive for excellence and to build a brighter future for us all.

I also dedicate this work to the cherished memory of my late grandmother, Makondelele Mbedzi, and my grandfather, Musandiwa Elias Mbedzi. Your wisdom, strength, and enduring spirit continue to resonate within me, shaping the person I am today.

May this research stand as a testament to the sacrifices and love of my family, serving as an inspiration for future generations.

DECLARATION

I hereby declare that the **relationship between socioeconomic status and human immunodeficiency virus infection amongst adults in selected villages of Capricorn District, Limpopo Province,** this work is entirely original with no submissions to other institutions for credit toward a degree or recognition. Every source and reference have been properly cited. I accept full responsibility for the content and conclusions presented in this research.



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ABSTRACT

Background

Globally, the Human Immunodeficiency Virus continues to pose a serious threat to public health. particularly in South Africa, where socioeconomic factors are linked to the prevalence of infection. This study investigates the relationship between socioeconomic status and HIV infection rates in the selected villages of Capricorn District in Limpopo Province.

Methodology

This study employed a retrospective cohort approach using secondary data from HIV testing results and socioeconomic assessments of adults in the in the selected villages of Capricorn District in Limpopo Province. The SPSS version 28.0 was used to analyse the data. 1. The findings and sociodemographic traits pertaining to HIV prevalence are clearly displayed using tables, pie charts, and bar graphs. This study further utilised a multivariate binary regression model to investigate the relationship between HIV infection and various socio-economic factors, including age group, gender, marital status, education level, employment status, financial status, household assets, and SES. The analysis incorporated p-values and odds ratios to evaluate the significance of the relationships between socio-economic variables and HIV status, enhancing the understanding of factors influencing HIV infection within the study population.

Results

The study revealed an overall HIV prevalence of 3.8% in the selected villages of Capricorn District in Limpopo Province falling under DIMAMO catchment area, with higher rates among older individuals, particularly females. The results indicated that higher educational attainment correlates with lower HIV positivity rates, while older adults (ages 45-59) and individuals from economically vulnerable households are at greater risk. Notably, a significant gender disparity was identified, with women comprising 80% of the positive cases. While the data suggested a protective effect of higher education levels against HIV infection, the associations between socio-economic status factors and HIV status were not statistically significant. Economic stability and employment did not demonstrate a clear relationship with HIV prevalence. However, statistical analyses did not reveal significant associations between socio-

economic status variables (education, financial status, or employment and HIV infection).

Conclusion

This study highlights the complex interplay between socio-economic status and HIV infection, suggesting that while certain socioeconomic factors may influence risk, they do not uniformly predict infection rates. Targeted interventions are necessary to address age-specific vulnerabilities and broader socioeconomic challenges to enhance HIV prevention efforts in high-risk populations.

Key concepts

Human Immunodeficiency Virus, Socioeconomic status, DIMAMO Population Health Research Centre, HIV Prevalence.

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DEFINITION OF KEY CONCEPTS

Adult

An adult is defined as an individual over the age of 19, unless national legislation specifies a younger age (World Health Organization, 2016). In this study, adult is a person who is 20 years of age or older living in selected villages of Limpopo Province.

HIV Infection

HIV infection encompasses a range of conditions caused by the virus, from asymptomatic seropositivity to the development of acquired immunodeficiency syndrome (Centres for Disease Control and Prevention, 2004). In this study, HIV infection refers to a spectrum of infections caused by the virus that range from asymptomatic seropositivity to acquired immunodeficiency syndrome amongst adults who are living with HIV in selected villages of Limpopo province.

Poverty

Poverty is the condition where individuals or communities are deprived of the financial means and necessities required for a minimum standard of living (Chen, 2023). In this study, poverty is defined as the situation in which a family's basic needs, such as food, shelter, clothing, and education, remain unmet.

Socioeconomic status

Socioeconomic status is an economic and social combined total measure of a person's economic and social position about others, based on income, education, and occupation (American Psychological Association, 2021). In this study, socio economic status refers to the living standards and conditions of adult who are living in selected villages of Limpopo province.

LIST OF ABBREVIATIONS

AGYW:	Adolescent Girls and Young Women
AIDS:	Acquired Immunodeficiency Virus
ART:	Antiretroviral therapy
HIV:	Human Immunodeficiency Virus
HTS:	HIV testing services
SSA:	Sub-Saharan Africa
TREC:	Turfloop Research Ethics Committee
PHRC:	Population Health Research Centre
UL:	University of Limpopo
UNAIDS:	United Nations Programme on HIV/AIDS
WHO:	World Health Organization

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CHAPTER 1
ORIENTATION OF THE STUDY

1.1 INTRODUCTION

Human Immunodeficiency Virus (HIV) continues to pose a substantial public health concern worldwide. World Health Organization (2020) states that the HIV/AIDS epidemic has expanded rapidly since its onset, infecting over 70 million individuals, and resulting in approximately 35 million deaths. Furthermore, as stated by the World Health Organization (2020), around 37 million individuals worldwide are infected with HIV, of whom 22 million are on treatment. Ransome, Thurber, Swen, Crawford, German and Dean (2018) alluded to the fact that there is no universal pattern, except for several general trends and factors, which may not apply uniformly to all individuals and communities, due to the influence of socioeconomic factors on HIV infection can be influenced by various social, cultural, and contextual factors.

According to Kum (2019), HIV/AIDS is a long-term condition that demands ongoing and comprehensive treatment for individuals living with the virus and further family support in facing their problems such as discrimination, abandonment, lack of worth, and harassment. The World Health Organization (2021) state that HIV has become a chronic condition that can be managed, allowing people to live longer and healthier lives because of antiretroviral therapy (ART). The HIV epidemic impacts not just the health of individuals but also extends beyond that, but it also has an impact on the entire household, communities, and economic growth of nations. Knight-Johnson (2020) posits that nations severely impacted by HIV also experience higher rates of other infectious diseases, such as Tuberculosis.

Socioeconomic status (SES) refers to a person's place in society, which is influenced by factors such as income, educational attainment, and occupation. Worthy, Lavigne and Romero (2022) alluded to the fact that the SES can be classified into three categories which are high, middle, or poor. Mavhandu-Mudzusi and Raliphaswa (2019) discover that poverty, limited education, and unemployment in rural, areas lead women from poverty-stricken families to end up choosing older and rich male partners for survival, putting them in a very compromising state to contract HIV. Mehraeen, Heydari, and Lankarani (2021), discovered that the inability of women and teenagers to negotiate the use of condoms is another factor that contributes to HIV transmission.

Mehraeen et al (2021) further indicated that Sub-Saharan Africa's (SSA) socioeconomic status is a bigger driver of HIV transmission. According to David (2020), current South African research on the link between low SES and adverse health outcomes, including HIV infection, indicates that HIV is more common among women who are impoverished and lack education. The relationship between HIV infection and SES differed by province and by measure of SES. Mabaso, Sokhela, Mohlabane, Chibi, Zuma and Simbayi (2018) stated that in Limpopo province, low or no education and unemployment have been found to be contributory factors to HIV infection. Knowing the key factors that drive HIV transmission is important for prevention. This knowledge empowers individuals to make informed choices regarding their behaviours and practices, ultimately enhancing their capacity to reduce the risk of both acquiring and transmitting the virus. Hence, this study seeks to determine the relationship between socioeconomic status and HIV infections among adults.

1.2 RESEARCH PROBLEM

In 2020, the World Health Organization reported that South Africa is the fourth-highest country in the world for HIV cases, with 19 percent of its population infected. According to the Capricorn District profile and analysis (2021), in Capricorn, there are 70,710 individuals living with HIV, which represents 21.48% of the total HIV cases in Limpopo and 1.68% of the national total in South Africa. It has been found that the prevalence of HIV in DIMAMO Population Health Research Centre (PHRC) was found to be at 1% (DIMAMO PHRC, 2021). Socioeconomic factors such as poverty, limited access to education, unemployment, inadequate healthcare services, and lack of resources can contribute to the spread of HIV. Findings from Alberts, Dikotobe, Choma, and Masemola (2015) study indicated that poverty is a socioeconomic determinant in many rural areas.

In South Africa, the scourge of HIV/AIDS remains a major public health concern, with rural areas like Capricorn District in Limpopo Province experiencing higher rates of infection. Socioeconomic status is a key determinant influencing health outcome, yet its specific impact on HIV infection rates in rural populations remains underexplored. The high HIV prevalence, coupled with socioeconomic challenges, underscores the need for a focused examination of how SES influences HIV transmission in low-income communities. Hence, the above-mentioned socioeconomic factors and the high prevalence of HIV in South Africa have led to the initiation of this study to look at

the relationship between SES and HIV infection in the DIMAMO PHRC, aiming to provide insights for more effective prevention and intervention strategies in low-income communities. HIV/AIDS remains one of the most critical public health issues in South Africa.

1.3 LITERATURE REVIEW

1.3.1 Introduction

Reviewing the literature is crucial for researchers to gain a deeper understanding of the topic under investigation. Machi and McEvoy (2016) describe the literature review as a written work that presents a coherent and well-argued discussion based on a thorough understanding of the existing knowledge on a particular subject. A detailed literature review for this study will be provided in Chapter 2.

1.4 PURPOSE OF THE STUDY

1.4.1 Aim of the study

This study aimed to evaluate the relationship between socioeconomic status and HIV infection amongst adults in selected villages of Limpopo province.

1.4.2 Objectives of the study

- To examine the SES amongst adults who tested positive for HIV in selected villages of Limpopo province.
- To determine the prevalence of HIV amongst adults in selected villages of Limpopo Province
- To determine the association between SES and HIV infection amongst adults in selected villages of Limpopo province.

1.5 RESEARCH QUESTION

What is the relationship between socioeconomic status and HIV infection amongst adults in selected villages of Limpopo Province?

1.6 RESEARCH METHODOLOGY

The research design is the plan a researcher chooses to arrange different parts of the research in a clear and organized way, making sure the research problem is solved properly. It acts as a guide for gathering data, measuring, and analysing (Harish, 2021). The study employs a retrospective cohort approach, utilising an observational quantitative design to examine and describe the relationship between SES and HIV

infection, focusing on how SES influences the likelihood of HIV infection within the observed cohort.

1.7 ETHICAL CONSIDERATIONS

The proposal for the study was submitted to the Turfloop Research Ethics Committee (TREC) for review, and it was accepted. The approval certificate is included in the document as Annexure A.

1.8 SIGNIFICANCE OF THE STUDY

The DIMAMO Population Health Research Centre s located in a rural area and the rural communities are affected the most because of their low SES. The study may help the Department of Health to allocate more HIV services in rural areas, services like HIV mobile clinics and other primary healthcare services. The findings will help in designing prevention services that are suited to the needs of the rural areas.

1.9 OUTLINE OF THE STUDY

1.9.1 Chapter 1: Introduction and Background

Chapter 1 gives the study's background information and outlines the rationale for its necessity. It provides a summary of the research and outlines the organisation of the following chapters including the methods and techniques employed to meet the study's aims and objectives.

1.9.2 Chapter 2: Literature Review

This section looks at previous research related to the studied phenomenon, exploring the connections between relevant concepts. It provides an overview of the current research on the link between SES and HIV infection among adults.

1.9.3 Chapter 3: Methodology

In this section, the researcher describes the methods and techniques used to achieve the study's objectives. Each method is explained in terms of its selection rationale, along with the steps taken for data collection and analysis. The chapter also discusses the precautionary measures implemented to protect secondary data.

1.9.4 Chapter 4: Presentation of Finding

This section presents and interprets the study's findings. It is structured into two main sections: This section discusses and analyses the findings of the study. It is divided into two primary sections: sociodemographic information, which outlines the

socioeconomic characteristics of the participants, and observational findings, which include a multivariate binary regression model and accompanying graphs.

1.9.5 Chapter 5: Summary, Recommendations, and Conclusions

This chapter offers a detailed discussion of the study's findings, focusing on the analysis of the relationship between SES and HIV infection among adults in selected villages of the Capricorn District, Limpopo Province. It also outlines the challenges encountered during the study and provides recommendations derived from the findings.

1.10 CONCLUSION

Chapter 1 concludes by establishes the basis for this research by presenting the background, research problem, and objectives aimed at understanding the relationship between SES and HIV infection in rural Limpopo. This chapter sets the stage for the subsequent chapters, which will further explore the connections between SES and HIV, contributing valuable insights to the ongoing public health efforts in South Africa. The next chapter will provide an in-depth literature review, examining relevant theories, previous research, and key concepts that form the foundation for the research.

CHAPTER 2
LITERATURE REVIEW

2. 1 INTRODUCTION

In this literature review, the researcher will look at the link between SES and HIV infection among adults. The following databases were used to compile the literature review: Google Scholar, Science Direct, and PubMed. The link between SES and HIV infection is intricate and changes across various countries and populations.

Muleia, Boothe, Loquiha, Aerts and Faes (2020) mention that it is commonly believed that women with low SES face increased chance of contracting HIV. The high HIV prevalence among people of low SES is attributed to many factors. Santelli, Chen, Makumbi, Wei and Nalugoda (2021) hypothesised that individuals with lower economic status face a higher risk of HIV infection due to factors such as limited education and income, which decrease the likelihood of acquiring the knowledge needed to engage in safer sexual practices.

Tian, Chen, Wang, Xie and Zhang (2023) indicate that globally, the association between HIV infection and socio-economic factors has changed over time, as sexual behaviours have changed for different socio-economic groups. Burch, Smith, Phillips, Janson and Lampe (2016) study stated that in Europe and the USA, SES such as poverty, low income, and low education level have been associated with HIV prevalence. Furthermore, it was stated in the study that in the USA, HIV is a disease that disproportionately affects those with SES disadvantage. Socioeconomic disparities contribute significantly to the global HIV epidemic, with marginalized men facing higher risks of HIV infection due to economic pressures and lack of awareness (Barker et al., 2020).

The link between SES and HIV infection in SSA is debated due to mixed research findings, according to Adegbosin (2022). The findings also show that community factors affect the risk of HIV infection. This suggests that factors like sexual relationships, cultural norms, beliefs, attitudes, SES, access to high-quality healthcare, and religious values should all be addressed at the individual and community levels.

South Africa is among the countries with the highest impact from HIV/AIDS globally. The quick spread of the disease in terms of socioeconomic level has been attributed to a few social variables. Ramjee, Sartorious, Morris, Wand and Reddy (2019) cite a

number of causes, such as male dominance and gender inequality, violence (including sexual violence), political upheavals, the legacy of apartheid, stigma and discrimination, poverty, the commercialization of sex, ignorance and misunderstandings about HIV/AIDS, and cultural customs and beliefs (Mabasa, Maseko, Sewpaul, Naidoo & Jooste, 2021).

2.1.1 Education as a Contributing Factor to HIV Infection

The general expectation is that HIV rates are lower in groups with higher levels of formal education. However, Adegbosin (2022) suggests that education may not always lead to a reduction in HIV prevalence, especially in underdeveloped and middle-income nations. In contrast, Mabaso, Sokhela, Mohlabane, Chibi, Zuma, and Simbayi (2018) argue that higher educational attainment does contribute to a reduction in the incidence of HIV these countries.

Adegbosin (2022) indicates that for women in Lesotho, higher educational attainment serves as a protective factor, suggesting that education could lower HIV prevalence among women in middle- and low-income nations. Conversely, inadequate education could increase their vulnerability to HIV infection. Hargreave, Davey, Fearon, Hensen and Krishnaratne (2017) observed that in Malawi and Ethiopia, educated women had relatively higher HIV prevalence, while in Zimbabwe, Kenya, and Lesotho, the rates were comparatively lower among educated women. For men, higher education may not always reduce HIV risk, as it can sometimes correlate with riskier sexual behaviours, especially when education does not ensure access to effective HIV prevention programs. However, in South Africa, educated men tend to have lower HIV prevalence, likely due to better healthcare access and increased HIV awareness (Hargreave et al., 2017).

Bunyasi and Coetzee (2017) note that each additional year of formal education was associated with a 10 percent reduction in HIV transmission from mothers to children in the Western Cape Province, although no similar link was found in the Free State Province. They further suggest that while higher education levels helped reduce infection rates in the Western Cape, this was not the case in the Free State. Other factors, such as employment status and education level, also played a role in decreasing HIV infections.

The Hargreaves (2017) study conducted in Malawi and Ethiopia suggests that higher education levels may increase women's risk of HIV infection rather than reduce it. Young individuals from impoverished backgrounds might resort to prostitution to afford their education. While Bunyasi and Coetzee (2017) present mixed results regarding the impact of education on lowering HIV infection rates among women, it is plausible that poverty drives young women to engage in transactional sex as they pursue higher education.

Mabasa et al. (2021) highlight that women are often pushed into early marriages due to poverty, which is compounded by a lack of education. Low SES limits access to education and reduces employment opportunities, making women more reliant on men. They further argue that education is essential for women to protect themselves from HIV infection. This over-reliance on men diminishes women's control over sexual matters, increasing their vulnerability to HIV. In contrast, for men, socioeconomic factors such as education and income can influence their decision-making regarding sexual health, with higher education often associated with greater awareness of HIV risks. However, in some settings, men may experience social pressures that lead to riskier sexual behaviours, despite educational attainment, reflecting the complexity of how education impacts HIV risk for both genders (Marais, 2019).

Kum (2019) suggests that women with higher education levels gain the knowledge needed to make informed choices, which leads to a reduction in HIV infection rates among women from wealthier households. Additionally, Santelli et al. (2021) state that education reduces the likelihood of women engaging in risky behaviors, such as unprotected sex for money, which increases their exposure to HIV.

Karim and Baxter (2019) found that education is crucial in promoting safe sexual practices among men in a widespread epidemic. These practices include having fewer sexual partners, using condoms more frequently, and utilizing sexual and reproductive health services. Makusha, Mabaso, Moyo, Zungu, and Zuma (2022) stress that making sure adolescents finish both school and higher education brings many benefits, such as financial independence and access to HIV information and advice on reducing risks through programs in schools.

2.1.2 Level of Income as a Contributing Factor to HIV Infection

Income is a major factor in determining access to resources, living standards, and general quality of life. It is frequently used to classify people into various socioeconomic groups (low-, middle-, and high-income). Muleia & at al. (2020) evaluated the connection between SES and HIV infection in Mozambique and found that although the prevalence of HIV was comparatively higher in women than in men, it decreased as income levels rose, indicating that poor women were more vulnerable to HIV than wealthy women. Poverty increases the risk of HIV infection in women according to Ekholuenetale, Onuoha, Ekholuenetale, Barrow and Nzoputam (2021). As the study pointed out, women's high rates of poverty prevented them from accessing healthcare, work, and education.

Wealth has an impact on the prevalence of HIV among South African women in the Western Cape and Free State Province, according to Bunyasi and Coetzee (2017). In the Western Cape, they discovered that women in the second-lowest wealth quintile were particularly vulnerable to HIV infection. Wealth disparity is a major factor in HIV infection rates, as evidenced by the fact that women from both provinces who were in the richest quintile had the lowest HIV prevalence. According to the study, women who earn more money and are wealthier may be less likely to contract HIV.

The study by Nakazwe, Fylkesnes, Michelo, and Sandoy (2022) found that in Zambia, HIV rates were highest among women from low-income families and lowest among those from wealthier families. The research also revealed that income levels played a significant role in women's access to HIV information. Similarly, a study by Mabaso et al. (2018) found that higher socioeconomic status helped reduce HIV infection among black South African women. Both studies show that having a higher income can help lower the chances of women getting HIV.

Ramjee et al. (2019) explores the role of poverty in HIV infection rates among individuals with low socioeconomic status living in rural areas of Durban. The study found that poverty led to higher HIV infection rates among women in city areas. It implied low income among urban women in Durban could make them more likely to get HIV, creating a serious health risk.

Income is connected to HIV infection in complex ways. One connection is through income itself, which can have opposite effects. Santelli et al. (2021) note that people

with high incomes often have lifestyles with more sexual partners, increasing their risk of HIV. On the other hand, people with low incomes may struggle to access HIV services, also increasing their risk.

Ranganathan, Knight, Abramsky, Muvhango and Polzer (2021) suggest that young women with low incomes might be more likely to engage in early sexual experiences, have multiple sexual partners, have non-consensual sex, and use condoms less frequently—all of which increase the prevalence of HIV in these women. Lépine, Cust and Treibich (2023) argue that poverty can compel women to participate in transactional sex, increasing their risk of HIV infection. Additionally, poverty may lead women to seek income through prostitution, a factor associated with higher HIV infection rates among women compared to men.

2.1.3 Employment Status as a Contributing Factor to HIV Infection

Employment status is a crucial indicator of economic activity and individual socioeconomic standing. Austin, Choi and Berndt (2017) examined how high unemployment rates among young women in developing nations, ages 15 to 24, affect their lives. The study found that the absence of formal employment led to increased involvement in transactional sex, which in turn heightened their risk of HIV infection. The findings indicated that kind of work, or lack thereof, was a significant factor in HIV prevalence among unemployed women. In contrast, Bunyasi and Coetzee (2017) discovered that employment status was not associated with HIV prevalence among women in either the Free State or Western Cape province.

For men, unemployment can also be a risk factor for HIV, with studies indicating that unemployed men may engage in risky sexual behaviours due to financial constraints or social pressures. Men with stable employment have been shown to have a lower risk of HIV infection, likely due to better economic resources (Mabaso, 2020). Leung, Pant, Bartlett, Esmail and Dheda (2023) consider unemployment status associated with twice the risk of getting HIV infection. Unemployment makes people more at risk of HIV in several ways, such as having fewer resources, which can lead to risky sexual behaviours. These behaviours include having sex with multiple partners for money and using condoms less often, all of which increase the risk of getting HIV.

2.2 CONCLUSION

This study's Chapter 2 concludes with a comprehensive overview of the existing literature on the relationship between SES and HIV infection, particularly focusing on various socioeconomic factors such as education, income, and employment status. The review highlights how these factors contribute to the vulnerability of individuals, especially women, to HIV infection. This review lays the groundwork for understanding the impact of SES on HIV infection and informs the study's subsequent analysis. The upcoming chapter will delve into the methodology of the study, outlining the research design, data collection techniques, and analytical approaches employed.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter's goal is to provide an overview of the research methodology used in the study. According to Sileyew (2019), research methodology refers to the process researchers follow to carry out their study. This chapter details the research design, target population, sampling methods, data collection techniques, and data analysis tools used throughout the study. The study used a quantitative research approach, focusing on the collection of numerical data, with Statistical Package for Social Sciences (SPSS) version 28.0.1 software used for data analysis. The decision to adopt a quantitative approach was influenced by Barroga and Matanguihan (2022), who emphasized that this method is designed to uncover facts, test theories, explore relationships between variables, and predict outcomes.

3.2 RESEARCH DESIGN

Research design is about the whole framework selected by the researcher to systematically incorporate various elements of the research in a logical and cohesive manner. It serves as a plan for collecting, measuring, and analysing data, ensuring that the research problem is effectively addressed (Harish, 2021). The study employed a retrospective study design, where the researcher examined the relationship between SES and HIV infection.

This study employed a retrospective cohort approach where the researcher evaluated whether SES influenced the HIV infection. The researcher reviewed historical data to assess whether the disease risk varied between the exposed and non-exposed groups. All completed records were selected based on the exposure status of the individual. This study design allowed for the examination of whether SES influenced the likelihood of HIV infection by comparing the health outcomes of individuals who had different exposure levels to SES-related factors. Data were collected from DIMAMO Population Health Research Centre (PHRC) records.

3.3 STUDY SITE

This study used secondary data from DIMAMO (PHRC). DIMAMO PHRC operated in all the villages under the Traditional Council of Dikgale, Mamabolo, and Mothiba, which are in the Capricorn District of Limpopo Province, South Africa. The DIMAMO

areas consisted of rural and semi-rural areas; they consisted of 51 villages with approximately 100,000 individuals who were mostly Northern Sotho-speaking. There are 19 public primary and 10 secondary schools across the village, and they belong to Q3 schools. The greater part of black population had low economic status and limited educational attainment. (Mbombi, Muthelo, Mphekgwane, Dhau, Tlouyamma, and Nemuramba, 2022).

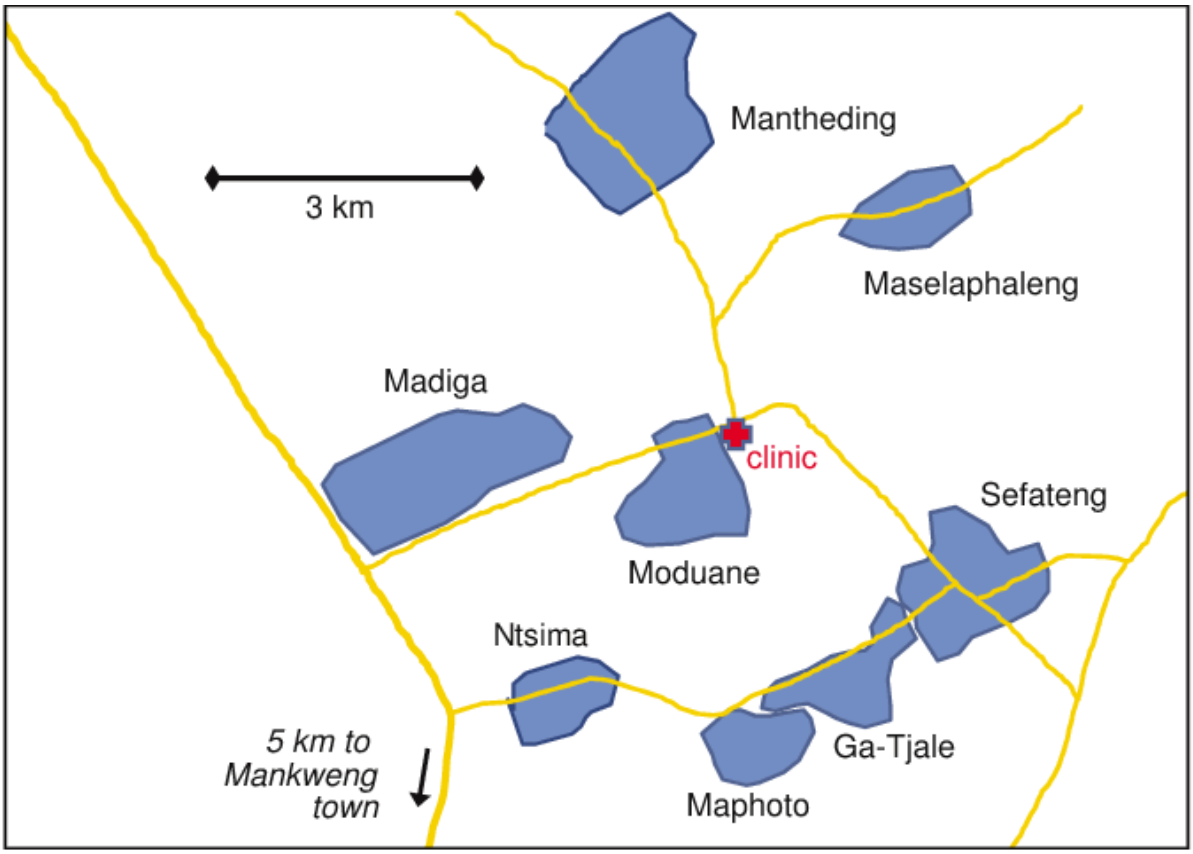

Figure 1.1: Map of the DIMAMO PHRC (Albert, 2015).

3.4 POPULATION

The term population refers to the entire group of individuals that the researcher is interested in studying. who fit the precise parameters established for the research (Brink,2018). The study used secondary data from the DIMAMO PHRC. All data collected from January 2020 to December 2021 under the DIMAMO PHRC that was relevant to the study had an equal chance of being selected.

The records in this study were those of permanent residents of the DIMAMO PHRC catchment area (Figure 1) who were 19 years of age or older and had complete

demographic information, SES, and have tested for HIV under the DIMAMO PHRC. A total of 398 DIMAMO records were sampled for this study.

3.5 INCLUSION AND EXCLUSION CRITERIA

3.5.1 Inclusion criteria

All well-filled records of permanent residents within the catchment area, with demographic data, SES, and HIV testing results under the DIMAMO PHRC, were part of the study.

3.5.2 Exclusion criteria

Incomplete records without HIV testing results that were collected by the DIMAMO PHRC were excluded from the study.

3.6 SAMPLING

Sampling involves selecting a subset of individuals from a larger group, where everyone has an equal chance of being chosen randomly. (Brink, 2018).

3.6.1 Systematic Sampling Methods

The study used secondary data from the DIMAMO PHRC. All data collected from January 2020 to December 2021 under the DIMAMO PHRC that was relevant to the study had an equal chance of being selected. Every 5th record from the beginning of the list was selected. All the records (January 2020 to December 2021) meeting the inclusion criteria were part of the research.

3.6.2 Sample size

The sample was calculated based on the total population of 2000 records. A sample size of 398 records was required for the study, which was calculated based on the Taro Yamane formula (Yamane, 1967).

$$n = \frac{N}{1+\mathrm{N}(e)^2} \qquad n = \frac{2000}{1+2000(0.05)^2}$$

$$n = 398$$

Where:

n = sample size

N= Population size = 2000

e= sampling error (5%)

95% interval are assumed.

3.7 PILOT STUDY

A preliminary study was carried out prior to the main research to refine the data collection techniques. According to Brink (2018) the pilot study was employed to detect any issues and contribute to refining the data collection tool. A pilot study was carried out on 10 completed forms of permanent residents within the catchment area, with full demographic data, socio-economic status, and HIV testing results. The data extraction tool was tested to ensure that all necessary information was gathered and to prevent the unnecessary use of resources on irrelevant data. The results of the pilot were discussed with the supervisor to fine-tune the data collection tool, and it was used to validate the collection tool. The findings from the pilot study were not incorporated into the main study.

3.8 DATA COLLECTION

Data collection is essential to the success of a study as it outlines the method the researcher used to address the research question (Maree, 2016). In this study, the researcher uses secondary data from the DIMAMO Population Health Research Centre. Secondary data refers to information that has already been gathered from primary sources and is made available for researchers to use in their own studies (Brink,2018).

The researcher designed a data extraction tool (Annexure D). The data extraction tool was developed by considering the SES factors of the DIMAMO population, as well as insights from previous studies conducted in rural areas. The data extraction tool was used to pull data from secondary data that fell under the year 2020-2021 period. The data extraction tool was divided into three sections. Section A included demographic data, such as age, gender, level of education, and marital status. Section B included household SES and Section C is HIV testing results.

3.9 DATA ANALYSIS

Data analysis is a statistical procedure that enables the researcher to organise, evaluate, interpret, summarise, and communicate numeric information (Gray, Grove and Sutherland, 2017). In this study, the researcher evaluated the relationship

between the independent SES variables (educational level, household income, marital status) and HIV infection status, which is a dependent variable. The checklist was then translated into Excel and exported to the SPSS for further analysis. The researcher analysed the data using frequency tables and percentages for categorical variables. A Chi-square test was used for contrasting groups for categorical and continued variables, respectively. A p-value of less than 0.05 was regarded as statistically significant, while a p-value of more than 0.05 indicated the absence of any effect. This study utilised a multivariate binary regression model to investigate the relationship between HIV infection and various socio-economic factors, including age group, gender, marital status, education level, employment status, financial status, household assets, and SES.

3.10 VALIDITY AND RELIABILITY

3.10.1 Reliability

Reliability is the extent to which findings hold up over time and fairly represent the total population being studied. According to Chiang, Jhangiani and Price (2015), if a study's results can be replicated using a similar methodology, the research tool is considered reliable. Reliability refers to the consistency of a measurement. To ensure reliability in this study, the data extraction tool was tested at the DIMAMO PHRC before being used in the main study. This pilot testing helped ensure that the tool produced consistent results under similar conditions. Additionally, the data extraction was designed to align with the literature review, ensuring its relevance to the study. By doing this, the study aimed to maintain consistency and accuracy in its findings.

3.10.2 Validity

A study is considered valid if it is properly designed and yields results that can be applied to the target population, according to Chiang et al. (2015). Following the pilot, it was then implemented into the main study area and thus it was noticed to be measuring and responding to research objectives. In this study, the researcher employs the systematic random sampling method, which effectively controls external variables, thereby enhancing the validity of the results. The various types of validation that were performed were content validity and construct validity.

3.10.2.1 Content validity

Content validity assesses the extent to which an instrument thoroughly addresses all relevant aspects of the construct it is intended to measure. Content validity was ensured by doing a pilot study, and the results were discussed with the supervisor.

3.10.2.2 Construct validity

Construct validity was applied to evaluate how accurately a test measures the concept it was designed to assess. Construct validity was ensured by selecting only the data that was useful to the study. There was no amendment to the secondary data, and the study complied with the protocol of the DIMAMO PHRC throughout the process. Furthermore, the researcher applied inclusion criteria to ensure that participants with similar characteristics were included in the study.

3.11 ETHICAL CONSIDERATION

Ethical clearance and approvals to carry out the research were obtained from various authorities at the University of Limpopo. These approvals were essential to ensure that the research was conducted ethically, while aiming for beneficial outcomes. The process began with approval from the Department of Public Health Research Committee (DREC), followed by approval from the School of Health Sciences Research Committee (SREC). The approved document from the SREC was subsequently submitted to the University Research Ethics Committee (TREC), which granted final approval to proceed with the study.

3.11.1 Permission

Once ethical clearance from TREC was issued, the researcher then submitted the letter to conduct the study at DIMAMO PHRC requesting permission to use secondary data. he requests letter is attached as Annexure B. Permission was granted, and the approval letter is attached as Annexure C.

3.11.2 Anonymity

Anonymity refers to protecting the participant's confidentiality during the research project (Pilot and Beck, 2017). To ensure anonymity, the researcher ensured that the data extraction tool did not include names.

3.11.3 Privacy

The identities of the research participants were kept anonymous, even to the researcher of the study. Data was coded, and DIMAMO records were kept secure through password-protected files.

3.12 CONCLUSION

This chapter outlined the study's approach, providing a detailed explanation of its relevance to the research. It also discussed the study design, sampling method, data collection process, and data analysis in depth. Additionally, the section highlighted the validity of the research instrument and the reliability of the findings, emphasizing the importance of the study's methodology. Ethical considerations were thoroughly addressed in this chapter. The next chapter will provide a presentation of results.

CHAPTER 4

PRESENTATION OF RESULTS

4.1 INTRODUCTION

This chapter introduce a detailed explanation of the SPSS version 28.0.1 results extracted from DIMAMO Population Health Research Centre. The chapter is divided into sections, namely: socio-demographic data and data analysis. The results are displayed using bar graphs, pie charts, and tables.

4.2. DATA MANAGEMENT AND ANALYSIS

The sample was composed of 398 records (142 male and 257 female) aged between 15 and 87 years. A total of 384 (96.24%) HIV-negative and 15 (3.75%) HIV-positive participants were involved in the study. Data was extracted from DIMAMO Population Health Research Centre, and the data cleaning process was conducted using SPSS version 28.0.1. The researcher used summary statistics and visualizations to perform a thorough analysis to identify duplicates and irregularities. These cleaning efforts ensured that the dataset was ready for further analysis, thereby increasing the reliability of the findings.

Data entry consistency was verified before importing it into SPSS version 28.0.1 for further analysis. Socio-demographic data was analysed using descriptive statistics, including variables on socioeconomic status. In addition, a multivariate binary regression model was used to examine the relationship between HIV infection and various socioeconomic variables. The model includes age group, gender, marital status, education level, employment status, financial status, household assets, and SES as predictors of HIV infection.

4.3. RESULTS

4.3.1 Socio-demographic data

This section presents the socio-demographic data of the participants, which includes age, gender, marital status, level of education, financial status, household assets and HIV status. These elements offer insightful information. the characteristics of the study population and help contextualize the research findings.

Table 4.1 Socio-demographic data of study participants.

Variables	Frequency	Percent
Age in years		
15-24	118	29,6%
25-34	79	19,8%
35-44	51	12,8%
45-59	67	16,8%
>60	84	20,8%
Gender		
Male	142	35,6%
Female	257	64,4%
Marital status		
Single	275	68,9%
Married	88	22,1%
Divorced	6	1,5%
Widowed	30	7,5%
Level of Education		
Primary level	12	3,0%
Secondary level	375	94,0%
Tertiary level	12	3,0%
Financial status		
Extreme Poverty	13	3,3%
Relative Poverty	44	11,0%
Basic Subsistence	285	71,4%
Economic Stability	53	13,3%
Economic Affluence	4	1,0%
Employment		
Employed	112	28,1%
Unemployed	287	72,0%
Household Assets		

Yes	102	25,6%
No	297	74,4%
HIV Status		
Negative	384	96,2%
Positive	15	3,8%

The majority of participants fall into the 15–24 age group (29.6%) followed by >60 age group (20.8%). The 25-34 and 45-59 age groups also have significant representation (19.8% and 16.8%) respectively. Females constitute a higher proportion (64.4%) compared to males (35.6%). Most participants are single (68.9%), followed by married individuals (22.1%). Divorced and widowed participants are less common (1.5% and 7.5%). The majority of participants have completed secondary education (94.0%), only a small percentage have primary education (3.0%), and a similar proportion have tertiary education (3.0%). The majority of participants fall into the basic subsistence category (71.4%); extreme poverty and relative poverty are relatively low (3.3% and 11.0%). Unemployment is notably high, with 72.0% of participants being unemployed, compared to only 28.0% who are employed. Approximately 25.6% of participants report having household assets, while the majority, 74.4%, do not possess any of the household assets listed in the data extraction tool (Annexure D). These findings provide valuable insights into the study population.

4.3.2 Observational Findings

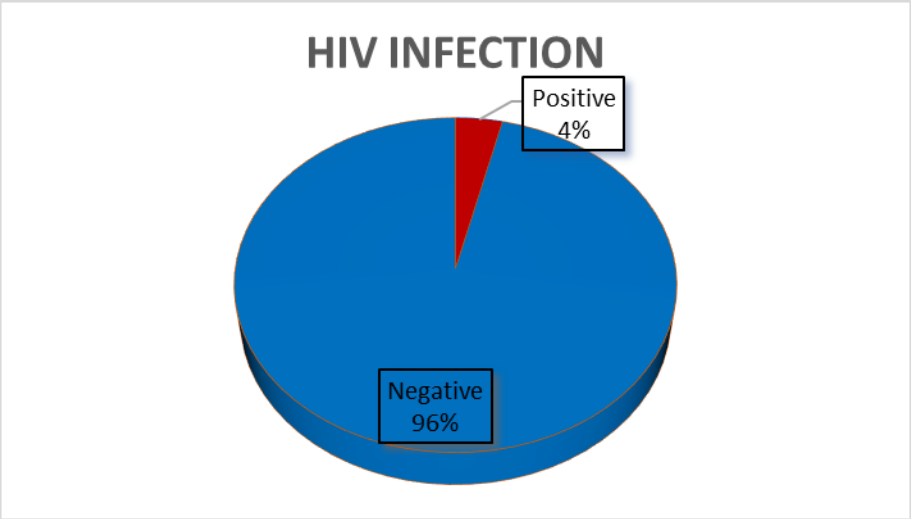

Figure 4.1 HIV prevalence.

Figure 4.6 above illustrates that 96% of the population shown are HIV-negative, and 4% are HIV-positive.

4.3.2 Multivariate binary regression model

Multivariate binary regression model relating HIV infection to socioeconomic variables.								
	B	**S.E.**	**Wald**	**Df**	**P value**	**OR**	**95% C.I.for EXP(B)**	
							Lower	**Upper**
Employment status	-0,369	0,653	0,319	1	0,572	0,692	0,192	2,489
15-24 years			3,035	4	0,552			
25- 34 year	1,678	1,173	2,047	1	0,153	5,354	0,537	53,331
35-44 years	1,68	1,315	1,631	1	0,202	5,363	0,407	70,614
45-59 years	2,028	1,233	2,704	1	0,1	7,596	0,678	85,148
>60 years	1,36	1,311	1,077	1	0,299	3,897	0,298	50,876
Gender [Female (male as reference)]	0,706	0,703	1,01	1	0,315	2,026	0,511	8,032
Marital status								
Single			1,905	3	0,592			
Married	-0,002	0,77	0	1	0,998	0,998	0,221	4,514
Divorced	1,71	1,367	1,564	1	0,211	5,529	0,379	80,624
Widowed	-0,351	1,224	0,082	1	0,774	0,704	0,064	7,758
Education level								

Primary level			0,788	2	0,674			
Secondary level	-1,075	1,211	0,788	1	0,375	0,341	0,032	3,662
Tertiary level	-19,381	10861,31	0	1	0,999	0	0	
Employment status	-0,369	0,653	0,319	1	0,572	0,692	0,192	2,489
Financial status								
Extreme Poverty			7,034	4	0,134			
Relative Poverty	18,009	10656,639	0	1	0,999	66271578	0	
Basic Subsistence	17,582	10656,639	0	1	0,999	43247563	0	
Economic Stability	19,091	10656,639	0	1	0,999	195445802	0	
Economic Affluence	20,118	10656,64	0	1	0,998	545662631	0	
Household Assets	0,591	0,713	0,687	1	0,407	1,806	0,446	7,311
SES Class								
Upper lower class			2,512	2	0,285			
Middle class	1,14	0,863	1,747	1	0,186	3,127	0,577	16,956
Upper middle class	-0,612	0,846	0,523	1	0,469	0,542	0,103	2,847
Constant	-22,321	10656,64	0	1	0,998	0		

Abbreviations: CI, confidence interval; **df**, degrees of freedom; **HIV**, human immunodeficiency virus; **OR** odds ratio; **SE**, standard error; Wald, Wald statistic based on the sample estimate; EXP(B), estimated odds ratio

The above table displays the findings of a multivariate binary regression model that examines the relationship between HIV infection and various socioeconomic variables. The model includes age group, gender, marital status, education level, employment status, financial status, household assets, and SES as predictors of HIV infection. The odds ratio (OR) for HIV infection increases with age. Compared to the reference group (15-24 years), the OR for HIV infection is higher (OR= 7,596) in older age groups. However, the p-values for age groups are not statistically significant (p > 0.05). Females have a higher OR for HIV infection compared to males (OR= 2.026, 95% CI: 0.511–8.032), but this difference is not statistically significant (p= 0.315). Being divorced is associated with a higher OR for HIV infection (OR= 5.529, 95% CI: 0.379–80.624), but again, this result is not statistically significant (p= 0.211).

Secondary education level is associated with a lower OR for HIV infection (OR= 0.341, 95% CI: 0.032–3.662), but this is not statistically significant (p = 0.375). Employment status does not show a significant relationship with HIV infection (p= 0.572). Individuals in relative poverty have a significantly higher OR for HIV infection. Other financial status categories (extreme poverty, basic subsistence, economic stability, and economic affluence) also show significant associations with HIV infection.

The middle class has a higher OR for HIV infection (OR = 3.127, 95% CI: 0.577–16.956), but this is not statistically significant (p = 0.186). The upper middle class does not show a significant relationship with HIV infection (p = 0.469).

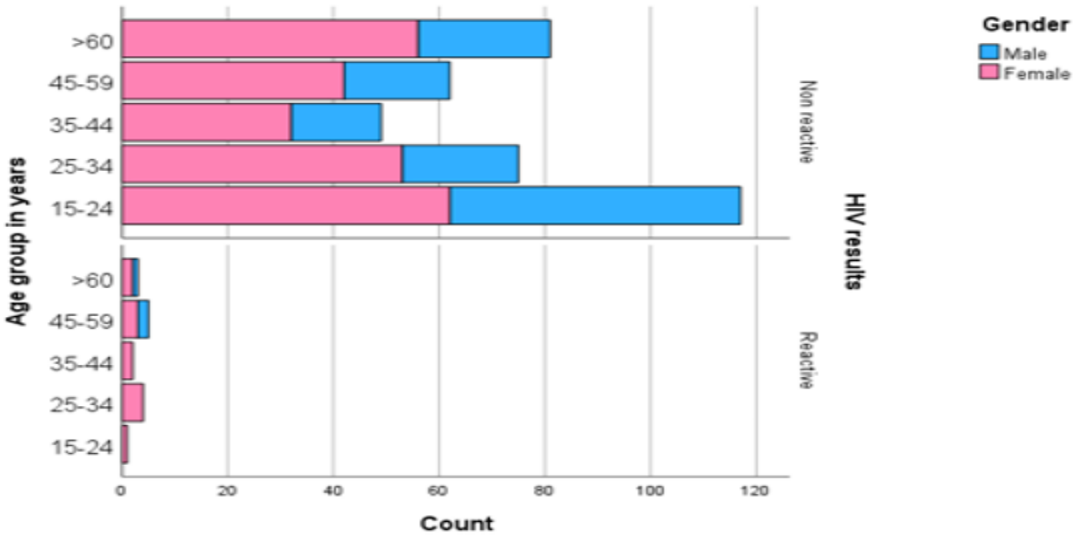

Figure 4.1 Gender distribution by age group based on HIV status.

The bar chart in Figure 4.1 illustrates the distribution of gender by age group according to HIV status. The chart is divided into two sections: HIV non-reactive results and reactive results. The data is segmented by age groups and further distinguished by gender. Across most age groups, males have higher counts of HIV non-reactive cases compared to females. In the 25-34 age group, females have a notably higher number of reactive cases (100%) compared to males (0%). In other age groups, the number of reactive cases is relatively low and shows minimal gender disparity. The chart highlights a significant gender disparity in non-reactive HIV cases, with females generally having higher numbers across age groups. Females exhibit a higher number of reactive HIV cases compared to males.

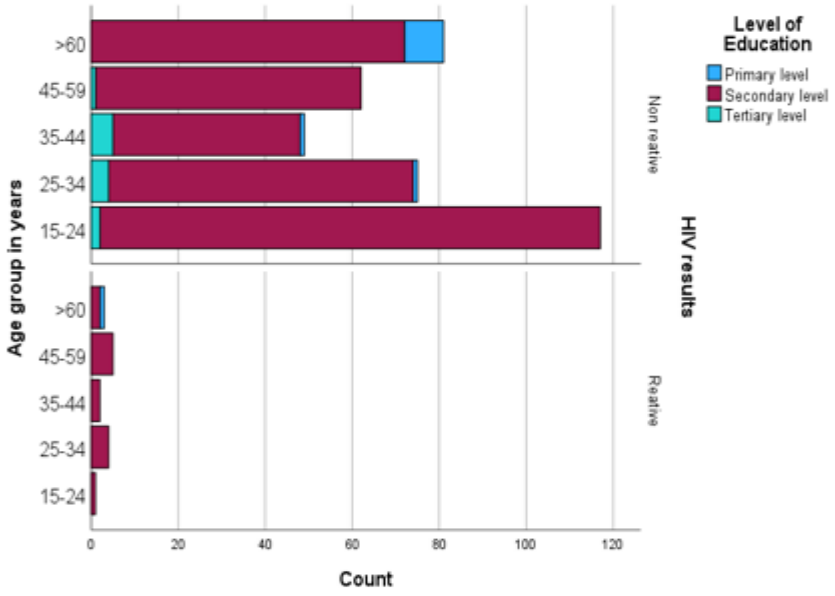

Figure 4.2: Education level distribution by age group based on HIV status.

The bar chart in Figure 4.2 illustrates the distribution of of level of education by age group according to HIV status. The chart is divided into two sections: non-reactive results and reactive results. This graph provides insights into the education levels within different age groups and their correlation with HIV status, showing that tertiary education level correlate with lower HIV prevalence and secondary education level correlate with higher (93,33%) HIV prevalence. Tertiary-educated individuals have the lowest counts of being HIV-reactive (0%), followed by primary education level (6,7%).

4.4 CONCLUSION

This chapter presented the research findings, including socio-demographic data, charts illustrating the HIV infection rate across various parameters, and the statistical significance between HIV infection and socioeconomic status. The research revealed that individuals with tertiary and primary levels of education tend to have a lower prevalence of HIV. The following chapter will provide a discussion of the study findings.

CHAPTER 5
SUMMARY, RECOMMENDATIONS, AND CONCLUSIONS

5.1 INTRODUCTION

The findings from Chapter 4 will be covered in this chapter, relating them to the literature on the relationship between SES and HIV infection in rural areas. The study aimed to assess the connection between SES and HIV infection among adults in selected villages in Limpopo Province.

The objectives were as follows:

- To examine the SES amongst adults who tested positive for HIV in selected villages of Limpopo province.
- To determine the prevalence of HIV amongst adults in selected villages of Limpopo Province
- To determine the association between SES and HIV infection amongst adults in selected villages of Limpopo province.

5.2 SUMMARY AND INTERPRETATION OF RESEARCH FINDINGS

5.2.1. Objective 1: To examine the SES amongst adults who tested HIV positive in selected villages of Limpopo province.

The researcher suggests that education may serve as a protective factor against HIV infection, as HIV positivity decreases with highest levels of education(tertiary). Individuals with secondary levels of education have a notably higher percentage of HIV positivity compared to tertiary level of education. A study by Sutherland et al (2019) in South Africa corroborates this finding, noting that individuals with secondary education are more likely to engage in safer sexual practices and possess a better knowledge of HIV prevention methods. Older individuals, especially those aged 45-59, exhibit a higher rate of HIV positivity. This trend is corroborated by research conducted by Chiao et al. (2018), which suggests that older populations (ages45-59) may face increased risks due to diminished awareness of contemporary prevention strategies, evolving social networks, and greater health vulnerabilities. However, contrasting studies like that of Adebajo et al. (2021) suggest that younger populations (ages 15-24) are more susceptible to new infections due to risky sexual behaviours and lack of comprehensive sexual education.

Households with no assets also show an increased percentage of HIV positivity, suggesting a link between economic vulnerability and higher HIV risk. Moreover, the analysis reveals a gender disparity, with females having a higher percentage of HIV positivity compared to males. A study by Goma et al. (2020) supports these findings, attributing higher infection rates in women to factors such as gender-based violence, economic dependence, and social norms that limit their ability to negotiate safe sex. In this current study, there is no noticeable link between HIV status and financial standing. Kimani et al., (2020) research findings have shown that in SSA, higher levels of education, especially among women, are associated with lower rates of HIV infection. This effect is attributed to better knowledge about HIV prevention, increased empowerment to negotiate safer sexual practices, and improved access to health services.

5.2.2. Objective 2: To determine the prevalence of HIV amongst adults in selected villages of Limpopo Province.

This study revealed the HIV prevalence of DIMAMO is about 3,8%, the highest number of negative results is in the 15-24 age group, while the highest number of positive results is in the 45-59 age group. Overall, the prevalence seems to increase with age. Supporting this observation, a study by Negin et al. (2021) indicates that targeted awareness campaigns aimed at younger populations could be effective. However, it is important to note that the ongoing risk for this age group remains significant. Females have a higher number of both negative and positive results compared to males. This suggests that HIV affects females more than males evidenced by out of the people who tested positive, 80% are females. Additionally, a study by Hladik et al. (2019) supports this finding, emphasising that women often experience higher prevalence rates due to a combination of biological, social, and economic factors. This study showed that HIV-positive rates are notably higher among individuals who are single, with a prevalence rate of 69%, compared to 27% among married individuals.

Education level may impact awareness and prevention. Factors such as access to healthcare, education, and awareness campaigns play a crucial role in determining the prevalence. This finding aligns with Schatz et al. (2020), which identified lower SES as a significant predictor of higher HIV prevalence. Furthermore, it indicated that employment may provide not only financial resources but also access to health information and services, thereby impacting overall health outcomes.

5.2.3. Objective 3: To determine the association between SES and HIV infection amongst adults in selected villages of Limpopo province.

None of the socioeconomic status variables show a statistically significant association with HIV infection in this model. Although some variables show positive or negative associations, the p-values indicate that these associations are not statistically significant, implying that there is no clear evidence from this study that socioeconomic status directly impacts HIV infection rates.

5.2.3.1. Educational level

Education plays a crucial role in HIV prevention. There is no statistically significant association between HIV status and the level of education (P-value=0,674). Individuals with the tertiary education level have no recorded HIV-positive cases, suggesting that higher education might be associated with lower HIV risk. The secondary educational level, which has the largest sample size, shows a moderate HIV positivity rate (3.7%). The primary educational level has the highest HIV positivity rate (8.3%), despite the small sample size. Tertiary levels of education are generally associated with better knowledge about HIV transmission and prevention methods. This suggests a potential protective effect of higher education, aligning with findings by Manyaapelo et al. (2019), who emphasised that education is linked to greater condom use and increased HIV testing. The finding indicates that tertiary education levels may be associated with a lower risk of HIV, possibly due to better access to information, healthcare, and prevention measures. As the level of education increases, the rate of HIV positivity decreases.

5.2.3.2. Financial status

The p-value (0,285) suggests that the link between financial status and HIV status is not statistically significant. This means there is no strong evidence to conclude that financial status is associated with HIV status. Basic subsistence has the highest number of participants (71,4%), but economic affluence has the highest percentage (7,5%) of HIV positivity despite its small sample size. Extreme poverty individuals have no record of HIV-positive cases. This suggests that HIV positivity is not strongly associated with the lowest financial status. Conversely, the lack of HIV-positive cases among the extremely poor in this study suggests that survival strategies in

impoverished contexts may limit risky behaviours, a notion supported by a study by Adebajo et al. (2021) that found economic stress can reduce sexual activity.

However, among higher financial statuses (economic stability and economic affluence), the percentage of HIV positivity increases, which might indicate a complex relationship between wealth and HIV prevalence, potentially influenced by risk behaviour or other factors. This nuanced relationship aligns with research by Schwartländer et al. (2019), which posited that while extreme poverty often correlates with lower HIV prevalence, higher financial status can present different risks.

5.2.3.3 Employment status

The p-value (0 the necessity of implementing social policies that promote better living and educational conditions as well as diversifying HIV prevention tactics.,572), shows that there is no statistically significant association between employment status and HIV status. This suggests that employment status does not have a significant impact on HIV status. The proportion of HIV-positive individuals appears smaller among the employed group (33%) compared to the unemployed group. Despite the higher positivity rate among the employed, the absolute number of HIV-positive individuals is higher in the unemployed group, likely because this group is larger overall. As highlighted in a study by Rispel et al. (2020), informal workers often have limited access to healthcare services and support, which could contribute to higher vulnerability to HIV. The finding suggests that employed individuals have lower odds of being HIV positive compared to unemployed individuals, which means being employed is associated with a lower likelihood of HIV infection. Ndinda et al. (2018) indicated that employment can be associated with better health outcomes, including higher adherence to HIV medication. However, other research by Maughan-Brown et al. (2021), indicates that employment can sometimes lead to higher exposure to risky environments, particularly in sectors with lower health literacy.

5.4 CONCLUSION

HIV infection is influenced by a complex interplay of socioeconomic factors. This suggests that, according to the findings from this study, it suggest that factors may not be strongly related to HIV infection. No strong statistical association was found between SES factors (education, financial status, employment) and HIV infection rates. Factors such as education, income, and access to healthcare can influence HIV

risk; however, these variables do not uniformly predict infection rates across different populations. This complexity suggests that HIV infection is influenced by a multitude of factors beyond socioeconomic status alone, including behavioural, cultural, and structural determinants.

The study highlights the complexity of HIV prevalence and SES factors. While education appears to offer some protective benefits, this was not statistically significant in this study. Many of the programs implemented for HIV prevention primarily target adolescents and youth, often overlooking the needs of the older population. This focus on younger demographics can result in inadequate attention to the specific challenges and risks faced by older adults, which may lead to missed opportunities for effective prevention and care strategies in this vulnerable group.

Although employment status and education level were expected to have an impact on HIV infection rates, the results suggest that neither of these variables significantly influences the likelihood of infection in this sample.

5.5 RECOMMENDATION

To effectively combat the increased risk of HIV infection among people aged 45 to 59, targeted interventions that address age-specific vulnerabilities as well as broader socioeconomic factors are required. Simultaneously, economic stability programs must be implemented to alleviate poverty, which is a major driver of HIV risk. Thurman (2021) highlights various economic interventions that effectively reduce HIV risk by improving financial stability and access to healthcare services in impoverished communities. These programs can strengthen HIV prevention efforts while also addressing critical social determinants of health such as poverty, education, and employment by combining education and economic empowerment initiatives.

This comprehensive approach emphasises the necessity of implementing social policies and diversifying HIV prevention tactics to enhance living conditions, education, and economic stability, ultimately lowering health disparities in the HIV epidemic. Governments and NGOs can better allocate resources by focusing on high-risk groups identified through SES analysis. This ensures that interventions reach those in greatest need, thereby increasing the effectiveness of HIV prevention and treatment programs.

To fully understand the local dynamics of HIV risk in Limpopo Province, it is necessary to investigate factors other than wealth and education, such as cultural practices and gender norms, which play an important role in shaping health behaviours. A better understanding of these factors will enable a more refined reassessment of current HIV prevention efforts, ensuring they are culturally sensitive and tailored to the community's specific needs. Furthermore, addressing issues of service delivery and medication availability is critical for increasing the effectiveness of these interventions. Aligning prevention strategies with local realities can better address the underlying causes of HIV transmission and increase the overall impact of regional public health initiatives.

The study reveals that individuals aged 45-99 exhibit a higher prevalence of HIV compared to younger cohorts, specifically those aged 14-24 years. This finding raises important questions about the effectiveness of current prevention strategies for older age groups, suggesting that these strategies may not sufficiently address the ongoing risks faced by this demographic. Conversely, it appears that current prevention methods are more effective for younger individuals.

Policymakers and public health practitioners can use these findings to design targeted interventions and allocate resources effectively. Further research with a larger sample size or additional variables might be necessary to detect any subtle associations.

5.6 STRENGTH OF THE STUDY

The study utilizes secondary data from the DIMAMO Population Health Research Centre, providing valuable historical and demographic insights into HIV prevalence and its link with socioeconomic status (SES) in rural communities.

The study investigates a variety of socioeconomic factors such as education, financial status, and employment, providing a nuanced understanding of how these factors impact HIV risk.

The study highlights gender disparities, particularly the higher HIV prevalence among women, shedding light on gender-based vulnerabilities and the need for gender-sensitive interventions.

The identification of higher HIV prevalence among individuals aged 45-59 raises concerns about the adequacy of current prevention strategies for older adults.

5.7 LIMITATION

Since the researcher used secondary data collected from the villages of Limpopo Province (DIMAMO) the findings of this analysis may not generalise to populations of other villages of the province. Different villages may have unique SES, and health behaviours that can influence HIV prevalence and the impact of prevention strategies. These factors can vary significantly from one village to another, making it difficult to apply findings from DIMAMO to other areas.

5.8 CONCLUDING REMARKS.

Through these analyses, the researcher demonstrated the relationship between HIV infection and SES in a selected villages in Limpopo Province. Older age and being female are associated with higher HIV prevalence. The multivariate binary regression model suggests that there may be associations between HIV infection and some socioeconomic variables. Socioeconomic factors such as income, education, and poverty play a role in HIV infection risk. Efforts should focus on enhancing education, increasing employment opportunities, and improving access to healthcare services to create a sustainable impact on HIV prevention. Communities need to be empowered by addressing the socioeconomic determinants of HIV to take control of their health. Education and economic opportunities can reduce dependency on high-risk behaviours and promote healthier lifestyles.

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ANNEXURES A: Ethics Clearance Certificate

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Department of Research Administration and Development
Private Bag X1106, Sovenga, 0727, South Africa
Tel: (015) 268 3935, Fax: (015) 268 2306, Email: tukiso.sewapa@ul.ac.za

TURFLOOP RESEARCH ETHICS COMMITTEE

ETHICS CLEARANCE CERTIFICATE

MEETING: 04 December 2023

PROJECT NUMBER: TREC/1766/2023: PG

PROJECT:

Title:	Relationship between socioeconomic status and Human Immunodeficiency Virus infection amongst adults in selected villages of Capricorn District, Limpopo Province
Researcher:	M Mbedzi
Supervisor:	Dr TS Netshapapame
Co-Supervisor/s:	Prof F Matlala
School:	Health Care Sciences
Degree:	Master of Public Health

PROF D MAPOSA
CHAIRPERSON: TURFLOOP RESEARCH ETHICS COMMITTEE

The Turfloop Research Ethics Committee (TREC) is registered with the National Health Research Ethics Council, Registration Number: **REC-0310111-031**

Note:

i) **This Ethics Clearance Certificate will be valid for one (1) year, as from the abovementioned date. Application for annual renewal (or annual review) need to be received by TREC one month before lapse of this period.**

ii) **Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee, together with the Application for Amendment form.**

iii) **PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.**

Finding solutions for Africa

ANNEXURES B: Letter seeking permission from the DIMAMO.

REQUISITION LETTER

DIMAMO Population Health Research Centre

Private Bag X 1106

SOVENGA

1685

University of Limpopo

Turfloop campus

Private Bag x 1106

Sovenga

1685

REQUEST FOR PERMISSION TO CONDUCT THE RESEARCH STUDY

I Mbedzi Muneiwa student number:201116871, a student at University of Limpopo registered for Master of Public Health hereby request permission to conduct a research study in DIMAMO centre. The title of the study is: Relationship between socioeconomic status and HIV infection: findings from a demographic survey in DIMAMO Population Health Research Centre, Capricorn District, Limpopo Province of South Africa.

Your positive response will be highly appreciated.

Thanking you in advance for your assistance.

Researcher's signature: Muneiwa Mbedzi Date.25/04/2023

Cell number : 0813704564/0727314097

E-mail address : muneimbedzi@gmail.com

ANNEXURES C: Letter of approval: DIMAMO

University of Limpopo
Private Bag X1106, Sovenga, 0727, South Africa
University of Limpopo
Tel: (015) 268 4846/4137, Fax: (015) 268 3384, Email: eric.maimela@ul.ac.za

TO:	Student Mbedzi M with student **201116871**
FROM:	Prof E Maimela – Director: DIMAMO Population Health Research Centre
DATE:	19 October 2023

Re: Confirmation of data usage.

The DIMAMO Population Health Research Centre (PHRC) under the University of Limpopo is aware of the acceptance of Ms Mbedzi M to study towards the degree Master of Public Health at University of Limpopo. Therefore, this letter serves to confirm that Ms M Mbedzi, has been granted permission to use data from a cohort that was conducted in DIMAMO PHRC between 2021 and 2022. The requested data is solely for use in her research titled "**Relationship between socioeconomic status and human immunodeficiency virus infection amongst adults in selected villages of Limpopo Province: 2020-2021**". Data usage is limited to her MPH project and related publications and shall be released upon receiving a copy of ethical clearance certificate.

We therefore support to conduct of this study mainly because this is a good initiative for collaboration to increase scientific knowledge around data collected by the research Centre and the study will provide the impetus for public health policymakers in South Africa to address the burden diseases and related factors.

Regards

Director: DIMAMO PHRC
Prof E Maimela

Signature

19 October 2023
Date

ANNEXURES D: Data extraction tool

ANNEXURE D: DATA EXTRACTION TOOL

Instruction: Please tick where applicable

Section A: Demographic data				
Record ID				
Age in years				
Gender	Male		Female	
Level of education				
Marital Status	Single	Married	Divorced	Widowed
Section B: Household SES Please tick only one answer per item				
Occupation of head and spouse of households	Employed			
	Unemployed			
	Grants			
Financial Status	Extreme Poverty			
	Relative Poverty			
	Basic Subsistence			
	Economic Stability			
	Economic Affluence			
Household Assets	Sewing machine			
	Block Maker			
	Car/Bakkie			
	Motorcycles			
	Kombi/Microbus			
	Trucks/Tractor			
	Livestock			
Section C: HIV testing				
HIV testing results	Negative		Positive	