PREVALENCE OF DEPRESSION AND ITS ASSOCIATED FACTORS AMONGST PREGNANT YOUNG WOMEN AT DIMAMO IN LIMPOPO PROVINCE (2021-2022)

by

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MINI-DISSERTATION

Submitted in partial fulfilment of the requirements for the degree of

MASTER OF PUBLIC HEALTH

In the

FACULTY OF HEALTH SCIENCES

(School of Health Care Sciences)

at the

UNIVERSITY OF LIMPOPO

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DEDICATION

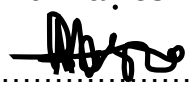
I dedicate this work to my mother Melita Moshia, and my late Father Joel Moshia for the unwavering support that they have given to me during my studies. I also dedicate this work to my wife Florinah Moshia and my son Onthekgile Moshia who continues to support me throughout the academic marathon. To my dearest family members, I say keep that spirit of support.

DECLARATION

I declare that the PREVALENCE AND FACTORS ASSOCIATED WITH DEPRESSION AMONGST YOUNG PREGNANT WOMEN AT DIMAMO IN LIMPOPO PROVINCE, SOUTH AFRICA. Mini dissertation hereby submitted to the University Limpopo, for the degree of MASTER OF PUBLIC HEALTH has not previously been submitted by me for a degree at this or any other University, that it is my work in design and execution, and that all material contained herein has been duly acknowledged.

Mashilo Benjamin Moshia 27/12/2023

Full names Date



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Signature

ACKNOWLEDGEMENTS

First, I would like to thank Jehovah for giving me patience, encourage and wisdom to complete this study. I would like to thank the following people for their contribution towards completing this study.

My supervisor Dr Tshifhiwa Netshapapame: my sincere gratitude for the encouragement, direction, guidance, and continuing support throughout my study period

My co-supervisor Prof: Eric Maimela I extend my sincere gratitude to you for your constant guidance and support.

The young pregnant women who participated in this study

My wife, son and family members who encouraged me to continue with

the study.

Abstract

Introduction: Since depression in young pregnant women affects both mothers and their unborn children, it is a serious public health concern. The lack of thorough research on the subject and conflicting priorities have prevented this from receiving priority intervention in many low- and middle-income nations. It is also believed that the condition does not immediately result in fatalities. Thus, the current study set out to look into the incidence of depression and related characteristics among young pregnant women in the rural Limpopo Province of South Africa's Dikgale, Mamabolo, and Mothapo (DIMAMO) districts.

Methods: This was a retrospective quantitative study which consisted of 352 young pregnant women aged 14 to 22 and the Edinburgh Postnatal Depression Scale (EPDS) was employed in the study to assess depression. Version 27.0 of the Statistical Package for Social Sciences (SPSS) was used to analyse the data. Less than 0.05 was the threshold for statistical significance.

Results: The mean age of young pregnant women was 18.4 years and most of the participants reported that they had financial support. According to the recent study, the majority of young pregnant women had experienced partner domestic violence at 90.9% and their pregnancies were mostly reported as unplanned at 81.8%. Drinking of alcohol and smoking was found to be prevalent amongst young pregnant women. It was discovered that the general prevalence of depression was 42.8%. Drinking alcohol, partner financial support, HIV-positive status and Unplanned pregnancies have been proven to have a strong correlation with depression.

Conclusion: A multifaceted approach that addresses all of the health issues that young pregnant women face is necessary to achieve holistic health, with a focus on mental health, behaviour modification, communication towards a healthy lifestyle, and a supportive social environment where young pregnant women can learn life skills.

Keywords: Depression, prevalence, young pregnant women.

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DEFINITION OF CONCEPTS

Depression: Depression is one of the mood disorders in which depressed one lost interest in their daily activities, feeling of sadness, loss of appetite, feeling of hopelessness, losing self-esteem and confidence (Dali, Baraki, & Akalu, 2020). In this study, depression refers to the depressing and unpleasant feelings that come with being pregnant.

Demographic: relating to the structure of the population (Mccormack, 2023). In this study demographics will refer to the structure of young pregnant women in Dikgale, Mamabolo, and Mothapo area.

Prevalence: The percentage of a given population that has a disease or other health outcome of interest at a given point in time (point prevalence) or over a set period of time (period prevalence) is known as prevalence (WHO, 2022). The percentage of pregnant women who are depressed is referred to as "prevalence" in this study.

Young pregnant women: means a woman determined to have one or more embryos or foetuses in utero (Mccormack, 2023). Being pregnant for the purposes of this study entails having a growing embryo in the uterus and testing positive for beta HCG.

Socioeconomic status: is a comprehensive measure of a person's employment experience, economic access to resources, social standing in relation to others, and family dynamics that combines economic and sociological aspects (WHO, 2022). In this study, socioeconomic status will refer to the living conditions of young pregnant women.

Poverty: a state of being inferior in quality or insufficient in amount (WHO,2017). In this study, people who live in poverty are earning SASSA grants.

Unemployment: the state of someone who is willing to work and actively looking for job but is having trouble finding any (WHO, 2022). In this study, it refers to jobless people.

LIST OF ABBREVIATIONS

AMA:	Average Maternal Age
DIMAMO:	Dikgale, Mamabolo, Mothapo.
DHSS:	Demographic Health Surveillance System
PHRC:	Population Health Research Centre
SES:	Socioeconomic status
SA:	South Africa
SSA:	Sub-Saharan Africa
SASSA:	South African Social Agent
SPSS:	Statistical Package for Social Science

1. CHAPTER 1: ORIENTATION OF THE STUDY

1.1. Introduction and Background

Pregnancy-related depression is still a serious global public health concern, especially in underdeveloped nations (Mohammedahmed, Koko, Arabi & Ibrahim, 2020)."The World Health Organization (WHO), as cited by Salleh (2018), predicts that by 2030, depression will account for the second-highest proportion of the global disease burden and become the leading cause of suicide." In the United States, 194, 377 (18.8%) infants were delivered in 2017 to young pregnant women between the ages of 15 and 19 years. Of these births, almost 82.2 percent happened outside of marriage. Furthermore, young pregnant women who had previously given birth to one or more children have developed depression (16.3%) of all births (Centers for Disease Control and Prevention, 2019). In Latin America and the Caribbean, it was estimated that in 2017 there were 42.5 births per every 1000 young pregnant women aged 15-19 (Deepa, & Hamisu, 2019), the rate which is much higher.

Ajayi & Ezegbe (2020) revealed that young pregnant women from communities where there is sexual violence are more likely to also experience gender-based and sexual violence, have an unintended pregnancy, become vulnerable to HIV, abuse of alcohol and dropout of school. This is further corroborated by a study done in South African primary and secondary schools by Ramalepa et al. (2021), where teachers expressed concerns about the academic performance of young pregnant women, the disruption of learning, school dropout, absenteeism, and the absence of school-based health services to offer teens prevention and support services.

According to data from the United Nations Population Fund and United Nations Economic Commission for Africa 2019, 28% of young pregnant women in Africa suffer from depression (World Bank, 2020). This is more than four times higher than the global average of 6.5% (Statistics South Africa, 2019). Though there is a wealth of research on the danger’s young pregnant women face, little is known about the best ways to keep this vulnerable population's mental health in check. Therefore, the purpose of this study is to ascertain the prevalence of depression and risk factors related with it in young pregnant women at Dikgale, Mamabolo, Mothapo (DIMAMO) in Limpopo Province.

1.2. Problem Statement

The researcher as Lecturers in Capricorn TVET College has over time observed students leaving or bucking class due to calls from their homes about the ill health of their children. Furthermore, young pregnant women were dropping out of their school due to unplanned pregnancies a practice that is escalating to their future endeavours. These challenges faced by the college students are not distal to what is happening in DIMAMO, this predicament has been observed by the researcher since the researcher resides in the DIMAMO precinct.

In the province of Limpopo's state-owned hospitals, 16,238 infants were born to teenagers between April 2017 and March 2018. The second-highest prevalence of teenage pregnancies in South Africa is found in Limpopo, where the rate is rising every day. Teenagers between the ages of 10 and 17 gave birth to 5954 teenage pregnancies in Limpopo in 2020, according to reports (Statistics South Africa, 2020). In the Mopani District, where even teenagers in primary school are becoming pregnant, there is a protest against adolescent pregnancy. Two teens in the 14–16 age range were pregnant in July 2017 at one Mopani elementary school (Department of education Schools Principal Report, 2017), while 37 teenagers in the same vicinity were pregnant at one nearby high school (Department of education Schools Principal Report, 2017).

It has been reported that the prevalence of young women pregnancy is at 39% in DIMAMO villages (Muthelo, Mbombi, Mphekgwana, Mabila, Dhau, Tlouyamma & Maimela, 2022). This prevalence of young pregnant women is worrisome since it is contributing also to the transmission of STIs and HIV. It also affects the academic progression of students who are already coming from impoverished families and hinders them from seeking the transformative tool of education to eliminate poverty. . It is the essence of the above-mentioned that the purpose of this study is to characterize the prevalence of depression and the factors that influence it. The outcome of the study will assist the DIMAMO Research unit to purposively plan their events toward the targeted age group to reduce young women’s pregnancy.

1.3. Aim of the Study

The aim is to Find out the prevalence of depression and risk factors related with depression among young pregnant women in Dikgale, Mamabolo, and Mothapo (DIMAMO) areas.

1.4. Objectives of the Study

- To determine the prevalence of depression in young pregnant women.
- To identify the risk factors for depression in young pregnant women.

1.5. Research Question

What are the risk factors for depression among young pregnant women in DIMAMO regions?

1.6. Literature Review

The description and summary of academic articles and any other pertinent sources to a particular field of study constitute a "literature review" (Fink, 2014). It delivers an overview of the sources that were looked at when researching a certain issue and offers a critical assessment of the research under investigation. It helps to spot gaps in the body of literature, the literature review will be presented and discussed in detail under chapter 2.

1.7. Research Methodology

A quantitative research approach was followed in this current study which is a research approach describing and measuring data based on numbers and calculations (Baimyrzaeva, 2018). Retrospective studies are conducted based on first-hand observations and knowledge from past events. Most of the time, part or all the information has already been collected and is kept in the registry. The study's methodology will be fully described and explained in chapter 3.

1.8. Significant of the study

This study aims to investigate the potential link between depression and young pregnant women and advise the policymakers on targeted campaigns to curb the scourge of young pregnant women that is leading to severe depression amongst young pregnant women. Furthermore, the results of this investigation will add to the corpus of knowledge of Public Health discipline.

1.9. Limitation of the Study

The sample was limited to young pregnant women aged 18 years to 25 years in DIMAMO settings, the findings cannot be generalized to the broad pregnant women of the age group.

1.10. Outline of Chapters

- Chapter 1: contains the background information, research structures, and study introduction
- Chapter 2: In this chapter, the literature review is discussed in relation to the conducted research.
- Chapter 3. The employed methodology and study design are covered in this chapter.
- Chapter 4. The study's conclusions are covered in this chapter.
- Chapter 5. Within the framework of the purpose and objectives, this chapter offers an overview of the findings, restrictions, suggestions, and conclusion.

1.11. Conclusion

In Chapter 1, the researcher gave an overview of the study, its background, the research topic, its aim, its purpose, and its objectives. In Chapter 2, the researcher will offer a comprehensive analysis of the literature.

2. CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

The literature review within a research study intends to contribute towards a more precise comprehension of the nature and significance of a highlighted issue. A literature review enables the investigator to determine the degree to which previous researchers might have researched the same problem and identified similar research questions. It provides the background of existing knowledge, the gaps that exist on the relevant topic as well as findings made by other researchers on similar topics (Mouton, 2001). The researcher used books, articles, reports and statistics on mental health disorders as previously conducted by other scholars or researchers. The digital databases consulted include Google Scholar, Science Direct, PubMed and African Journal Online.

2.2. **The global prevalence of depression amongst young pregnant women.**

Literature from various genres demonstrates how different parts of the world have different rates of prevalence of depression in young pregnant women. It varies from 11.1% to 47.3% in Nepal and up to 43% in Bangladesh in the Asia-Pacific area and it reported at 25% prevalent in Jordan (Habitu, Yalew, & Bisetegn, 2018). In the US, about 1,250,000 young pregnant women become pregnant each year, or 1 in 10. Almost 600,000 of them have children; the remainder had abortions. Millions of young pregnant women are also developing a venereal illness each year, including the dreaded HIV (Alison, 2020). As a result, young pregnant women become depressed because of venereal infections.

Forty million young pregnant women was reported in Pakistan (Sofia,2020). Depression among young pregnant women under the age of 15 years has declined, but it is still common in those between the ages of 17 and 18 years; one in two young pregnant women experience depression before turning 18 years. As a result, 7.7% of all women become depressed before the age of 19, making early depression frequent (Ali, Khaliq, Lokeesan, Meherali & Lassi, 2022). In the Philippines, the incidence of depression among young expectant mothers varied, ranging from 3.5% in the Davao Peninsula Region to 17.9% in the Cordillera Administrative Region (WHO, 2022).

2.3. **The African prevalence of depression among young pregnant women.**

Throughout Africa, there are regional variations in the number of young pregnant women who experience depression. In Nigeria, the rate varies from 6.2% in Niger Delta state to 49% in Abia State. It is between 2.3 and 19.2%, 31%, 20.4%, and 31% in South Africa, East Africa (Kenya), Assossa (Ethiopia), and Sudan, respectively (Habitu, Yalew, & Bisetegn, 2018). Despite government efforts to minimize young pregnant women through sex education and monitoring in elementary and secondary schools, the prevalence of depression among young women pregnant in Rwanda's Eastern Province and Kigali City has been rising (Uwizeye, Muhayiteto, Kantarama, Wiehler, & Murangwa, 2022).

According to research conducted in Ghana's Upper Denkyira West District, 96.3% of young pregnant women were depressed and forced to drop out of school. This prevalence led young pregnant women to develop major depression disorder (Okine & Dako-Gyeke, 2020). In Ethiopia, the EDHS 2019 report indicates that 13% of young

pregnant women had depression (Habitu, Yalew, & Bisetegn, 2018). It differs by place of residence: 15% in rural and 5% in urban. Furthermore, differences exist between the regions; the highest percentage is 23% in Afar, 8% in Amhara, and the lowest percentage is 3% in Addis Ababa (Habitu, Yalew, & Bisetegn, 2018).

In Sub-Saharan Africa (SSA), depression was the most frequently reported mental health problem with limited intervention from health system according to Emmanuel and Kwaku (2022). In Zambia, young pregnant women suffer from depression at a significant incidence, and this is a topic of discussion in the political, social, and cultural spheres. With an estimated 29.2% of young pregnant women in 2018, In Sub-Saharan Africa (SSA), Zambia has one of the highest prevalence rates of depression (Phiri, Kasonde, Moyo, Sikaluzwe, Simon, 2022). In Zimbabwe, among young pregnant women living with HIV, depression during pregnancy it was found to be at present 39.4% of cases (Nyamukoho, Mangezi, Marimbe, Verhey & Chibanda, 2019).

2.4. The South African prevalence of depression among young pregnant women.

In South Africa, many young pregnant women knows their HIV-status during pregnancy, which makes them more vulnerable to depression (Ashorn, Black, Lawn, Ashorn, Klein, Hofmeyer & Askari, 2020). In 2018, more than 17,000 young women become pregnant, primarily in KwaZulu-Natal, the Eastern Cape, and Limpopo (Odimegwu, Amoo, and De Wet, 2018). The number of pregnancies among young pregnant women in Gauteng climbed from 1,169 in 2005 to 2,336 in 2006. In contrast, the rates of young women becoming pregnant in KwaZulu-Natal were reported to be 21.8% in 2002 and 25.8% in 2008 (Odimegwu, Amoo, and De Wet, 2018). The increase rate of young pregnant women were found to be sad, and depressed (Ashorn, Black, Lawn, Ashorn, Klein, Hofmeyer & Askari, 2020). According to Mokhele, Nattey, Jinga, Mongwenyana, Fox and Onoya (2019), the prevalence of depression among HIV-positive young pregnant women was 25% in Gauteng and 48.7% in Mpumalanga (Peltzer, Rodriguez & Jones, 2016).

2.5. Factors associated with depression amongst young pregnant women globally.

Globally, depression affects how pregnant mothers will take care of their infants (Habitu, Yalew, & Bisetegn, 2018). For example, depression may result in several problems, such as decreased breastfeeding, poor nutrition, unfavourable parenting techniques, and worse relationships with the infant, and ultimately leading to suicidal thoughts (Salleh, 2018). Young pregnant women are more likely to have lower educational levels and less job options when they reach maturity due to dropping out of school to nurse their newborn babies (Wong, Twynstra, Gilliland, Cook, & Seabook, 2018).

In Pakistan, young pregnant women were commonly caused by social perceptions of early marriage and lack of knowledge about birth contraception (Sofia, 2020). Another factor associated with depression in Pakistan was due to the social expectation of having a child soon after marriage and the early age of marriage (Ali, Khaliq, Lokeesan, Meherali & Lassi, 2022). Wider sociodemographic and cultural characteristics, including low socioeconomic position, inadequate education for women, and membership in an ethnic or religious minority, have been shown in South Asian research to enhance the frequency of depression among young pregnant women (Ali, Khaliq, Lokeesan, Meherali & Lassi, 2022). In their population-based cohort study, Verbeek, Bockting, Beijers, Meijer, Van Pampus, and Burger (2019) discovered a statistically significant correlation between financial help and depression. Moreover, excessive alcohol consumption and non-use of contraceptives account for most young pregnant women in the UK and the USA (Cook & Cameron, 2020).

2.6. The factors associated with depression amongst young pregnant women in African context.

A study conducted in Malawi indicated that preplanned pregnancies of young pregnant women were associated with a lower incidence of depression (Hall, Barret, Phiri, Copas, Malata & Stephenson, 2016). Failure to use contraception, rape, or not utilizing contraception can also lead to an unintended pregnancy and depression at a later stage. In Ethiopia, the study found that many parents did not educate their young pregnant women about sex and contraceptive use (Habitu, Yalew, & Bisetegn, 2018). In Ghana, intimate partner violence, peer pressure, poverty and low future aspirations have been found to increase the depression's frequency in young expectant mothers. Furthermore, one of the factors that contribute to young women being pregnant is their

inadequate use of contraception, according to a study done in Ghana by Okine and Dako-Gyeke (2020). Nevertheless, a lot of young women who have access to contraceptives decide not to use them because of false beliefs that they will become infertile, cause irregular menstrual cycles, cause weight gain, cause cancer, or make getting pregnant difficult or take a long time. This misperception has led to an increase in young pregnancies in Ghana (Okine & Dako-Gyeke, 2020). In Namibia, Young pregnant women remain a pressing demographic and public health concern. Researchers have found a variety of determinants of young pregnant women, including early sexual activity, low socioeconomic position, not living with parents, and a lack of information about contraception (Nelago, 2020).

2.7. The factors associated with depression amongst young pregnant women in South African context.

In Western Cape, food security, higher rates of consumption of alcohol and low-socioeconomic income have been identified as factors associated with depression in young pregnant women (Maaman-Africa, 2023). Lack of access to healthy and affordable foods, low socio-economic status, high rate of alcohol consumptions, dropping out of school have been linked to high levels of stress, anxiety, and depression (Wu, Harwood, & Feng, 2018; Hawkins & Panzera, 2021).

According to Skosana, Peu, and Mogale (2020), when young women become pregnant, they attribute their pregnancy to a lack of parental guidance, role models, and general knowledge. While lack of negotiation power on the use of condoms is the main cause of pregnancy in young women (Mphatswe, Maise, & Sebitloane, 2016). The study survey conducted by Ramohlola (2021) in the Helene Franz Hospital, Limpopo Province, revealed that individuals without financial support were more likely to experience depression. In the same study, 57% of young pregnant women with depression had been abused by an intimate partner, but 25% of them did not have depression.

However, Mothiba, Muthelo, and Mabaso (2020), concluded that young pregnant women with unplanned pregnancies in Limpopo Province were influenced by a range of life experiences, including feelings of embarrassment and shame, anxieties about rejection from parents and other family members, fears of being teased by peers and

the community, and concerns about the young pregnant woman's parents' possible reactions upon learning of her pregnancy.

2.8. Conclusion

Depression remains a significant public health issue that requires careful attention, according to the literature evaluation. The following chapter will cover the current study's research technique.

3. CHAPTER 3: RESEARCH METHODOLOGY

3.1. Introduction

In Chapter 2, the researcher reviewed the evidence on depression's prevalence and contributing variables from studies conducted globally, in Africa, the Sub-Saharan region, and South Africa. This chapter will address the following topics: inclusion and exclusion criteria, research design, research setting, study population, sampling procedure, pilot study, data collection, data analysis, and ethical considerations.

3.2. Research Methodology

The quantitative research approach was used in this investigation. The focus of quantitative methods is on objective measurements and the statistical, mathematical, or numerical analysis of data gathered via surveys, polls, and other means of gathering information, as well as the use of computer technology to manipulate statistical data that has already been obtained (Tegan 2023). As a result, this method gave the researcher the ability to statistically analyse the frequency with which young pregnant women experience depression in their social environments.

3.3. Research design.

Retrospective cohort design use preexisting secondary research data. Retrospective cohort studies look backwards in time to examine the relationship between the exposure and the outcome. DIMAMO Population Heath Research Centre data files from the 2021 to 2022 which is the timeframe of the study. This method lowers costs and significantly reduces the amount of time between the start of the investigation and the findings presentation.

3.4. **Research settings.**

According to a report by the provincial population and development directorate of Limpopo 2022, exposure to sexual activity and other psychosocial, family, cultural, and economic factors are among the many factors linked to adolescent pregnancy in the province. The current study revealed three economic factors: poverty (61.3%), child support grants (37.0%), and intergenerational relationships (11.8%). Many adolescent females who become pregnant in an attempt to break free from poverty lose out on a once-in-a-lifetime chance to do so via education.

A retrospective assessment was conducted on young pregnant women who gave birth at DIMAMO Health Care Centers in 2021 and 2022. Four categories were identified based on the average mother age (AMA) of these young pregnant women: 14–15 years, 16–17 years, 18–19 years, and 20–22 years. The research was carried out in the South African province of Limpopo in the Dikgale, Mamabolo, and Mothapo (DIMAMO) villages in the Capricorn District. The DIMAMO study area is rural and poorer with a high prevalence of hypertension at 38.2% (Jonas, Crutzen, Van den Corne, Sewpaul & Reddy, 2016). The participants were taken from the following health centres, Makotopong Clinic, Sebayeng Clinic, Mothiba Clinic, Mankweng Gateway Clinic, Evelyn Lekganyane Clinic, Dikgale Clinic, and Mamabolo Clinic. Below is Map areas of Dikgale, Mamabolo, and Mothapo circled with red colour in the figure 1 below.

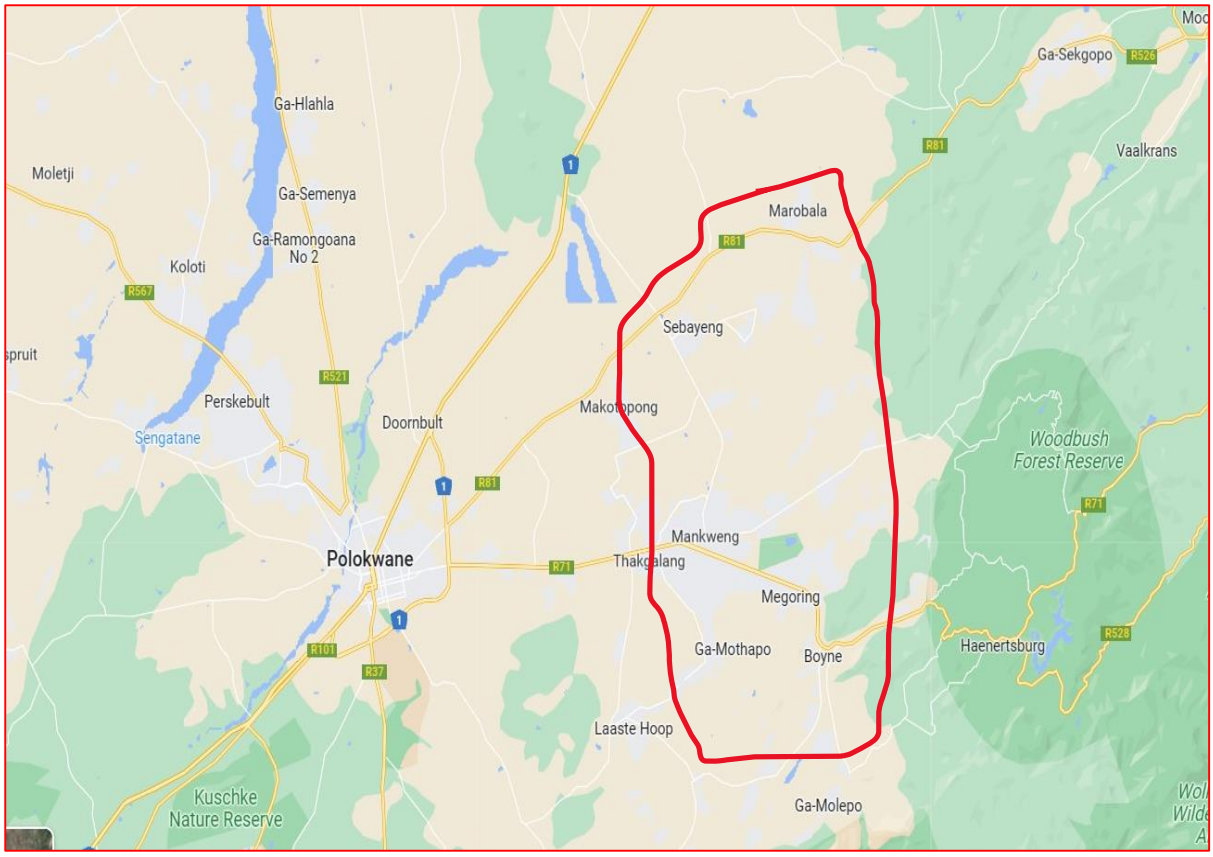

Figure 1: DIMAMO study setting map.

3.5. **Population**

A population is a collection of people who have one or more traits in common, from which information can be collected and examined (Dana, 2020). Approximately 3885 of young pregnant women aged 14 years and above were targeted in this study who participated in the primary study covering DIMAMO catchment area.

3.6. **Sampling**

Sampling refers to taking a small and manageable number of participants who represent a large group of participants (Dana, 2020). A total population of 3885 of young pregnant women participated during the primary study data collection. In this study sample size was calculated using the Taro Yamane formula (Yamane,1967) as explicit below. A sample size of 352 was calculated based on a 95% confidence interval and 5% sampling error.

$$n=\frac{\mathrm{P}}{1+\mathrm{P}(e)^2}$$

Where?

Z is the 95% Confidence interval.

e- is the sampling error or margin of error.

P- is the population size. Where P= (3885)

how is the calculation done?

$$n=\frac{P}{1+P(e)2}$$

$$n=\frac{3885}{1+3885(0.05)^2}$$

n =352.

After the calculation about 352 sample size was found. The total population size of young pregnant women (*P*=3885) was then divided by the sample size (*n*=352) to find K^{th} value which was the interval value; K^{th} value =3885/352=11.03. The systematic random sampling technique was then employed to sample every eleven-participant record that was fully completed. The researcher randomly chose the starting number to be participant record number one (1) that meet the criteria until the total of 352 was reached.

3.7. **Inclusion Criteria**

Participants' records which were fully completed were included in this study.

3.8. **Exclusion Criteria**

Participants' records with missing key information were excluded from this study.

3.9. **Data Collection**

3.9.1 Data Extraction Tool

Data extraction is the process by which researchers obtain the pertinent information about study characteristics and findings from the primary investigations (Dana, 2020). A data extraction tool was created for this study in order to extract information from the primary data. The data extraction tool was developed to extract relevant variables that measure depression and its related factors in young pregnant women as attached **Appendix A.** The data extraction tool had three sections which are section A, B and C. Section A is composed of Age, Education status, Employment status, Drinking alcohol, and Smoking. Section B comprised of depression symptoms such as I have

blamed myself, I have anxiety, I've been depressed, and I have trouble falling asleep. Section C is composed of factors associated with depression such as Alcohol consumption, smoking, partner violence, and HIV status. Thirty-five files were sampled for pilot purposes and the findings of the pilot were shared with the supervisor for data extraction tool refinement.

3.10. Data analysis

Analysing data entails evaluating numerical data and offering an explanation to support the primary conclusions. (Dudovskiy, 2018). In a quantitative study, logical and critical thinking was used to transform raw data from numbers into useful information. The extracted data was entered into a Microsoft Excel Spreadsheet and later exported into SPSS.V.21 for analysis. Mean standard deviations, frequencies, percentages, chi-square and logistic regression statistical tests were used to analysis data. Incomplete or inconsistent records were excluded from the current study.

3.11. Reliability and Validity

3.11.1. Reliability

Reliability is the consistency with which an instrument measures the variables it is intended to measure (Cresswell, 2018). An instrument needs to produce consistent results regardless of whether it is used again or by a different researcher in order to be considered dependable. The data collection tool that was used to collect data was derived from previous studies through a literature review of studies that were conducted in similar settings. A pilot study was conducted in the catchment area using research instruments. During the pilot study, necessary corrections and modifications to the methods were made. A pilot study was conducted amongst pregnant teenagers/parenting which did not form part of the main study. The pilot study assisted the researcher to check the reliability. The results of the pilot study are kept safely in the DIMAMO Population Health Research Centre.

Validity

Validity is the process of determining if a tool for gathering data measures what it is intended to measure (Cresswell, 2018). When a tool is valid, the outcomes accurately represent the idea that the tool was intended to measure. Since the study's goal was to ascertain the prevalence of depression, it was important for the investigator to extract data that would measure depression and its association factors.

There are types of validities in research including content, construct, and criterion validity.

- *Content validity*

Content validity is described as whether a tool steadily and widely measures a representative of the trait (Pandey & Snigdh, 2022). To ensure content validity the data extraction tool was piloted and submitted to the Biostatistician to check if all aspects of the objectives were addressed in the data extraction tool.

- *Construct Validity*

Construct validity is an important factor in the research setting, and the entire questionnaire is designed to assess one or more constructs related to the research problem at hand (Aithal & Aithal, 2020). The data extraction tool was sent to an expert to assess if it is measuring the correct concepts to ensure construct validity.

- *Face Validity*

Face validity is the extent to which an examination or assessment appears to measure the variable or idea that it is meant to assess subjectively (Cresswell, 2018). The data extraction tool was tested for face validity during the pilot study, and the results of the pilot study were used to determine the feasibility of the data extraction tool.

Bias

Bias is an error that can end up providing incorrect results of what is being measured. (Althubaiti, 2016). Bias causes the study's results to be distorted (Galdas, 2017). A researcher's primary duty was to prevent bias by being truthful and transparent, as well as by being true to the facts when extracting, analysing, and interpreting data to prevent drawing erroneous conclusions. Selection and information bias are two examples of the various types of bias.

3.11.2. Selection bias

One type of inaccuracy that might arise from the researcher's choice of subjects is selection bias. It is typically connected to studies in which participants are not chosen at random (Nunan, Bankhead & Aronson, 2017). In this study, selection bias was minimized because random probability sampling was employed in selecting files.

3.11.3. Information bias

The most frequent type of bias that compromises a study's validity is information bias, which is the incorrect categorization of information (data) (Althubaiti, 2016). In this study, information bias was minimized in that the researcher extracted the information that was in the secondary data only without any addition or subtraction of any of the data in the provided datasets.

3.12. **Ethical Considerations**

3.12.1. Ethnical Clearance and Permission

The research proposal was first presented to the Department of Public Health before being sent for review to the University of Limpopo's Faculty of Health Science and School of Health Care Sciences, respectively. Following that, the request letter, ethical clearance certificate, and the permission letter from the Limpopo Provincial Department of Health Research committee was submitted to the Tribal authority manager so that their decision to provide permission to conduct the interviews were informed by the submitted documents.

3.12.2. Privacy and confidentiality

Pseudonyms were used in place of real names in order to protect participant privacy: no personal information related to a participant's health, disability, or any other aspect of their medical history was taken from their files. Information gathered is kept confidential between the researcher and the respondent (Allen, 2017). Only the researcher's supervisors were given access to information from the retrieved data in order to maintain secrecy. To protect the identity of the participant's files, the extracted data was stored in an encrypted password computer.

3.12.3. Addressing harm

The researcher used pseudonyms instead of names to avoid linking of information that may cause harm to participants. Furthermore, all files in the study were handled with strictness to ensure privacy and confidentiality were adhered to avoid harm through the name exposure of participants.

3.12.4. Informed consent

The current study did not need the use of consent forms as no participants was interviewed and the study was using secondary data which was readily available for

use by the researcher. However, a permission to conduct a study in DIMAMO was sought from DIMAMO management (**Appendix B**)

3.14. Conclusion

The research technique for the study on the prevalence of depression and related variables among pregnant women in DIMAMO areas was described in depth in this chapter. There were explanations of the sample strategy, pilot research, inclusion and exclusion standards, data extraction process, and data analysis techniques. The protocols implemented to guarantee validity and reliability, together with ethical issues, were covered. The researcher will give the study's findings in the upcoming chapter.

4. CHAPTER 4: PRESENTATION AND INTERPRETATION OF RESULTS.

4.1 Introduction

This chapter describes the analysis of the secondary data which was extracted from the DIMAMO Population Health to ascertain the prevalence of depression and the risk variables that go along with it in young pregnant women in the DIMAMO catchment areas.

4.2 Data management and analysis

The extracted data was entered into a Microsoft Excel Spreadsheet and analysed using Statistical Package for Social Sciences (SPSS), version 27.0. The socio-demographic data was analysed using descriptive analysis. There were two categories for the data: depressed and non-depressed. Less than 0.05 was the threshold for statistical significance. The accuracy of the records which were retrieved from the patient's records was assessed and it was found that all captured patients' records did have key variables of interest for the current study.

4.3 Research results.

4.3.1. Socio-demographic characteristics of young pregnant women

The study's mean age was 18.4, and the majority of participants were in the 18–19-year age group (43.5%), which was followed by 20–22 years, 16–17 years, and 14–15 years (28.7%, 23.3%, and 5.6%, respectively). These results are shown in figure 4.1 below.

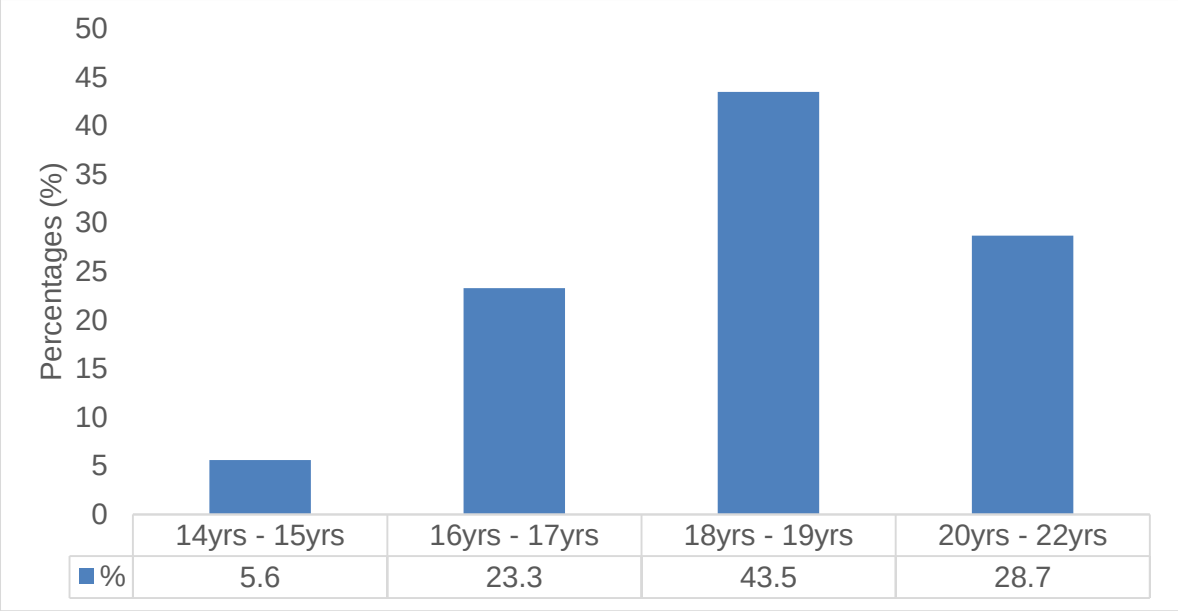

Figure 4.1: Age group distribution of the participants

The sociodemographic characteristics of the participant's records extracted are presented in Table 4.1 below. Ninety-six percent of the young pregnant women were not married and very few were employed at 1.4%. Most participants reported having financial support at 67.1% while only 25% said they hadn't received it. Ninety-one percent of young pregnant women had experienced partner domestic violence. The current pregnancies of the young women were mostly reported as unplanned at 81.8% and the majority of them were HIV negative, with only 4.4% HIV positive or living with HIV.

Table 4.1: General Socio-Demographic and other Characteristics of the Participants

Variable	**Category**	**N**	**(%)**
Marital status	Unmarried	348	96.1
	Married	14	3.9
Employment status	Employed	5	1.4
	Unemployed	356	98.3
Financial support by partner	Yes	243	67.1
	No	118	32.6
Partner violence	Yes	329	90.9
	No	31	8.6
Planned pregnancy	Yes	66	18.2
	No	296	81.8
HIV status	Positive	16	4.4
	Negative	335	92.5

The analysis of the education status of the participants revealed that most young pregnant women had completed formal education, with the majority being found in secondary school at 85.8% followed by the tertiary education level at 10.8%. Those with no education primary education level had a share of 1.7% as presented in Figure 4.2 below.

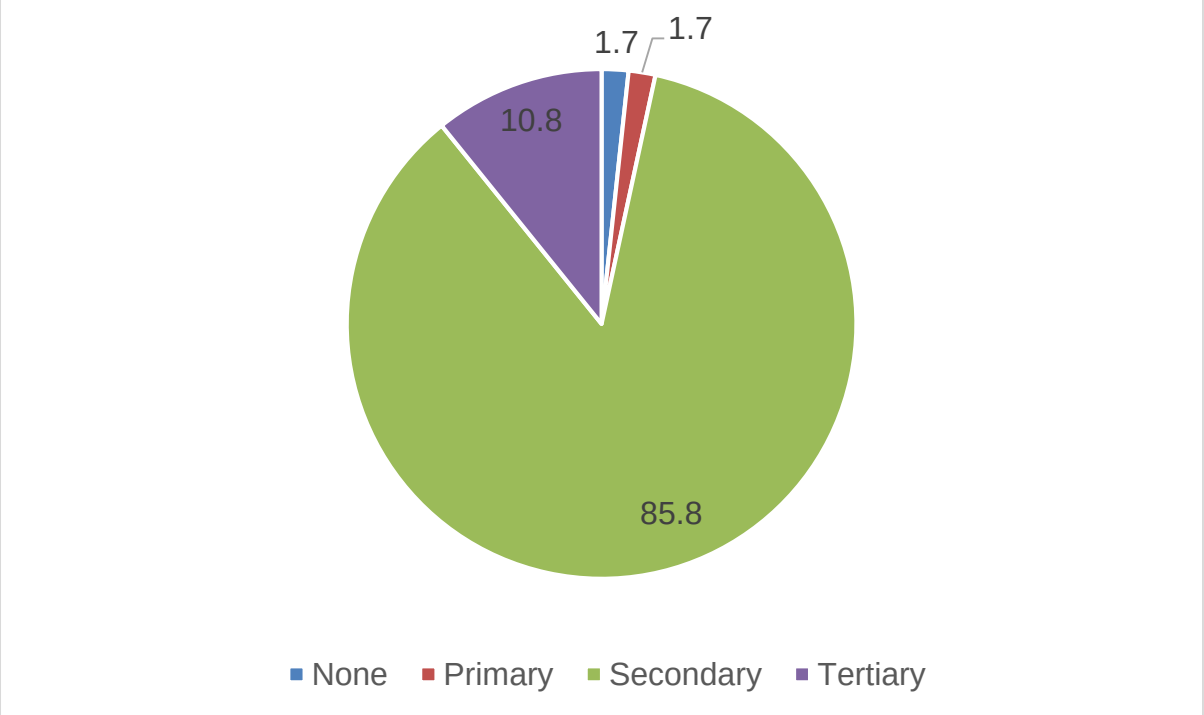

Figure 4.2: Educational status of the participants

4.3.1 Behavioural characteristics of young pregnant women

The following figure, 4.3, shows the behavioural conduct of young pregnant women in relation to the smoking and consuming alcohol. Approximately 16% of young pregnant women had reported to drinking alcohol while only 1.4% reported to be smoking.

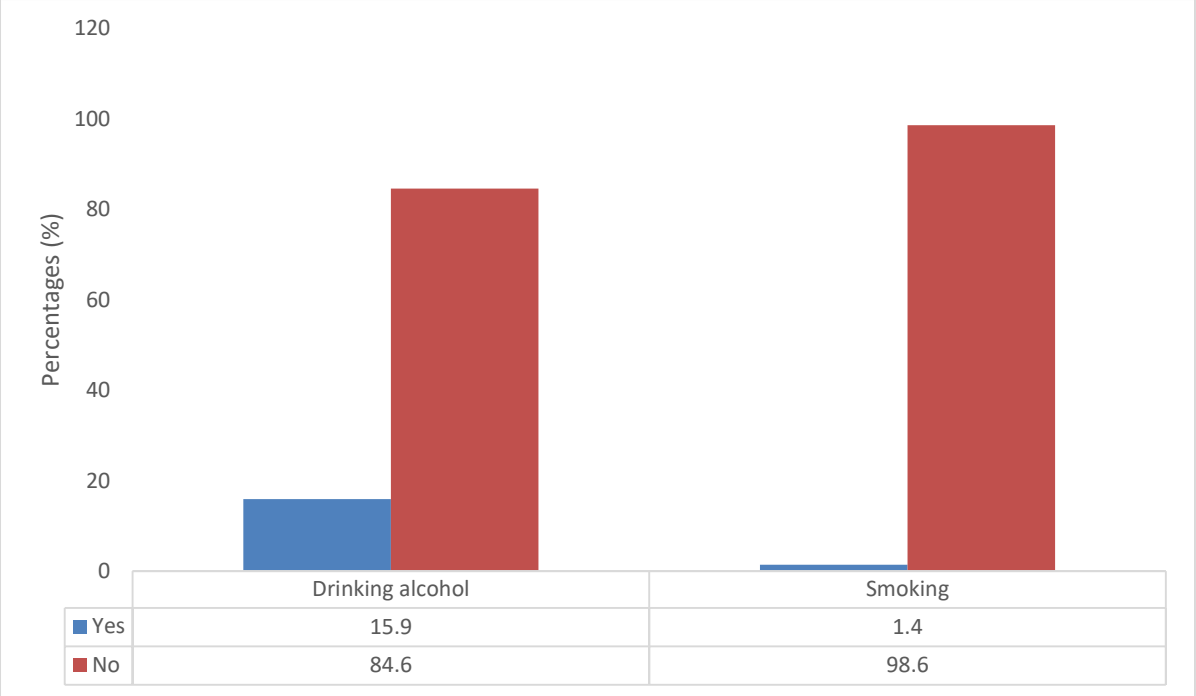

Figure 4.3: Behavioural conduct of the participants in relation to drinking alcohol and smoking

4.3.2 Symptoms used to find out how often depression is among young pregnant women.

Considering the symptoms related to depression It was shown that the majority of young pregnant women could laugh and see the bright side of things to some degree at 74.9% and approximately 45% were anticipating experiencing bliss unlike anything they have experienced before. Approximately 22% of young pregnant women most of the time placed unnecessary responsibility on themselves when anything went wrong while 45.7% never blamed themselves. With regard to anxiety or worrying for no good reason more than half of young pregnant women were not anxious at all while approximately 20% were anxious very often. Approximately 63% of young pregnant women never feeling terrified or froze for no apparent reason while 10.7% felt scared or panicked quite a lot.

Considering the emotional feelings related to depression It was discovered that most of the young pregnant women never felt that things were getting too much for them at approximately 50% while only 20% felt that they were not coping at all. The majority of young pregnant women have been feeling happy and able to sleep at 60.8% while

only 17% felt unhappy and had difficulty sleeping. The majority of young pregnant women never felt sad or miserable at approximately 46% while 17% felt depressed and gloomy. Furthermore, the majority of young pregnant women never felt unhappy and crying at all while only 19% had been crying most of the time and have been so upset. The majority of the young pregnant women never thought of harming themselves at 85.1% while only 5.6% had a thought of harming themselves quite often.

Table 4.2: **Symptoms used to determine the prevalence of depression.**

Able to laugh and see the funny side of things			**Things have been getting too much for me**	
	n (%)			n (%)
As much as I always could	266 (74.9)		Yes, most of the time I haven't been able to cope at all	70 (19.7)
Not quite so much now	47 (13.2)		Yes, sometimes I haven't been coping as well as usual	71 (20.0)
Definitely not so much now	18 (5.1)		No, most of the time I have coped quite well	37 (10.4)
Not at all	24 (6.7)		No, I have been coping as well as ever	177 (49.9)
Looked forward with enjoyment to things			**Been unhappy and having difficulty in sleeping**	
	n (%)			n (%)
As much as I ever did	159 (44.8)		Yes, most of the time	59 (16,8)
Rather less than I used to	61 (17.2)		Yes, sometimes	70 (19,9)
Definitely less than I used to	44 (12.4)		Not very often	9 (2,6)
Hardly at al	91 (25.6)		No, not at all	214 (60,8)
Blamed myself unnecessarily when things went wrong			**I have felt sad or miserable**	
	n (%)			n (%)
Yes, most of the time	79 (22,4)		Yes, most of the time	60 (17.0)
Yes, some of the time	96 (27,3)		Yes, quite often	59 (16.7)
Not very often	16 (4,6)		Not very often	73 (20.7)
No never	161 (45,7)		No, not at all	161 (45.6)
Anxious or worried for no good reason			**Been so unhappy and been crying**	
	n (%)			n (%)
No, not at all	180 (51,1)		Yes, most of the time	67 (19)
Hardly ever	13 (3,7)		Yes, quite often	44 (12,5)
Yes sometimes	89 (25,3)		Only occasionally	56 (16,9)
Yes very often	70 (19,9)		No, never	185 (52,6)
I have felt scared or panicky for no very good reason			**The thought of harming myself has occurred to me**	
	n (%)			n (%)
Quite a lot	38 (10.7)		Yes, quite often	20 (5.6)
Yes, sometimes	78 (21.9)		Sometimes	27 (7.6)

No, not much	15 (4.2)		Hardly ever	6 (1.7)
No , not at all	224 (63.1)		Never	302 (85.1)

4.3.3 Prevalence of depression amongst young pregnant women

A total of 57.2% of people were found to have depression amongst young pregnant women as presented in Figure 4.4 below.

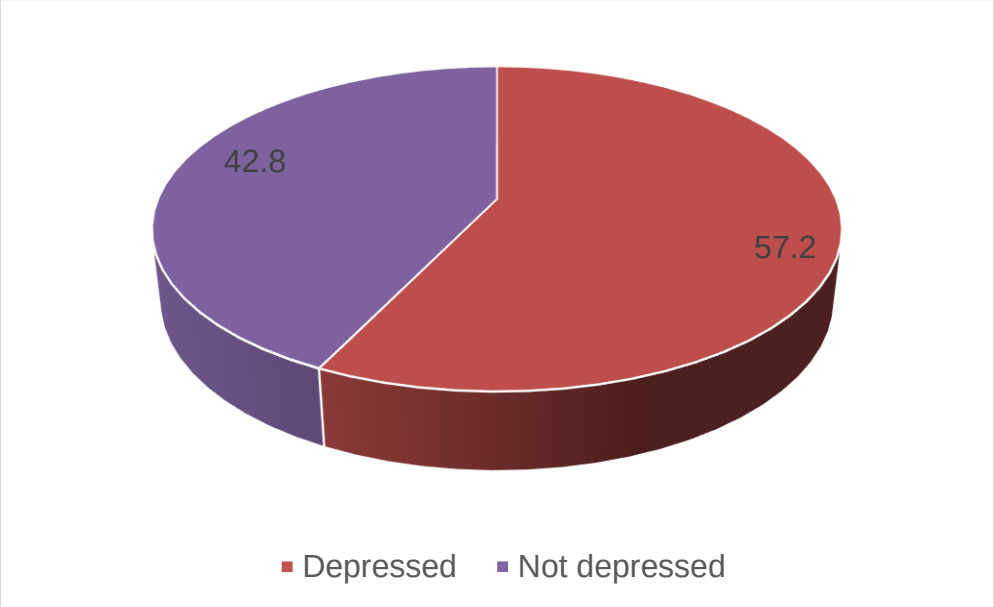

Figure 4.4: The total prevalence of depression among participants

Considering the categories of depression majority of young pregnant women were found to have moderate depression at 47% followed by those who had mild depression at 41% while only 12% were severely depressed as presented in Figure 4.5 below.

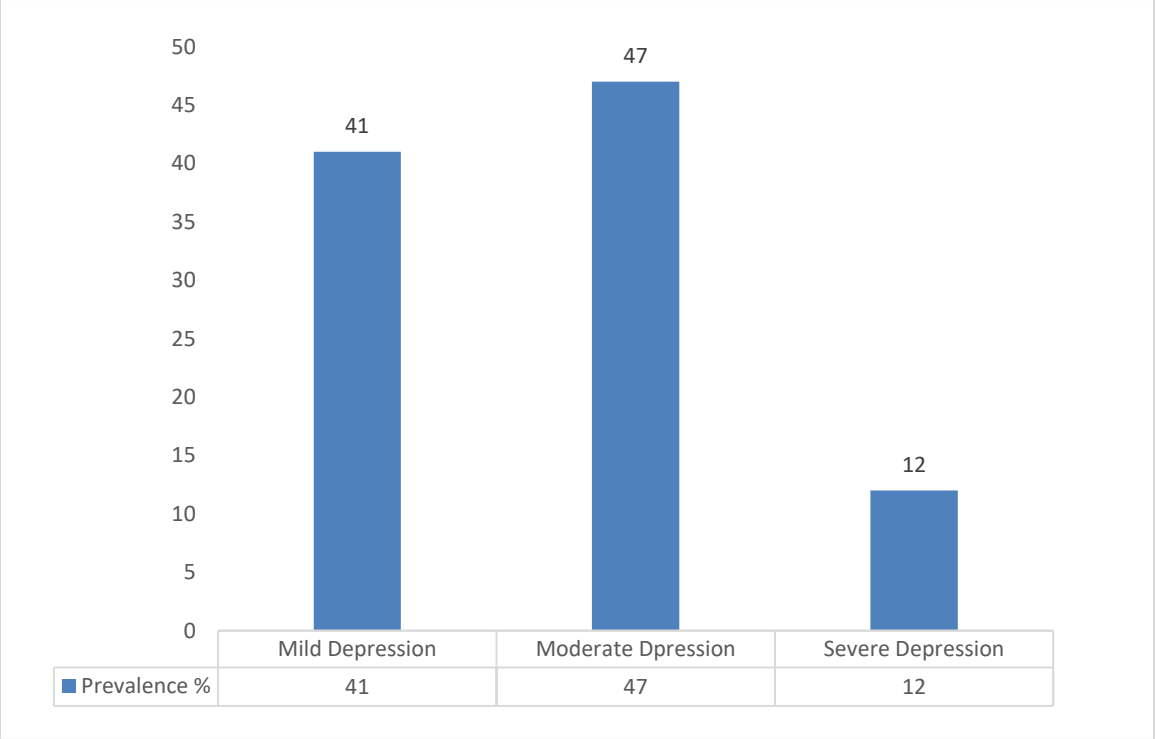

Figure 4.5: Prevalence of categories of depression among participants

It was discovered that the general prevalence of depression increased with age, falling to 39.9% in the age group of 20 to 22 years from 25% in the age group of 14 to 15 years and 47.6% in the age group of 16 to 17 years. A similar trend has been noted in mild depression as prevalence increased from 6.3% between the ages of 14 and 15 years, 24.4% in the 16- and 17-year age group, and 14.9% in the 20- and 22-year age group. The prevalence of moderate depression was 18.8% and 18.3% in the age groups 14 – 15 years and 18 – 19 years respectively then increased to 20.8% in the age group 20 – 22 years. None of the young pregnant women were found to be severely depressed and the prevalence of severe depression was found to be decreasing as one gets older, from 7.3% in the age group 16 – 17 years to 3.9% in the age group 20 – 22 years as shown below in Table 4.3.

Table 4.3 Prevalence of depression stratified by age groups.

	Age in years			
	14 – 15 % (95% CI)	16 – 17 % (95% CI)	18 – 19 % (95%CI)	20 – 22 % (95% CI)
Overall depression	25 (9.7 – 50.9)	47.6 (36.9 – 58.3)	43.8 (36.1 – 51.8)	39.9 (30.5 – 49.5)
Mild depression	6.3 (0.9 – 33.7)	24.4 (16.3 – 34.8)	18.3 (12.9 – 34.8)	14.9 (9.1 – 23.2)
Moderate depression	18.8 (6.1 – 44.9)	15.8 (9.4 – 25.5)	18.3 (12.9 – 25.3)	20.8 (12.9 – 25.3)
Severe depression	–	7.3 (3.3 – 15.4)	7.2 (4.0 – 12.5)	3.9 (1.4 – 10.1)

4.3.4 Factors associated with depression amongst young pregnant women.

Age, educational status, smoking and it was discovered that there was no meaningful correlation between domestic partner abuse and depression. Alcohol consumption during pregnancy was found to increase the risk of severe depression by 1.2 times, with a p-value of 0.004. Young pregnant women who had partner financial support were indicated a 0.4-fold reduction in the probability of being depressed at *p-value =0.001* and moderate depression at *p-value = 0.001* whereas young pregnant women who had partner financial support were found to be 0.3 times less likely to have severe depression at *p-value =0.012*. Young pregnant women who were HIV positive were discovered to have a 6.3-fold higher risk of depression than to HIV-negative young pregnant women at *p-value =0.005* and they were discovered to have a five-fold higher risk of moderate depression in comparison to HIV-negative young pregnant women at *p-value =0.002*. Young pregnant women who had not planned their pregnancy were discovered to have a 0.3-fold lower risk of depression at *p-value <0.001* and they were additionally discovered to have a 0.4-fold lower risk of moderate depression at *p-value =0.039*. As a result, drinking alcohol, partner financial support, HIV positive, and planned pregnancy were discovered to be strongly connected to depression amongst young pregnant women in DIMAMO areas as seen in the following Table 4.4.

Table 4.4**:** Univariate logistic regression to determine predictors of depression.

Variables	Overall depression		Mild depression		Moderate depression		Severe depression	
	OR (CI)	**P-value**	**OR (CI)**	**P-value**	**OR (CI)**	**P-value**	**OR (CI)**	**P-value**
Age								
14 – 16 years	Reference (1)		Reference (1)		Reference (1)		Reference (1)	
≥17 years	0.9 (0.5 – 1.8)	0.864	0.7 (0.3 – 1.5	0.362	1.2 (0.5 – 2.6)	0.730	1.5 (0.4 – 6.8)	0.574
Educational status								
None	Reference (1)		Reference (1)		Reference (1)		Reference (1)	
Primary	9.9 (0.6 – 154.4)	0.099	–	–	2.5 (0.2 – 38)	0.512	–	–
Secondary	3.7 (0.4 – 31.9)	0.237	3.3 (0.5 – 22.9)	0.228	1.1 (0.1 – 9.2)	0.955	0.7 (0.2 – 2.6)	0.642
Tertiary	4.0 (0.4 – 38.0)	0.221	1.5 (0.6 – 4.1)	0.398	1.6 (0.2 – 15)	0.705	–	–
Drinking alcohol								
No	Reference (1)		Reference (1)		Reference (1)		Reference (1)	
Yes	1.4 (0.8 – 2.5)	0.224	1.1 (0.5 – 2.3)	0.757	1.4 (0.7 – 2.8)	0.320	1.2 (0.4 – 3.9)	0.004
Smoking								
No	Reference (1)		Reference (1)		Reference (1)		Reference (1)	
Yes	0.9 (0.1 – 5.4)	0.905	–	–	3.0 (0.5 – 18.4)	0.233	–	–
Partners financial support								
No	Reference (1)		Reference (1)		Reference (1)		Reference (1)	
Yes	0.4 (0.2 – 0.6)	<0.001	0.8 (0.5 – 1.5)	0.563	0.4 (0.2 – 0.7)	0.001	0.3 (0.1 – 0.7)	0.012
Partner violence								
No	Reference (1)		Reference (1)		Reference (1)		Reference (1)	
Yes	1.7 (0.8 – 3.6)	0.152	1.4 (0.6 – 3.3)	0.488	1.1 (0.4 – 2.7)	0.906	2.6 (0.8 – 8.4)	0.102
HIV positive								
No	Reference (1)		Reference (1)		Reference (1)		Reference (1)	
Yes	6.3 (1.7 – 22.5)	0.005	5.0 (1.8 – 14.0)	0.002	1.5 (0.5 – 4.8)	0.490	1.0 (0.1 – 8.1)	0.985
Pregnancy planned								
Yes	Reference (1)		Reference (1)		Reference (1)		Reference (1)	
No	0.3 (0.2 – 0.6)	<0.001	0.4 (0.2 – 0.9)	0.039	0.6 (0.3 – 1.4)	0.265	–	–

Values are reported as odds ratios (95%CI)

5 CHAPTER 5: DISCUSSIONS

5.1 Introduction

The study's goal was to determine the prevalence of depression and its associated risk factors among young pregnant women residing in DIMAMO catchment areas. The research employed a quantitative research study methodology using secondary data. In order to draw conclusions regarding the prevalence of depression and its associated factors among young pregnant women, this chapter highlights the data and debates that have been conducted.

5.2 Demographics of the participants

Extensive attention has been given to young pregnant women in DIMAMO areas and South Africa at large, however, most of young women are still falling pregnant which makes young women's pregnancy a national epidemic (Mothiba & Maputle, 2012). The current study discovered that the general prevalence of depression increased with age, falling to 39.9% in the age range of 20 to 22 years from 25% in the 14- to 15-year-old group to 47.6% in the 16- to 17-year-old group. A comparable pattern in the prevalence of moderate depression has been seen, with rates rising from 6.3% in the 14–15 age group to 24.4% in the 16–17 age group and then falling to 14.9% in the 20–22 age group. In the age ranges of 14–15 and 18–19 years, respectively, the prevalence of moderate depression was 18.8% and 18.3%, respectively, and rose to 20.8% in the 20–22 age group. These results suggest that there is a high prevalence of depression among the respondents. The results of this study are consistent with those of the other study that was done by Redinger et al. (2017) showed that depression prevalence in young pregnant women varies from 21 to 39% throughout the prenatal stage. However, the findings of this study exhibited depression to be lower when compared to the study conducted in Thailand, where 46.8% of young pregnant women had depression (Phoosuwan, Eriksson & Lundberg, 2018).

5.3 Symptoms used to find out how often depression is among young pregnant women.

Major depression can be diagnosed with certainty when symptoms such as weariness, worthlessness, and repeated thoughts of death are present, together with a sad mood and/or loss of interest in activities (Hodgkinson, Colantuoni, Roberts, Berg-Cross & Belcher, 2010). The results of the current study confirm this, as several of the young pregnant women were found to be having symptoms such as blaming themselves

needlessly when the majority of the time things went poorly, others were anxious very often, anxiety or Unfounded concern; and some felt scared or panicked quite a lot. Pregnancy-related depression is frequent; up to 30% of young pregnant women report having severe depressive symptoms (Li, Gao, Dai, Liu, Zhang, Liu & Si, 2020) which has also been evident in the current study.

5.4 The prevalence of depression

In the current, the total prevalence of depression was discovered to be much higher (42.8%) than the prevalence found in a study conducted in Kilimanjaro region, Tanzania at 25% (Ngocho, Watt, Minja, Knettel, Mmbaga, Williams & Sorsdahl, 2019). Africa is considered to have the most prenatal depression prevalence, with evidence that depression affects one in four young pregnant women. This is mainly because young pregnant women experience financial hardships, a history of miscarriages, inadequate family support, past mental health issues, and unfavourable marital circumstances which contribute to a higher risk of depression (Dadi, Wolde, Baraki & Akalu, 2020). Research from low- and middle-income countries (LMICs) has shown that among young pregnant women, anxiety and depression are more common findings that agrees with results of this study (Ngocho, Watt, Minja, Knettel, Mmbaga, Williams & Sorsdahl, 2019)

In the current study, the prevalence of mild depression was found to be 18% which was higher than the prevalence in a pilot study conducted in Bangladesh which reported a 14.3% prevalence of mild depression (Tasnim, Auny, Hassan, Yesmin, Ara, Mohiuddin & Kaggwa, 2022). However, the study carried out in Bangladesh revealed that the incidence of moderate depression was similar at 19%, although the study found that, compared to 2.9%, the prevalence of severe depression was greater at 6%.These differences in depression prevalence could be due to the study population as the study in Bangladesh focused on pregnant women diagnosed with gestational diabetes while this study focused on young pregnant women (Tasnim, Auny, Hassan, Yesmin, Ara, Mohiuddin & Kaggwa., 2022).

5.5 The factors associated with depression.

5.5.1 Alcohol Consumption

The recent study discovered a link between young pregnant women's severe depression and alcohol usage. Depressed individuals frequently use alcohol to lift their mood mainly because alcohol use has traditionally been seen as a coping mechanism for issues that arise sporadically during youth, maturity, and ageing. (Müller, Schumann, Rehm, Kornhuber & Lenz, 2023). It is therefore vital for public health education on the effects of alcohol use in pregnancy to be given to young pregnant women.

5.5.2 Partner Financial Support

Partner financial support was found to be a protective factor for young pregnant women from developing depression, this is corroborated by research done by Umuziga, Gishoma, Hynie and Nyirazinyoye, (2022) given that research suggests social support can be a powerful defence against depressive symptoms. These findings provide evidence that it is key to have strategies to strengthen support for young pregnant women to lessen the prevalence or intensity of mental health issues, such as depression, among young pregnant women. In a study conducted by Ramohlola, Maimela and Ntuli, (2022) It was discovered that having a partner with less education, smoking, intimate partner violence, and a lack of financial assistance from a partner were important predictors of depression which concurs with the findings of this study. In another study conducted in KwaZulu Natal, South Africa it was discovered that pregnant women who had a high level of support from their partners had a lower risk of developing depression (Govender, Naidoo, & Taylor, 2020).

5.5.3 Partner Violence

Governmental organisations have acknowledged that violence against women is a serious social issue (Lima, Tsunechiro, Bonadio & Murata, 2017). In the current study, depression was not found to be significantly associated with partner violence which is contrary to the studies conducted in KwaZulu Natal, South Africa (Govender, Naidoo, & Taylor, 2020). Intimate partner violence during pregnancy is significantly associated with negative outcomes for both mother and child (Da,Tran, Murray & Van, 2022) and The development of depressive symptoms during pregnancy can also be associated with psychological violence, since young pregnant women are more likely to

experience various forms of violence during their pregnancy, with sexual and domestic abuse being the most common (Gaviria, Duque, Vergel & Restrepo, 2019).

5.5.4 HIV and AIDS

South Africa has the highest rate of young pregnancies in the world, and the country also has the largest HIV epidemic, with about 15% of the population (15 years of age and older) living with the virus (George, Cawood, Puren, Khanyile, Gerritsen, Govender & Beckett, 2020.). According to the current study, young pregnant HIV-positive women had a 6.3-fold higher risk of depression than young pregnant HIV-negative women (p-value <0.005). This is corroborated by a study conducted in Namibia amongst Namibian youth which found that HIV-positive pregnant women were at higher risk of developing severe depressive symptoms (Kalomo, Shamrova, Jun, Kaddu & Kalb, 2022). In another study conducted in Malawi, maternal HIV status was significantly associated with the development of depression (Moya, Mzembe, Mwambinga, Truwah, Harding & Ataide, 2023).

5.6 Conclusion

In order to attain the health of young pregnant women in a wholesome manner, a multifaceted strategy encompassing all the health issues facing young expectant mothers, with a focus on mental health, behaviour modification, and communication towards a healthy lifestyle and a supportive social setting. In order to encourage young pregnant women's return to school after giving birth and to promote their educational success, more work may need to be done to address their unmet childcare needs and lack of financial resources.

5.7 Limitations

The possible limitations in the current study could be associated with unclear questions, excluding some forms of discomfort, scoring challenges, validation against a dubious gold standard, limited ability to detect anxiety and depressive symptoms in young pregnant women as the study used secondary data.

5.8 Recommendations

The difficulties that arose from the study's findings and the recommendations offered by the many research that were analysed formed the basis of the study's

recommendations. The suggested recommendations are arranged in the following groups:

5.8.1 Policies

There is a need to have more work in policy development to address the assistance of a larger social network to make up for absentee or unhelpful partners to young pregnant women.

5.8.2 Health facilities

The provision of effective health interventions depends on the availability of high-quality care and medical professionals who are educated to deal with adolescents. Efforts to improve young pregnant women's health systems that are sensitive to the mental health needs of young pregnant women are necessary. There is a need to promote mental health screenings for young pregnant women to detect depression and provide interventions as soon as possible.

5.8.3 Future research

In South Africa and other low-income countries, additional research is necessary to bridge the gaps in knowledge and practice, which could benefit society by helping to improve the health of young expectant mothers and utilising their full potential to boost populations and economies generally.

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7. APPENDICES

APPENDIX A: DATA EXTRACTED TOOLS.

PREVALENCE OF DEPRESSION AND ITS ASSOCIATED FACTORS AMONGST PREGNANT YOUNG WOMEN AT DIMAMO IN LIMPOPO PROVINCE (2021-2022)

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Section A:	**Demographics**						
	A1 Age(years).			Unmarried			
				married			
	A3. Educational level	1	None	**A4.** Employment status		Employed	
						1 unemployed	
		2	Primary			2	
		3	Secondary				
		4	Tertiary				
	A5. Drinking alcohol	1	Yes	**A6.** Smoking		Yes	1
		2	No			No	2

SECTION B	**DEPRESSION SCORE**				
	DEPRESSION SYMPTOMS	**Leve of symptoms**			
		low	**medium**	**Mode rate**	**highest**
	I have blamed myself	**1**	**2**	**3**	**4**
	I have anxious	**1**	**2**	**3**	**4**
	I have been unhappy that I have difficulty sleeping	**1**	**2**	**3**	**4**
	I have been unhappy that I have been crying	**1**	**2**	**3**	**4**
SECTION C	**FACTORS ASSOCIATED WITH DEPRESSION**				
	Alcohol consumption		**1**	**2**	

	Smoking		**1**	**2**	**3**	**4**
	Lack of Parental Guidance		**1**	**2**	**3**	**4**
	Low-socio economic income		**1**	**2**	**3**	**4**
	Partners Financial Support		**1**	**2**	**3**	**4**
	Partners Violence		**1**	**2**	**3**	**4**
	Pregnancy Planned		**1**	**2**	**3**	**4**
	HIV Positive		**1**	**2**	**3**	**4**

APPENDIX B:

LETTER TO REQUEST PERMISSION FOR EXTRACT DATA

P. O BOX 6944

MUSHUNG

0809

mashiloben@gmail.com

UNIVERSITY OF LIMPOPO

DEPARTMENT OF PUBLIC HEALTH

PRIVATE BAG X 1106

SOVENGA

0727

ATTENTION: DIMAMO POPULATION HEALTH RESEARCH CENTRE

REQUEST FOR PERMISSION TO EXTRACT DATA FROM A STUDY CONDUCTED AT DIMAMO RESEARCH CENTRE.

Dear Sir/Madam

I MOSHIA MB student at the University of Limpopo under the supervision of Dr Tshifhiwa Sinky Netshapapame hereby like to request permission to

extract data from a study conduct at DIMAMO research Centre. The title of my research proposal is **PREVALENCE OF DEPRESSION AND ITS ASSOCIATED FACTORS AMONGST PREGNANT YOUNG WOMEN AT DIMAMO IN LIMPOPO PROVINCE (2021-2022).**

The main purpose of the study is to investigate the prevalence of depression amongst young pregnant women in DIMAMO AREAS.

The objectives are to determine the prevalence of depression and factors associated with depression amongst young pregnant women.

I trust that my application will receive your favourable consideration.

Kind regards

MOSHIA MB (200401900).

APPENDIX C: CONFIRMATION LETTER TO EXTRACT DATA FROM 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 Moshia MB with student [redacted]

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 Mr Moshia MB to study towards the degree Master of Public Health at University of Limpopo. Therefore, this letter serves to confirm that Mr MB Moshia, 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 his research titled "**Prevalence of depression and factors associated with depression amongst pregnant young women**". Data usage is limited to his 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 — 19 October 2023

Prof E Maimela — Signature — Date

APPENDIX D: TREC APPROVAL LETTER

University of Limpopo
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: 26 SEPTEMBER 2023

PROJECT NUMBER: TREC/1566/2023: PG

PROJECT:

Title:	Prevalence of depression and its associated factors amongst pregnant young women at DIMAMO in Limpopo Province (2021-2022)"
Researcher:	MB Moshia
Supervisor:	Dr TS Netshapapame
Co-Supervisor/s:	Prof E Maimela
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.

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APPENDIX D: TIME FRAME

The researcher will use the following time frame to work on the research:

ACTIVITY	July 2022	August 2022	September 2022	October 2023	November 2023	December 2023
Submission of Proposal to School of Health Sciences	x					
TREC Clearance		x				
Data extraction			**x**			
Data analysis				**x**		
Report writing of results based on data Collected & Final submission to supervisors.					**x**	**x**